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*Transformative Teacher Education in  
Local and Global Contexts*

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## EDITOR'S COLUMN

This issue of the WFATE Journal is the first compilation of papers from the fifth biennial conferences of the World Federation of Associations for Teacher Education held in Melbourne Australia. The focus of the conference, *Transformative Teacher Education in Local and Global Contexts*, is the central organizing theme for these proceedings. Each presentation/article has been blind, peer-reviewed. It is great to have authors who are thoughtful and creative and who trust the process to work well. My thanks to the members of the Board of Directors (listed below) and to our proposal reviewers. Maxine Cooper, Jenene Burke, and Joan Steward along with many of their colleagues in Australia prepared a wonderful experience for all of the attendees at the fifth biennial conference of the World Federation of Associations for Teacher Education (WFATE), held in Melbourne, Victoria, Australia, from 9th-11th July 2018.

For more information about the World Federation of Associations of Teacher Education, please go to our website: <https://www.worldfate.org>.

It is the mission of the World Federation of Associations of Teacher Education to build a global community of teacher educators and to promote trans-national collaboration, support, and research and development in teacher education.

### Aims

1. To establish a worldwide community for teacher education
2. To promote the development of teacher education associations throughout the world by:
  - a. Creating cooperative networks between teacher education associations
  - b. Sharing information, resources and expertise
  - c. Supporting countries and regions in developing teacher education institutions
3. To represent the interests of teacher education associations to international bodies and organizations
4. To provide equitable educational opportunities by promoting quality teacher education throughout the world

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**ADDENDUM/CORRECTION:**

Victor Maiorana responded to the survey that Drs Maxine Cooper and Joan Stewart distributed earlier. That survey was the basis for the essay published in the Journal of the World Federation of Associations for Teacher Education. The essay, BUILDING A GLOBAL NETWORK IN TEACHER EDUCATION: PROFESSIONAL REFLECTIONS ON THE EXPEDITION, by Maxine Cooper & Joan Stewart can be found in Volume 2, Issue 2 on pages 18-33. We are including this information at his request.

*The material at the bottom of page 23 and most of the material on pages 24 and 28 was contributed by Victor P. Maiorana. It is based on his work in minimizing roteism instruction through the origination of the conceptual, developmental, and procedural means for a core body of knowledge for critical instruction for use in teacher education, professional development, and the writing of textbooks.*



**Jenene Burke, PhD**

Associate Dean (Teaching Quality), Federation University Australia  
Conference Convenor, WFATE 2018

Melbourne, as the location for the World Federation of Associations for Teacher Education (WFATE) fifth biennial conference, lived up to its colonial label of ‘Marvellous Melbourne’ by providing a captivating setting for the conference. Yet it was the investment and engagement in the conference by colleagues from around the world that made it a special event that is likely to remain in the minds and the hearts of delegates for many years to come.

This edition of the WFATE journal features the first release of papers from the WFATE 2018 conference which was held from July 9 to 11 at the impressive Australian Catholic University’s Melbourne Campus. WFATE 2018 attracted over 100 submissions for presentations, symposia, workshops and posters from educators from 24 countries, on a vast array of topics within the field of teacher education, under the conference theme “Transformative teacher education in local and global contexts”. This response translated to approximately 100 delegates attending the conference, more than half coming from outside Australia. The WFATE Board of Directors were the primary reviewers of the conference proposals. Particular acknowledgment must be made of the contribution of Dr Ann Shelly and Dr Jim Alouf for their coordination of the peer review process and fast turn-around of proposals and to Dr Shelly for her work in producing the journal.

A consortium of four Victorian-based universities Federation University Australia, Deakin University, Australian Catholic University and Victoria University collaborated in the planning of the event over a period of two years. The conference Executive Planning team consisted of Associate Professor Jenene Burke, Associate Professor Maxine Cooper, and Executive Officers, Hailey Wood and Briony Cleveland from Federation University Australia, Associate Professor Linda Hobbs and Associate Professor Diane Toe from Deakin University, Dr Mellita Jones, and Dr Josephine Ryan from Australian Catholic University and Associate Professor Tony Watt, and Associate Professor Marcelle Cacciattolo from Victoria University. WFATE Business Officer, Jim Alouf, Sweet Briar College, USA, Executive Secretary, Ann Shelly, Ashland University, USA and WFATE President, Mireia Montanè, University of Barcelona, Spain, were heavily involved in planning the event from the WFATE executive.

Conference delegates were treated to three thought-provoking and challenging keynote addresses. Professor Julian Sefton-Green, Professor of New Media Education at Deakin University, revealed the transformative nature of digital technologies across the globe and discussed the potential impact of change on children's lives and their learning. His presentation "Teachers, schools and the everyday digital: an awkward and uneven process of change" was the first presentation. On the second day, Professor Tania Aspland, Dean, Education Policy and Strategy, at Australian Catholic University and President of the Australian Council of Deans of Education, charged teacher educators to address the challenges of the present and future by reconceptualising how teachers and teacher educators are positioned within their profession, or risk obsolescence. Her keynote was titled "Transforming teacher quality in Australia: Dilemmas, contradictions and possibilities for teacher education". Faye Snodgress, Executive Director of international honour society in education, Kappa Delta Pi, presented the keynote on day three on "Sustainable development goals in teacher education". Ms Snodgress introduced delegates to three key program design strategies for preparing learners for future challenges. The three strategies are focusing on improving outcomes for all students, supporting the development of a sustainability worldview, and using learner-centered pedagogies.

For the first time, WFATE held Research Development Groups (RDGs). These groups were recently enshrined in the WFATE constitution. Ten groups convened at the conference with several groups deciding to put forward a proposal to become an endorsed WFATE RDG.

The final day of the conference was designated as Higher Degree and Education Student Day and PhD students vied for the inaugural WFATE Doctoral Poster Award. Overall, it was a very successful event with six PhD students presenting their posters. In a high-quality and competitive field, the overall winner was Lawry Mahon from Victoria University for his poster "Investigating the Story Writing in Remote Locations (SWIRL) program.

The conference social events led a group of delegates to travel to wintery Ballarat, in the Central Highlands of Victoria, for encounters with native wildlife at the Ballarat Wildlife Park, and to one of the most heralded tourist destinations, Sovereign Hill. Sovereign Hill featured a 1860's school-house with a severe school mistress who insisted that children were able to write with pen and ink and sit in rows in height order. The 'Christmas in July' sound and light show, complete with artificial snowflakes, was baffling for our Northern Hemisphere guests who found the desire of Australians for a winter Christmas in the middle of the year to be somewhat bemusing. The post-conference event involved an excursion to 'Top Arts', an exhibition at the National Gallery of the most celebrated work by Victorian final year Secondary students in visual and creative arts. This visit was followed by a train trip to 'Sunshine Gallery' in the suburb of Sunshine where host Dr Maureen Ryan presided over the launch of a book featuring children's artwork on the theme "Neighbour day".

The 2018 Melbourne conference signified the first time for the conference in Australia. Previous biennial conferences, dating back to 2010 have been convened in Spain, China, Kenya and the United States of America. The sixth WFATE biennial conference is to be held again in the USA,

in Houston, Texas in November 2020 under the theme “Social Justice in Education. Celebrating diversity, inclusion and interculturalism in our global society”. Colleagues with an interest in teacher education are warmly invited to assemble in Houston for what promises to be an event that will build on the momentum of previous biennial meetings.

In the following pages, the first selection of papers from WFATE 2018 are provided for the interest, enjoyment and stimulation of readers. Thanks, and congratulations are extended to the contributors on the publication of their papers. While the conference provided a unique opportunity for Australian teacher educators to meet with their international counterparts to consider, discuss and debate local and global issues that impact on their work, this journal builds on the conference momentum by reaching out to the broader global online WFATE community.



## **EDUCATION FOR SUSTAINABILITY: THE PATH TO A BETTER FUTURE**

**Faye Snodgress  
Kappa Delta Pi**

*This paper is an adaptation of the keynote address at the WFATE Conference in Melbourne. Faye Snodgress is the Executive Director of Kappa Delta Pi, an international education honor society. Kappa Delta Pi (KDP), International Honor Society in Education, was founded in 1911 to foster excellence in education and promote fellowship among those dedicated to teaching. For over a century, the Society has consistently grown, starting with a local chapter to become the international organization it is today, with an initiated membership that exceeds 1.2 million.*

### **ABSTRACT**

*To address the workforce needs of the 21st century and, increasingly, the global challenges of climate change, pedagogies, and curriculum are changing in classrooms around the world.*

## **EDUCATION FOR SUSTAINABILITY: THE PATH TO A BETTER FUTURE**

To address the workforce needs of the 21st century and, increasingly, the global challenges of climate change, pedagogies, and curriculum are changing in classrooms around the world. An example of some of these changes can be found in a Midwestern urban public school's kindergarten class. While the students were outside for recess, they noticed cicada shells on the ground. They showed them to their teacher, who suggested that the class investigate what they are, where they came from, and so on. Over the course of the next 3 weeks, the students learned about insects and how they are declining in numbers in urban areas due to the lack of access to decaying wood, as well as the impact fewer insects is having on birds and the larger ecosystem. Armed with an understanding of the importance of a healthy environment, the students decided that they needed to act. They designed an insect hotel made of chicken wire, old wood, and other materials that their parents then helped to build. It now hangs outside on the school wall. The children routinely look to see how many and what kinds of insects are using it. This project provides an excellent example of the scientific process, evidence of the students' natural curiosity, and the approach to education in which we are invested. The question for educators is how to make this approach the norm and not the exception.

### **ADVANCING SUSTAINABLE EDUCATION**

The use of project-based learning and the incorporation of the environment are components of sustainable education, which also includes skills in systems thinking, the development of a global mindset of equity, and an examination of the values and lifestyles that are necessary to have a sustainable future. Kappa Delta Pi (KDP), an international honor society in education, is focused on advancing the integration of sustainable education in PreK–16 education.

KDP's legacy and values underlie its decision to embrace sustainable education. The Society was established in 1911 at the University of Illinois to recognize excellence in education and to enhance the professional growth of educators. Core values of the organization have been, and continue to be, leadership, service to humanity, and equity. It has been an inclusive organization since its founding 107 years ago. The Society has 40,000 members in 23 countries and is a presence in 660 teacher preparation programs and professional communities. Those educators who are part of the KDP community are diverse, ranging from preservice teachers and practicing professionals to administrators and teacher preparation faculty, as well as educators from other fields, such as the medical profession.

In 2008, Kappa Delta Pi became an NGO of the Department of Public Information of the United Nations. This relationship has profoundly influenced the work and strategic goals of KDP. The organization's current strategic plan focuses on getting quality candidates into the profession, ensuring they are well prepared, and supporting them in their induction into the profession and beyond. Given the increasing number of teachers leaving the profession in the United States, KDP's efforts are focused on retaining newer teachers, especially in high-poverty urban and rural schools. Data from a fall 2017 membership survey revealed that preservice teachers, practicing professionals, and teacher educators all agreed that teachers are not fully prepared

when they enter the classroom, and they identified specific areas where additional training would have been helpful. The data is being used to direct the development of professional resources and services.

Of KDP's three strategic goals, it is the goal relating to sustainable education that is at the center of its current efforts. The urgency of addressing issues around sustainability and the lack of integration of sustainable education, especially in U.S. schools, are some of the factors that led to the focus on sustainable education.

*Sustainability* is an ancient concept that reflects a concern for the long-term availability of those things most important for the preservation of life. The ideas that underlie sustainability are nearly universal in the human experience and can be found in Chinese philosophy as early as 400 B.C.E. Today, the term sustainability often refers to the idea of *meeting the needs of the present without compromising the ability of future generations to meet their own needs* (Brundtland, 1987). Thus, sustainability focuses on the interconnectedness of social systems, economic systems, and environmental systems. KDP is particularly interested in the areas where these systems overlap and in the places where all three intersect.

This conception of sustainability underlies the idea of *sustainable development* and is the foundation of the new sustainable development goals that were ratified by the United Nations in 2015. The Sustainable Development Goals (SDGs), are a universal call to action to end poverty, protect the planet, and ensure that all people enjoy equity, peace, and prosperity.

## **ROLE OF EDUCATORS IN SUSTAINABILITY**

These 17 goals build on the successes of the Millennium Development Goals, with the addition of new areas such as climate change, peace and justice, economic equity, and responsible consumption, among other priorities. It is Goal #4—"to ensure inclusive and equitable quality education and to promote lifelong learning opportunities for all"—that speaks to the work of educators.

### *United Nations Sustainable Development Goals*

The United Nations 2015 Sustainable Development Goals are arguably the most comprehensive set of measurable indicators for assessing the state of the world. The issue of sustainability isn't just about technology, systems, housing, and so forth. It is very much about the battle for equity and fairness. There is no sustainable world that could be made around inequity, and there is no inequitable world that people would want to sustain, anyway.

Humans have been digging a hole for themselves as a species for a very long time but, in just the last 50 to 70 years, the damage humans have done has become what appears to be catastrophic if allowed to go much further.

The UN's Global Education Monitoring Report is its tool for measuring the integration of Education for Sustainable Development (ESD) around the globe. An earlier 2016 report showed that *only* by achieving Goal #4 can the other 16 goals be achieved. It will be impossible to

accomplish the Sustainable Development Goals unless education systems around the planet make the values and outcomes embodied in SDG 4 a high priority. Not only are the Sustainable Development Goals broad and audacious, but they also demand a tremendous sense of urgency and a need for clarity in delivering these challenging interdisciplinary targets.

In reviewing the SDGs, very limited advice is provided regarding the role of teacher preparation programs other than the “aim to supply graduates with the readiness and capacity to teach sustainability and global citizenship in schools,” as stated in the 2017/18 *Global Education Monitoring Report*. With that said, teacher preparation programs around the world are currently subject to scrutiny regarding the mastery of content, especially literacy and numeracy, and particularly in the United States. Being put under this microscope adds to the pressure on faculty members to prepare beginning teachers to assume responsibility for teaching across the curriculum.

Before examining sustainable education and teacher preparation, a review of a few of the statistics from the 2017/18 Report about where the world is in terms of global education would be helpful. Some of these figures are so large that they are difficult to internalize, but they clearly point to the challenges of illiteracy, lack of access to safe schools, and inadequate supplies and books.

- 264 million primary- and secondary-age children and youth are not in school.
- About 387 million children of primary age or 56% did not reach the minimum proficiency level in reading.
- Fewer than 1 in 5 countries guarantee 12 years of free and compulsory education.
- In Sub-Saharan Africa, only 22% of primary schools have electricity.
- In half of the 148 countries, less than three-fourths of primary schools have access to drinking water.

### *Teaching Practices*

Going back to education Goal #4, teacher education institutions play a critical role in the work of reorienting education systems at all levels to address sustainable development. They have the primary responsibility for preparing new teachers, delivering professional development, and conferring advanced degrees to veteran teachers. They are a major influence on the education that is delivered in primary and secondary schools. Yet, in many societies around the world, including the United States, ESD is still not a mandated area in teacher education. In the United States, there are just a few exceptions, with Washington State being the best example. Even in countries like Scotland, where sustainable education has officially been integrated into PreK–16 education, policies and teaching standards alone have been insufficient in bringing about transformational practices or pedagogies, particularly at a time when teachers are subject to increasing external accountability. Also, with teacher educators often having autonomy in what they teach and how they train teachers, the focus on ESD can, and often is, limited and ad hoc in nature.

When people think about Education for Sustainable Development, what often comes to mind is a long list of related topics and issues or, often, ESD is equated with multi-faceted environmental education. As a result, teachers sometimes believe they are unable to incorporate

sustainable education into their daily teaching practice because they are being held accountable to an already-overcrowded curriculum to which new content cannot possibly be added. The skills that many teachers have mastered are concentrated on sharing content knowledge with their students and primarily using textbooks, rather than employing constructivist, learner-led pedagogical approaches.

However, one of the most significant findings to emerge from the UN Decade for Education for Sustainable Development, which preceded the creation of the 17 SDGs, is that ESD is as much about pedagogy as it is about content. ESD is not about adding new content; rather, it involves a variety of pedagogical practices that enable students to develop the kind of thinking, collaboration, and problem-solving capabilities they will need to meet the various challenges they will encounter as adults, or even before. In fact, the instructional practices associated with sustainable education have the very real potential to reframe the curriculum in ways that will improve educational outcomes for all content areas.

These are practices that help learners to develop a global mindset of equity, to become critical thinkers and problem solvers—or as they might be called, “Solutionaires”—as they strive to identify solutions to authentic problems in their communities.

## **CORE PROGRAM DESIGN STRATEGIES**

Three core program design strategies exist for reorienting a teacher-education program to address sustainable education. These are program design strategies that can be applied in almost any context around the world and are consistent with the goal of ensuring that all students have access to high-quality education.

### *Improving Outcomes for All Students*

The first program design strategy focuses on improving outcomes for all students. It calls for teacher-education programs—first and foremost—to seek to improve education outcomes for ALL children. Sustainable education is, by definition, education that aims to bring about equitable solutions for all learners.

The first requirement for implementing this strategy is that all teachers must understand how to meet the educational needs of students who demonstrate a wide variety of cultural, linguistic, and learning differences. Teacher education can promote this goal by ensuring that all beginning teachers develop culturally responsive teaching practices that respect the wide variety of cultural backgrounds students bring to the classroom. Faculty can provide opportunities for future teachers to investigate and understand cultures other than their own and to question dominant beliefs and assumptions.

Associated with culturally responsive instruction, part of working with children from different life experiences are the issues of trauma and the negative impact on learning that arises from causes such as climate change, poverty, homelessness, and even social media pressures. Unfortunately, in the United States, 38% of children have experienced trauma (Robert Wood Johnson Foundation, 2017). Children are coming into classrooms with the heavy weight of

burdens beyond their control. Given that classroom management is still the number one reason beginning teachers leave the profession, the second requirement for implementing this first strategy is to help newer teachers understand how to leverage relationships and how to apply the approaches and interventions from neuroscience and trauma-informed instruction.

The third requirement is for teacher education programs to focus on improving learning outcomes for all students by helping future teachers understand how to meet the needs of second, or third, or fourth language learners. Today, in many societies around the world, linguistic diversity is a fact of life.

Along with the impact of climate change, degradation of environmental conditions, political unrest, and poverty on our world, a continued increase in migration will occur, contributing to more diverse classrooms.

#### *Developing a Sustainability Worldview*

To apply the second program strategy, teacher-education programs must help teachers and their students develop a sustainability worldview, which is a way of seeing and interacting with the world through the lens of sustainability. So, what can educators do to foster a sustainability worldview?

A sustainability worldview is something that almost anyone can acquire through learning and then refine through practice. It is not, however, simply a collection of facts, opinions, and beliefs about sustainability-related problems. Someone could care deeply about the impacts of climate change on vulnerable populations, but not know how to become directly involved with these problems in ways that would have a meaningful impact. Thus, a sustainability worldview involves a combination of values, knowledge, disposition, and agency.

Because there is no single “correct set of values,” teachers must provide learners with tools and information that will help them choose value systems consistent with creating a safe and just space for humanity and other species now and in the future. Teachers also must know how to help learners investigate the values that underlie a sustainability worldview, such as those found in the Earth Charter, to uncover how those value statements overlap with their own personal value system and broadly accepted universal values. Teachers can strive to teach the things that one might imagine the earth would teach us: humility, connectedness, giving, restoration, and obligation.

The knowledge domain that underlies a sustainability knowledge worldview is contained within a number of big ideas: equity and justice, peace and collaboration, universal responsibility, health and resiliency, respect for limits, connection with nature, local to global, and interconnectedness.

These big ideas can enable learners to develop a deeper understanding of complexities associated with a sustainability worldview by helping them bind disparate facts and concepts into coherent and meaningful patterns of information. Big ideas often involve information from multiple ways of knowing, multiple disciplines, and multiple cultures. For example, systems

thinking can be applied in many disciplines to understand processes as distinct as water usage and food production, and the effect of climate change on the oceans and the creatures who live in them. At the same time, thinking in systems can have different connotations across cultures and contexts, which will be examined later in this article.

There needs to be opportunities for students to explore these ideas in a variety of contexts and disciplines, to dig deeper into the meaning and implications of these ideas, and to incorporate these ideas into their own thinking, problem solving, and decision-making. Teacher education programs also should provide frequent opportunities for beginning teachers to explore these big ideas in a variety of contexts and applications.

Teachers can help learners develop dispositions associated with a sustainability worldview when they create experiences that allow learners to confront preconceptions and unsubstantiated preference, such as eating locally grown food instead of processed food, or taking the bus instead of driving an automobile.

Lastly, agency refers to an individual's ability to make choices and to act effectively in order to bring about a desired effect. To enact a sustainability worldview, an individual needs to understand what needs to be done, know how to do it, and have the ability to act in a way that has meaningful impact.

### *Learner-Centered Teaching Practices*

The third strategy is one of the most important and defining characteristics of effective education for sustainability: the use of high-leverage teaching practices. Five families of learner-centered approaches can be identified: collaborative small-group learning, inquiry-based learning, experiential learning, service learning, and place-based learning.

These practices increase the likelihood that teaching will be effective for student learning. Education systems need to be structured with the learner at the center. Despite the fact that education for sustainability often involves learning that is highly collaborative, active, participatory, and learner-centered, many U.S. schools still focus learning on the mastery of content and the assessment of that mastery through standardized tests. Assessment of sustainability learning would involve more than a measurement of knowledge of sustainability concepts gained. It would require a long-term demonstration of applied understanding of knowledge of sustainability in multiple contexts. Shorter-term forms of assessment could include projects and portfolios.

What do we mean by a truly learner-centered approach to education? Implementing ecojustice and place-based instructional strategies requires a shift in teachers' perceptions of their role vis-à-vis their students, the academic subjects they teach, and the action and environment for learning. In this new role, teachers guide inquiry, work in partnership with students and community leaders, and become more comfortable with complexity and uncertainty. The learner-centered approach is about having more questions than answers.



It might be helpful to consider an example of the learner-centered paradigm. Most adults did not have a learner-centered high school experience. Instead, students spent about six hours sitting at a desk each day, working from textbooks, and listening to a teacher lecture at the front of the room. In the United States, we call this approach “Sit and Get.” But how many students were given the chance to personalize their high school curricula based on their own interests, passions, and aspirations?

To appreciate what a student-centered education might look like, it might be helpful to consider an example of a 10th-grade student who will be called Sophia. When she was a little girl, Sophia loved growing vegetables in a garden with her grandmother—an experience that had Sophia dreaming of a career in landscape design. When she’s asked to help create her curriculum, she thinks first of her dream and passion.

Soon, a local landscape company creating an outdoor space for the local museum takes Sophia on as an intern. In her biology class, she works on a project that details each species that will become a part of the museum’s outdoor ecosystem. In her statistics applications class, she tackles a budget that will help her calculate the total cost of purchasing the plants and flowers needed for the museum landscape, while the bulk of her work in her geometry class is figuring out how to explain the landscape design according to the principles of plane geometry. Next semester, she’ll extend her internship, in part so that she can apply it to her upcoming Computer Applications class, where she’ll create a computer-based model of the landscaped area. Sophia’s learning is cross-curricular, relevant, personalized, and led by her.

Creating authentic learning through the use of learner-centered pedagogies is critical because students will choose to learn and engage with content that is meaningful to them. By emphasizing hands-on, real-world learning experiences, this approach to education increases academic achievement, helps students develop strong ties to their community, enhances students’ appreciation for the natural world, and creates a heightened commitment to serving as active, contributing citizens.

## **EXPERIENTIAL AND ENGAGED LEARNING**

In using learner-centered pedagogies, it is important to acknowledge that learning happens at many times and in many places. The places where students live provide relevant, meaningful, and powerful opportunities for engaged learning. Most students’ formal learning experiences are confined within school walls and devoid of enriched and diverse opportunities available in their communities. Diverse spaces can be reimagined for learning, whether they are in education centers, libraries, museums, community centers, forests, or other natural settings. These environments provide learners with a physical space to gather, play, socialize, and learn.

Having an opportunity to experience learning in the natural world serves another important purpose. There is an increasingly common aversion to nature—“biophobia”—among students who live in urban and suburban settings and whose time and activities are dominated by technology (Campbell, 2017). If individuals don’t develop a relationship with nature, they won’t



care if every tree gets cut down and won't realize the impact of their waterways becoming further polluted.

### **CHANGING TEACHER PERCEPTIONS**

The success of advancing these instructional approaches requires that teachers receive appropriate professional development and peer support. It can be frightening to move away from a model where teachers have control of their classroom and in what students are doing and toward a model in which teachers stand alongside their students, guiding them and learning with them. Getting teachers to move away from traditional, lecture-style instruction in favor of diverse learner-centered pedagogies can't be done by gathering teachers and having them listen to a multiple-hour lecture. Just like with students, they must learn by doing. If teachers are being asked to take a risk and rethink what learning looks like in their classrooms, school leaders and teacher preparation programs also need to take risks and help their teachers experience the power of personalized learning for themselves, including the development of a learning plan. One of the key components of sustainable education is systems thinking. Systems thinking is not just about helping students understand the interconnectedness of their actions and the challenges around them. It also is one of the most cited skills that employers say are needed in the workforce, and one that they struggle to find. A lack of understanding exists about systems, despite a focus in many U.S. schools on STEM education—that is, education in the areas of Science, Technology, Engineering, and Mathematics. Systems thinking is not only an important skill in the workforce, but it also can change how people live their lives, what they buy and eat, and the type of transportation and energy they use.

### **INTERCONNECTEDNESS OF LEARNING**

Innovative work is being done at the Massachusetts Institute of Technology (MIT), led by Mette Boelle, a Danish biologist; Peter Senge, known as a guru of systems thinking; and Daniel Goleman, who has made significant contributions in the area of social and emotional learning. In this framework, systems thinking is being championed not only as a new approach to curriculum, but with the additional ingredient of compassionate integrity. A person can have a systems understanding that is first-rate, but if he doesn't care about the impacts those insights allow him, then he has to deal with the consequences of rampant greed or the potential negative impact of a new industrial chemical on the soil, air, or water, for example.

Young people are confronted with the complex contradictions of the interconnected, interdependent systems in our world, such as climate change, human migration, terrorism, and substance abuse. An essential question for the future of education is how to help students understand and respond mindfully and compassionately to the interconnected systemic challenges in our world, rather than just feeling overwhelmed by the complexity of these systems.

With the growing focus on social–emotional learning (SEL) and mindfulness today, it is especially timely to show how these can combine with skills in understanding systems and developing a global mindset of equity.

The International School of Indiana, an International Baccalaureate school, was one of 10 locations around the globe invited by MIT to pilot the compassionate systems framework in its elementary school. The third-grade team of teachers were planning an upcoming unit in innovation. They decided to use the framework to make it the central idea for the unit on water: “Understanding our connectedness motivates us to innovate thoughtfully and improve the quality of life for all living things.”

On a cold winter’s day, the children were given two empty 1-gallon water jugs. They weren’t told what they were going to do or why. They walked 1 mile to collect water at a nearby pond. When they returned, they reflected on how they felt and how good clean water tastes after walking so far to get it. Students then were tasked with determining whether their pond water was drinkable, and then they worked on cleaning, filtering and chemical testing the pond water.

Using behavior-over-time graphs, they analyzed their water-gathering process to check for cooperation and compassion during the trip to the pond and back. Some students helped carry the jugs of other students, and some students figured out that they could use their scarves to share the weight of the jugs.

They spent time looking at innovations and testing inventions for improving access to water and for water purification. Students used the “ladder of inference,” which is a systems-thinking tool developed by the Waters Foundation. The ladder of inference and graphs are visual tools used to collect, analyze, synthesize, and communicate insights about systems. The ladder illustrates how what people notice develops into strongly held beliefs that lead to action and are reinforced over time. The Foundation provided the teachers with training on this tool so that they and their students could look at different scenes and pictures of places around the world to try to determine whether that community had clean water.

Students checked their assumptions with community members who were from places where one might assume that no clean water is available, like Tanzania and The Congo. When they listened to someone who had spent hours each day gathering water for his family in Africa, the students entered these conversations with pity. But when they realized that challenges to clean water exist all around the world, including in Flint, Michigan, a town that is only a 3-hour drive from their classroom, students developed feelings of compassion. And by the end of the unit, they were energized to do something to help people.

Two weeks after the end of the unit, children were asked to share their reflections about why their central idea around interconnectedness and equity is important. Several students commented on the motivation of greed, the harmful actions of companies that waste and pollute water, and the harmful impact these actions can have on the earth and on people.

### **TAKING ACTION WITH NEW INITIATIVES**

Continuing the focus on systems thinking, KDP, in partnership with a university and several other organizations, is piloting an afterschool program for fifth- and sixth-grade students in high poverty, urban schools and community centers next academic year. The program, called Developing Opportunities for Innovative Thinking or, DO IT Now Clubs, is based on

compassionate systems thinking and project-based learning. Teacher candidates will participate in the meetings.

Project successes from similar programs run by our partners include getting a city council to pass a Climate Recovery Resolution that commits the city to carbon neutrality by 2050, drastically reducing school cafeteria waste, implementing recycling programs, and installing pollinator and wildlife habitats at their schools.

Given the lack of research around sustainable education in the U.S. context, KDP commissioned a literature review that looked at the pedagogies and practices of high-achieving, high-poverty U.S. schools and the overlap with the sustainable education framework. An article based on their review can be found online in the June issue of the *Green Schools Catalyst Quarterly* (Archambault, Merritt, & Hale, 2018).

Another KDP initiative involves KDP Laureates, who are esteemed scholars in the field of education, and relates to equity and multiculturalism, which, again, are key components of sustainable education. U.S. classrooms are becoming increasingly diverse, while the teacher workforce is not keeping pace. Recent research has shown that having just one teacher of color results in higher graduation rates, increased engagement, and an increase in consideration of a higher education degree (Gershenson, Hart, Lindsay, & Papageorge, 2017).

As the organization searches for ways it can help diversify the teaching workforce, reduce the tremendous attrition of newer educators, and close the opportunity gap, especially in high-poverty schools, a group of Laureates are examining the successful teacher preparation practices of minority-serving institutions (MSIs), who recruit and retain a disproportionately higher percentage of teachers of color.

The University of New Mexico, which is a minority-serving institution, has had great success using a co-teacher model. In this model, teacher candidates work alongside the assigned classroom teacher from the beginning of the school year and attend meetings and professional development with the other staff at the school. University faculty are embedded in the classroom 1–2 days a week, assisting both the cooperating and the preservice teachers (Petchauer & Mawhinney, 2017).

California State University and Sacramento State University are two MSIs whose teacher education programs focus on social justice and equity. While there can be challenges, by ensuring that preservice teachers have experiences in school sites with diverse student populations, and providing a supportive environment in their multicultural education courses in which to discuss those experiences, we can begin to address these challenges. Also, social justice and equity themes among coursework and fieldwork must be clearly articulated. Internships in culturally and ethnically diverse urban public elementary schools contribute to candidates' positive multicultural attitudes and knowledge.

Many schools have limited professional development funds, which can contribute to teacher attrition and reduced teacher effectiveness. In response to the member survey previously

mentioned, KDP is developing micro-credentials, or short courses, that focus on bite-sized competencies that are job-embedded and on topics in which educators indicated they would have liked additional knowledge or training. The courses will include sustainable education and related topics, such as social justice and culturally responsive instruction. Educators who successfully complete a course will earn a digital badge to be posted on their lifelong e-portfolio. Additionally, educators can upload papers, artifacts of their work, and recommendations so that the portfolio can be used when applying for a teaching position or for an advanced degree.

### **TRANSFORMING TEACHER PREPARATION AND EDUCATION**

When trying to make sweeping changes to transform education, it is the case of the chick and the egg as to what comes first: preparing teachers differently for sustainable education, or changing the associated mandates, or creating school systems where sustainable education has been embraced from both the bottom up and top down. It is a core structural dilemma. Real innovation can't happen without partners, and that will happen with K–12 and teacher education programs working together as a network instead of at two levels.

With a commitment by teacher preparation programs and their local school districts to embrace sustainable education, real progress can be made. To prepare preservice teachers to educate for sustainability, teacher education programs must use best practices related to field experiences and case studies. Programs need to teach the big picture of sustainability content and a conceptual framework that enables students to begin to recognize how all the individual ideas and theories fit together and relate to one another.

Preparing educators is very complex work and has been made more so by the dizzying speed of change in technology, new understandings about the brain and neuroscience education, societal changes such as migration and growing income inequalities, the challenges associated with climate change, and the current political and corporate environment that embraces endless growth and consumption with disregard for the environment's inability to support this vision.

### **IMAGINE THE POSSIBILITIES**

There is much work to be done. If we truly want a society that is more just, equitable, and sustainable, it is imperative that teachers and schools implement practices that prepare children with the tools to address the challenges of an uncertain future. Imagine what this might look like. Teachers draw on the lived experiences of the students, the school, and the community to provide context for learning. Students are curious, asking questions and seeking answers that address real problems and provide real solutions related to society, the economy, and the environment. While many education systems focus on career-ready graduates, we also need world-ready graduates who have a mindset of global equity and who are actively engaged in the well-being of our planet.

There has never been a more important time for teachers, who are the leaders in creating a path to a better future. However, we are reminded in the words of John Dewey, a KDP Laureate, *"If we teach today's students as we did yesterday's, we are robbing them of tomorrow."*

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## **TEACHERS' MATTER: PREPARING INNOVATIVE TEACHERS**

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### **ABSTRACT**

*Today's young people of both undergraduate students, and those entering teacher education programs are digital natives, who grew up in a technology world of computers, Internet, cell phones, and social networking. In contrast to their analog schools and teacher education programs, they seek an education that's creative, engaging, interactive, and collaborative, and most importantly, innovative. In our global society, schools have to prepare students for a competitive international economy. The emphasis on innovation and creativity are fundamental skills for a successful 21<sup>st</sup> century economy in championing teacher education. The challenge is understanding the increasing complexity and demands of the 21st century, and how we can work together to determine the best solutions to transform our system of education. We need to ensure that all of our citizens have the fundamental knowledge and 21<sup>st</sup> century skills to continue to educate themselves to navigate the pathways of our democratic society, our capitalistic economy, and life in general.*

## **TEACHERS MATTER: PREPARING INNOVATIVE TEACHERS**

My presentation is based on my experiences as field supervisor for clinical (student) teachers and an adjunct professor. Each experience has allowed me to observe and participate in the classroom. Through my ongoing observations in classrooms and facilitating teacher training, I learned that there were gaps in the concept of innovation and how the teacher preparation process and the public schools were not in a parallel alignment of innovation.

This presentation stems from my publication in the Journal of the World Federation of Associations of Teacher Education in fall of 2018. For further review, my publication is in the World Federation of Associations of Teacher Education in Vol 2, Issue 1.

The term that I will be referencing throughout the presentation is clinical teachers, which is the equivalent of student teachers. In my educator role in the area of San Antonio, Texas or in south Texas, the term used is clinical teachers. Geographically, in San Antonio, there are 17 school districts of which I have served for the last 10 years as a field supervisor.

### **The Goal of Higher Education**

Tsui (2002) discusses that the goal of higher education is to prepare undergraduates for the real world, their professional career and life. The learning content or academic learning in higher education is discipline specific, which is regulated by the university. Academic learning is required, however, is there a focus on cognitive processes that can also cultivate creativity and innovation within the academic learning. Critical thinking and problem solving are skills that are reflective of innovation and support the goal of higher education in preparing undergraduates.

### **Innovation**

Innovation is the application of a process or product. In the application of innovation, it's a thinking process of creative learning. The thinking process implements new methods, tools and contexts. The contexts become the application in new learning in everyday life. This benefits the learners and their creative potential in new learning, and in their professional careers. An example for me, is as a young girl, I watched my grandmother, a very petite woman, sew on an old-fashioned, non-electric Singer sewing machine. It took a very physically strong person to sew because you were pressing with full force from your foot on the foot paddle. My grandmother did not use a sewing pattern, if she needed to use a pattern, she created her patterns from newspapers. The experience of watching my grandmother sew has impacted my cultural and professional identity of who I am today. In my life, I have acquired creative potential and strong critical thinking skills, especially in my role as an educator in teaching others. My experience has guided me in applying my knowledge and thinking within an innovative mindset.

Thomas L. Friedman (2013), a New York columnist and author states:

Today, because knowledge is available on every Internet-connected device, what you know matters far less than what you can do with what you know. The capacity to innovate, the ability to solve problems creatively or bring new possibilities to life and



skills like critical thinking, communication, and collaboration are far more important than academic knowledge (p. 1).

Therefore, critical thinking and problem solving are tenets of being ‘innovation ready’ and should be the goal of higher education, which will add value to their job skills in casting their profession as educators. The grooming of innovation has to start from the teacher education training institutions, where the clinical teachers and the pre-service teachers can learn first hand how to implement innovation and apply it in a more contextual format.

In my teaching innovation to my clinical teachers, I remind them of using the acronym AEIOU by showing them an anchor chart or a large visual. AEIOU represents a lesson delivery strategy to implement innovation.

- A = ask questions;
- E = engage fully;
- I = integrate new information;
- O = open our minds to diverse ideas; and
- U = utilize what we learn.

My sharing of AEIOU is an example of how collaboration with my clinical teachers has to be nurtured and encouraged in an environment where creativity can ignite.

### **Innovation in my Courses for Pre-service Teachers**

It’s important that as a field supervisor for clinical teachers that I model what innovation represents. Innovation strategies and techniques should begin in the content methods courses for pre-service teachers to begin to practice and understand innovation. I have some examples from my courses for pre-service teachers and clinical teachers.

#### *Example #1 Bubbles*

In my math content course for bilingual teachers we made bubbles. The emphasis was on the thinking process and collaborating as a group to make the bubbles mixture. The bilingual pre-service teachers were only given the ingredients and not the measurements. They were to collaborate in groups to figure out the measurements to create the bubbles mixture. After they have created the mixture, they blow bubbles using bubble wands. Gathering data is also part of the requirement by recording the time of how long it took for their bubble to pop and measure the distance of where it popped.

The recipe is:

- ¼ c baby shampoo (no more tears);
- ¾ cup water; and
- 3 tbsp light corn syrup.

#### *Example #2 Evaluating a Playground*

In my early childhood play development course, the pre-service teachers formed groups, selected a city park and went to the park to evaluate its playground. They were given a rubric/checklist with specific criteria such as safety, early childhood development, and special needs. After the pre-service teachers completed their evaluation, they prepared a presentation of their findings



and suggestions to improve the playground. They were using their thinking process by collaborating with their group and finding solutions to improve the playground.

### **Innovation from my Clinical Teachers**

It is required that the clinical teachers exhibit innovation in their lesson delivery. Here are some examples of their innovative lessons.

#### *Example #3 Finding Shapes*

My clinical teacher was teaching a math lesson on shapes in her Kindergarten class. The Kindergarteners were supplied with IPADs. In groups, the Kindergarteners were to take pictures of shapes in the classroom. Using their shape pictures, they were to collaborate in their groups and discuss their findings. They presented their findings using the IPAD to the whole class. The thinking process was to collaborate as a group the various shapes in the classroom.

#### *Example #4 Dancing to Transversal Angles*

My high school clinical teacher incorporated dancing on a transversal angle to the music of Michael Jackson. The high school students watched on the screen the angles and danced on the transversal angles to Michael Jackson. The music became faster, and the high school students had to keep up with the music while dancing on the correct transversal angle. The thinking process was using a different tool such as music and applying it in the physical movement on a transversal angle.

### **The Teacher Education System**

The teacher education system is an important vehicle to improve the quality of school education. The revitalization and strengthening of the teacher education system is a powerful means for raising the educational standards in the United States.

Regarding educational form, Fischetti (n.d.) presents the following questions:

- 1) How many K-12 schools or colleges of education have transformed their mission statements to reflect the demands of the current era?
- 2) How many have adopted curricula and pedagogy that prepare students to be successful in other than the assembly-line model of schooling?

It is suggested that the above questions be part of the conversation in revisiting and improving teacher education programs (Fishetti, n.d).

### **Dual Collaboration**

A dual collaboration is needed between the university scholars that represent the teacher preparation program and the school partnerships to involve educators and administrators.

Suggested strategies for the dual collaboration are:

- Involve experienced teachers in teacher education programs for a 2-year period;
- Together, the university and the school can provide teacher leadership; and
- Bring in teachers' experiences and ideas into the university curriculum.

The curriculum in the teacher preparation program should infuse the following: communication, collaboration, teamwork, critical thinking, problem solving, creativity and most importantly, innovation.

### **Characteristics of the 21<sup>st</sup> Century Educator**

The emphasis of innovation in teacher education programs is an area of concern within the 21<sup>st</sup> century. However, the characteristics of the 21<sup>st</sup> century educator need to be identified and also aligned in the dual collaboration of teacher education programs and schools. Curous (2014) presents eight characteristics of the 21<sup>st</sup> century educator and suggests the characteristics be infused in teacher education programs and professional development training for educators. All eight characteristics represent innovation in the 21<sup>st</sup> century educator. In Table 1, the eight characteristics are identified with a description and with example questions.

Table 1 *Eight Characteristics of the 21<sup>st</sup> Century Educator*

Characteristic	Description	Questions
Visionary	Can openly and clearly apply the vision in teaching.	Does the vision develop learners to lead?
Empathetic	Listening and supporting the students' experiences and challenges.	Are decisions starting with an empathetic approach?
Models Learning	Shares learning and thoughts in different formats.	Is the process of learning openly modeled?
Open Risk Taker	Tries new ideas and brings back the learning to the school community.	Do you model new ideas openly?
Networking	Has ongoing discourse with the school community to learn new ideas and helps facilitate connections for others.	Does your learning network extend to a global community?
Observant	Observes what other industries are doing and creates a connection to how this can improve learning opportunities in the classroom community.	Are you implementing ideas from outside of education?
Team Builder	Encourages colleagues to attend professional development learning to build community and shared learning.	Do you create diverse student teams with varied strengths and beliefs?
Relationship Focused	Creates opportunities for staff to feel comfortable and valued.	Do you try and connect with your school community?

## Conclusion

In conclusion, innovation is key in preparing and teaching our future. Dual partnerships between the teacher education programs and the schools can help build more alignment in preparing our future educators, specifically, in innovation. The eight characteristics of the 21<sup>st</sup> century educator should be considered as a model in teaching innovation and can be infused in professional development teaching for certified teachers and future teachers in teacher education programs. Lastly, further developing professional learning communities or PLC's with pre-service teachers, clinical teachers and certified teachers can help with bridging more unity in the teacher education system.

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## **FRENCH PRIMARY (STUDENT) TEACHERS AND FOREIGN LANGUAGES: UN-TRANSFORMATIVE GOVERNMENT-INDUCED STRESS.**

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### **ABSTRACT**

*Foreign languages (FL) were introduced into French primary schools in 1989 and made part of the curriculum in 2002.*

*Based on a careful study of all the governmental documents produced since the beginning, this presentation aims at showing how each and every new governmental reform of the “concours” (competitive exam used to recruit teachers in France), every new list of professional competencies issued, have consistently stressed personal performance over professional competence thus revealing an underlying preconception of the “necessary and sufficient” kind: if one can speak a language, then one can teach it. So much so that the leitmotiv of qualified as well as student teachers has repeatedly been “I can’t speak [English], so I can’t teach it.”*

*The consequences of this persistency on pre-service training programmes devised for French primary student teachers will be shown, too, up to nowadays when professional competence training culminates at close to nought in what is known as “the second masterisation” (2013). Where initial professional training should help student teachers transform from tentative FL speaker to beginning FL teacher, the present Teaching, Education and Training master’s national framework (2013) only succeeds in non- or de-motivating them.*

## **FRENCH PRIMARY (STUDENT) TEACHERS AND FOREIGN LANGUAGES: UN-TRANSFORMATIVE GOVERNMENT-INDUCED STRESS**

Although there have been quite a number of changes recently in the French education system, a few features remain permanent such as the fact that almost all schools, primary and secondary, are state schools, that teachers are civil servants and that it is a lifelong tenure unless one decides to resign. As all French civil servants (the police, the military, etc.) are recruited by means of a competitive examination, so are teachers.

If we consider the 20<sup>th</sup> century, 1989 was an important date in French history, not only because it was the bicentennial of the 1789 Revolution, but because a major Education Act was passed by the then socialist government (President Mitterrand), commonly known as the *Loi Jospin* (from the name of the Minister of Education). Since that date primary and secondary teachers-to-be have been recruited at the same level (BA/BSc) and both categories follow a similar pre-service training, ideally with a small common part so as to develop some sort of common culture (but this has always been very difficult to implement whatever the various changes brought about by the successive reforms in the last 13 years). They were also to be trained in the same place, with the creation of the *IUFM (Instituts universitaires de formation des maîtres, University Institutes for the Training of Teachers)* which started as independent bodies and were integrated into universities in 2007, only to be transformed again in 2013 – they are now called *ESPE (Ecoles supérieures du professorat et de l'éducation, Teaching and Education Colleges)*. Whatever the name, these are more virtual bodies than actual physical places where primary and secondary teachers-to-be could meet and follow some common courses.

As far as foreign languages (FL) are concerned, 1989 was even more than a revolution. The decision to introduce a FL in the last two years of primary (9-11 age range) was a major upheaval. So much so that the initial three-year phase declared as ‘experimental before generalisation’ had to be prolonged for lack of human resources in the schools, and FL were finally included into the new French primary curriculum only in 2002.

From the start both tenured and student-teachers had to be specially authorised (“*habilité*”) to teach a FL – it is to be noted that no such authorisation has ever been requested for teaching maths, sciences, music... or any other school subject. French primary teachers have always been “*polyvalent*”. With no formal definition of this authorisation it was generally assumed that this meant testing the teachers’ capacity for oral interaction (which was usually done via a 15-mn conversation with a FL inspector, of the kind that observes FL classes in secondary school, i.e. a specialist inspector). A formal definition was eventually published, but much later, by the end of 2001, only a few weeks before the official inclusion of FL into the new primary curriculum. And the published text defined a two-part procedure akin to an exam in language skills (part one) and didactics (classroom observation by an inspector followed by an interview for part two), which frightened the teachers even more.

I was asked to organise the teaching and the teacher training for the *Académie de Lyon* as of 1989 and almost all the teachers kept saying “I can’t speak... [a given FL] so I can’t teach it”, which showed how much they equated their own personal oral proficiency in a FL with their

ability to teach it. Very few of them were willing to try and teach a FL, most of them were reluctant or even refused to have a go at it unless they got substantial training beforehand. This situation has persisted over the years and is still very much the same nowadays. The purpose of this article is to pinpoint the successive governmental decisions that have, one after the other, added to French primary teachers' stress and somewhat anti-FL stance.

FL was soon (two years later, 1991) added to the competitive examination as an elective subject alongside music and PE, in a continued effort to get French primary teachers to remain “*polyvalent*” and teach each and every school subject so that schools would stop relying on external municipality-paid human resources. The powers-that-be clearly expected the ‘new’ teachers (those coming out of the IUFM) to take up teaching a FL so that the whole territory would be covered in just a few years but it didn’t work very well - FL as an elective at the competitive examination soon appeared to be a negative choice made by the students for lack of a better opportunity [1].

Another important step was taken soon after when an official document was published in 1994 listing primary teachers’ missions (a prelude to the professional competences’ list that came out in 2006 in line with the European Commission’s Key Competences for Lifelong Learning, revised in 2013) – and FL was included: “*Le professeur des écoles est un maître polyvalent, capable d'enseigner l'ensemble des disciplines dispensées à l'école primaire [...] c'est-à-dire français, mathématiques, histoire-géographie, sciences physiques et technologie, biologie et géologie, langue vivante, arts plastiques, musique, éducation physique et sportive [...]*” [2].

So one would think everything was being done at government level to push FL into becoming an ordinary part of everyday primary teaching. But the problem was not solved yet.

Just one year later (1995) there was a governmental shift to the right [President Chirac], with a “*cohabitation*” between right and left [socialist Prime Minister Jospin, 1997-2002] and in 2002 FL were finally integrated into the new primary curriculum with references to the Common European Framework of Reference for Languages (CEFR). Let’s calculate: it took 13 years not the initial 3 as envisaged. Moreover formal integration does not immediately transfer to the field... The elective format at the competitive exam was modified, too. There was no preparation time as before; the candidates were made to listen to a short audio clip (or watch a short video clip) and asked to react to that instantly, engaging in a conversation with the examiners that would prove they understood the FL. It was such a huge gap compared with their previous high school or universities studies that anxiety reached an unprecedented peak.

Elections bringing a right-wing Prime Minister, a new Education Act was passed in 2005 and FL became compulsory in the competitive examination, but only as regarded language skills. The audio/video clip format was discarded; instead the exam reverted to a very traditional one (reading an about twenty-line text from which to speak) whereas access to FL audio and video was getting so much easier with the fast development of the internet and digital tools – maybe it was thought reading would be easier for a compulsory exam meant to ‘produce’ a maximum of ‘FL teaching-able’ primary teachers... So in the course of time the didactics part of the old FL elective dwindled down to inexistence (cf. table in the Appendix). Why didactics disappeared for FL and not for the other school subjects is a mystery - it can only be conjectured that the then



Minister of Education and ministerial advisers thought the pressure thus created would push the students into becoming proficient in a FL, and that proficiency was enough to teach a FL as of the following 1 September. Anyway the now 16-year old leitmotiv was still to be heard: “I can’t speak... [teachers usually say English instead of any other FL as they think they have to teach English] so I can’t teach it”. Which prompted me to start a master research study (141 student info sheets studied to categorise profiles, then 8 pair-interviews) to try and understand where that might come from. The major outcome was that there was indeed a confusion in the student-teachers’ minds between personal performance and professional competence. Not only as regards FL, almost every subject other than French and maths was mentioned – but the stress laid on personal performance in a FL during a now compulsory part of the competitive exam only resulted in exacerbating the confusion and raising their anxiety to a new height. Besides, with such a low weight for FL many passed the competitive exam with a very low mark in that subject. Of course, at first parents were pleased to see FL as compulsory in the competitive exam because for them it meant that every primary teacher would teach a FL, that all the pupils would learn a FL everywhere in France, but they were quickly disillusioned.

Under President Sarkozy (2007-2012) there was a new primary curriculum again (2008) which raised an outcry among primary teacher trainers (who felt it as a return to, say, the first half of the 20<sup>th</sup> century) but did neither change anything nor bring much as to FL. What brought major changes to teacher education in France then, and to FL in primary initial teacher education (ITE) as well, was that France suddenly noticed that it was very late in the Bologna Process, that the two years spent in 1) preparing for and taking the competitive exam 2) once passed, preparing to teach - those two years did not equate a master’s degree. All French teachers (primary and secondary) were still considered as having only a BA/BSc in a given subject although they had studied at university not three but five years after the *Baccalauréat* (with consequences in terms of wages [3]). So President Sarkozy asked all the universities to quickly design a master’s degree for teaching – this 2010-2012 period is commonly referred to as the first “*mastérisation*”. It is important to understand that if there were 2, 3, or 4 (as in the Lyon area) different universities in an *Académie* (a kind of LEA), then the M.Ed.s came to be different from one university to another as the absence of national framework encouraged competition among the universities instead of collaboration – each trying to keep their first-cycle students into the second cycle, since the governmental grant to universities depends on the number of their students. Moreover, to become a primary school teacher a lot of external certifications were also requested on top of the M.Ed. (for example, proof of the ability to swim 50 m although one won’t have to teach swimming, this is done by a swimming instructor at the swimming-pool, etc.), among which proof of European B2 level in a FL. The resulting situation was a jungle of M.Ed.s all over France, together with a jungle of various external FL certifications [4].

2012 saw a new change of tack this time to port side with a socialist government again [President Hollande 2012-2017] and education became the uttermost priority. There was a new very important Education Act “for the refoundation of the Republic’s schools” and with it came first a partial reversion to the main features of ITE before and second what is known as the second “*mastérisation*”. This time the universities in a given *Académie* were compelled to cooperate and come up with one common M.Ed. on the basis of a national framework [5] - but that framework was in such broad terms that discrepancies quickly appeared between the M.Ed.s among the *Académies* and even among the universities within a given *Académie* (in terms of contents,



pedagogical practices, assessment tasks). The pile of previously requested external certifications disappeared, most of the competences they represented were included into the M.Ed. (for example first aid), a relief to the student-teachers. The required B2 level in a FL was, too - but without compensation. This means that since 2013, some primary student-teachers who passed the competitive exam in year one do not get the M.Ed. at the end of year two (while half-time student and half-time in teaching practice, paid full time by the state) because of a below-10 (/20) mark in FL. Competitive exam plus M.Ed. being the absolute requirement to become a civil servant teacher, those student-teachers are made to repeat year two only for FL (and they have to repeat teaching practice as well since they are paid by the state). Among these, some even change FL to try and get through (for example, they had chosen English, then they take Spanish, or vice versa). This entails a cost for the French state in economic terms at a time when successive governments (mainly the right-wing ones) have tried to diminish the number of civil servants, but it is mainly a very high psychological cost for the student-teachers themselves, and consequently for their FL teachers. This no-compensation decision at the national level amounts to a hardly acceptable stigmatisation of FL.

The table in the Appendix shows the steadily rising pressure on the language part alongside the just as steadily progressive disappearance of the didactics in the assessment at the competitive exam level. In the latest (2013) re-designed competitive exam FL does not even appear as a school subject that can be chosen by the students for the so-called ‘professional’ (didactics) part of the final oral exam. There was an official protest by the French Association of FL teachers (APLV), their representatives got to meet one of the ministerial advisers as early as July 2013 – to no avail. At the same time the new M.Ed. national framework’s ‘no-compensation B2 level in a FL’ caused most M.Ed. designers to increase (very often double) the volume of language learning at the just as often total expense of the didactics. With no space for student-teachers’ education in plurilingualism-culturalism at a time when this is most needed on account of the present heavy flow of migrations, and regardless of the consistent body of research on this matter now available (cf. in particular the “Framework of reference for pluralistic approaches to languages and cultures” published in 2012 by the European Centre for Modern Languages (ECML), Graz, Austria) – a kind of time-gap similar to that with the audio/video mentioned above, of backwardness in France’s recruitment procedures and assessment tasks. If we look back at the early stage of primary FL (1989-1991), there was a rather fair share between language (3/5) and didactics (2/5) in the competitive exam. Of course FL was an elective, so not every student-teacher got preparation in year one for teaching FL. But it is hardly understandable that this rather well-balanced situation has not simply been extended to all primary student-teachers instead of the constant tacking from port to starboard and back we have had since then as shown above. From 2010 onwards (*mastérisation 1 and 2*) the number of credits has generally boiled down to three per course unit, so often six for the whole M.Ed. But the didactics part is either absent from the M.Ed. or included, diluted, in some ‘humanistic studies’ course unit along with French (as mother tongue [6]), children’s literature, history, arts (visual arts, music).

So student-teachers and recently tenured ones still say “I can’t speak... [a given FL] so I can’t teach it”. The original (1989) requested authorisation needed to teach a FL has undergone several reincarnations over the last 30 years but the founding implicit idea that ‘if one is fluent in a language, then one can teach it’ was from the start ingrained at all levels (teachers, inspectors, M.Ed. designers...). It was an *ab ignitio* flaw which has yet to be questioned. Let’s just consider

that I, though being a French native speaker, could not teach it overnight in any other non-French speaking country (I am not even allowed by the French government to teach French in French schools). One needs to be trained as a professional (F)L teacher. Whatever the political side they were each leaning to, all successive French governments have consistently drifted away in the same wrong direction and by so doing missed their point. France is renowned for its people not being able to speak foreign languages, but such insistence on a personal fluency pre-requisite is not going to make things any better.

And there was another original problem which has never been solved: the students will choose a FL for the competitive exam or certification and now M.Ed., but they will probably teach another in class. How does that relate to the idea 'Be fluent in a FL, then you can teach it'? Students will choose German, or Italian, or Spanish, because they like this language better than English, they feel more at ease, they can get over the no-compensation blockade for their degree. But when they go into teaching practice in year two, most of the time they have to teach English. It is all the more difficult to teach English to French-speakers (the reverse is true, for that matter) because of the complex relationship between those two languages in terms of vocabulary, pronunciation (grammar, too) due to their intertwined past.

FL in French primary schools has come a long way but the student-teachers are still in the same initial double-bind: teach a FL but only if your own performance in this FL is at least B2 level; prove you are fluent in a FL but teach another one. Worse still, they are in triple double-bind today with the added 'teach a FL but you get no didactics before you start teaching it'. Survival of the fittest? France is part of the "old continent" – could that explain an outdated conception of FL, of FL learning, of FL teaching? Where initial professional training should help primary student-teachers transform from tentative FL speaker to beginning FL teacher, the present M.Ed.'s national framework (2013) only succeeds in non- or de-motivating them.

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## ENDNOTES

[1] Other decisions were taken in the following years to try and expand the teaching of a FL in primary school, among which introducing foreign language assistants into primary schools, asking the student teachers to choose between music, PE, and FL as a major for their pre-service year of training (2002-2006). None were much successful. To consider only the two mentioned above: FL assistants being first and foremost native speakers with no teaching training could not (and were legally un-authorized to anyway) teach a FL instead of the class teacher; the major's purpose not been clearly defined (was it meant to develop expertise in teaching a FL for those students who already had some high level FL skills or to train especially those with low FL skills?) its organisation varied a lot across the country and once again the choice was often a negative one. Call this another missed opportunity.

[2] The primary teacher is a polyvalent school teacher, able to teach the primary school subjects [...] i.e. French as mother tongue, maths, history-geography, physics and technological sciences, biology and geology, a foreign language, arts, music, PE [...]

[3] See for example <[https://www.lemonde.fr/les-decodeurs/article/2015/05/12/les-enseignants-francais-les-plus-maltraites-d-europe\\_4632364\\_4355770.html](https://www.lemonde.fr/les-decodeurs/article/2015/05/12/les-enseignants-francais-les-plus-maltraites-d-europe_4632364_4355770.html)> which relies on OECD data.

[4] For lack of CLES 2 (cf. Appendix), proof of a TOEIC score equivalent to B2 was very often put forward by students. Two problems here: 1) TOEIC is normally valid for 2 years, yet it was accepted notwithstanding the date on the certificate 2) TOEIC is based on listening and reading. ETS, the company that created the TOEIC, did launch a TOEIC for the speaking and writing skills in 2009, but the students would have to pay again for that. 3) TOEIC is very much business-English oriented, due to its inception (international commerce). So proof of a B2-equivalent TOEIC score is meaningless for a primary teacher-to-be.

[5] The French M.Ed. is called *MEEF*, for *Master Métiers de l'enseignement, de l'éducation et de la formation*. It comes in four categories (*mentions*): primary teachers, secondary teachers, *CPE (conseillers principaux d'éducation* - a French specificity, these colleagues are in charge of day-to-day school life in secondary schools), the fourth category being a miscellany of thematic threads that can gather teacher educators, head teachers, principals, school doctors and nurses, teachers interested in special needs,...).

NB. 1 The *Académies* have been grouped to create *regions académiques* as of 1 Jan. 2016 (16 Jan. 2015 Law) and these are aligned with the new *régions administratives* <<https://www.interieur.gouv.fr/Archives/Archives-des-actualites/2016-Actualites/Les-noms-des-nouvelles-regions-sont-actes>>

NB. 2 There is also an ongoing, difficult, process of merging universities into big ones. This process is particularly acute in the Lyon area where there are four universities and a number of other higher education institutions among which the famous *Grandes Ecoles* and the *ENS (Ecole Nationale Supérieure)*.



[6] As primary ITE concentrates on how to teach spelling, reading, writing, to 4-to-10-year-olds, there is not much room for French as a second language. Before the 2008 global financial crisis one could rely on in-service training to make up for those issues that had not been catered for in ITE. This is not the case any more, only a trickling of money is left for professional development, and whatever the promises in each electoral campaign, this is not going to change soon on account of France's high debt.

## APPENDIX

Under Language, the top line is for Listening comprehension, the bottom one for Oral expression.

In the 2010 column CLES is the acronym for *Certificat de compétences en langues de l'enseignement supérieur* < <https://www.certification-cles.fr/en/>> CLES 2 was designed at B2 level in general FL. NB. It was announced that CLES would be compulsory as of 2004 to enrol in a IUFM, but this was never enforced.

The ...?...?... indicate that the assessment formats vary depending on the universities.

	1991	2002	2005	2010	2013
FL in competitive exam	Optional.	Optional.	Compulsory ≈ B2 level	Compulsory M.Ed. + a B2 level Certification (CLES, ...)	Compulsory M.Ed.- included No compensation
Language	≈ 10' MCQ iconographic doc (prep ≈ 30')  30'	<del>(prep)</del>  AV doc 20'	text doc (prep ≈ 30')  20'	...?...?... ...?...?...  ...?...?... ...?......	
Didactics	(prep ≈ 30') 30'	(prep 15') 10'		...?...?... ...?......	...?...?... ...?......
Points (20)	12 L + 8 D (4+8) 3/5 2/5	(?15 L + 5 D) 3/4 1/4	20 L  100%		≥ 10/20 B2
Weight	1	2	1		...?... credits (ECTS)

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Jeanny PRAT was in charge of implementing foreign languages (FL) in the Lyon area, France, from 1989 to 1994. Out of her master research on the source of French primary student teachers' anxiety about FL (2008), she devised a three-semester master programme for training primary student teachers in which training in a FL was closely related to the didactics of foreign languages and the needs of the classroom. She implemented it in the Lyon area from 2010 until 2013 when the political change of government produced new counter effects. She is currently engaged in a Ph. D. in Language Sciences at Avignon University while still a primary student-teachers' educator at Lyon 1 University. A member of both *APLV* (*Association des Professeurs de Langues Vivantes*) and TESOL-France, she can be contacted at either [jeanny.prat@univ-lyon1.fr](mailto:jeanny.prat@univ-lyon1.fr) or [aj.prat@wanadoo.fr](mailto:aj.prat@wanadoo.fr).



## **EMPIRICAL RESEARCH ON ENGLISH LANGUAGE ATTRITION OF STUDENTS STUDYING NON-ENGLISH MAJORS IN A CHINESE UNIVERSITY**

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### **ABSTRACT**

*This article discusses research investigating English as a Foreign Language (EFL) attrition occurring amongst students studying non-English Majors in a Chinese university 9-21 months after completing compulsory English programs. The purpose of this study was to explore how the language skills acquired by these students were maintained or lost. In addition, the study endeavoured to discover what variables affect the attrition process of language skills among Chinese EFL university students. This research aimed to provide insights into English learning and teaching in Chinese universities.*

# **EMPIRICAL RESEARCH ON ENGLISH LANGUAGE ATTRITION OF STUDENTS STUDYING NON-ENGLISH MAJORS IN A CHINESE UNIVERSITY**

## **Introduction**

Language attrition, as the concomitant product of language acquisition, refers to “loss of any language or its part by an individual or language communities” Lambert & Freed, 1982, p.1). Foreign language attrition is defined as the loss of language skills by learners who have studied and then discontinued the use of a foreign language (Wang, 2010). Such is the case in China where English is learnt as a foreign language. Hence in this paper, foreign language attrition is specially used to refer to English as a foreign language (EFL) attrition. Differentiated from language transfer or language death, this process of foreign language attrition is physiological rather than pathological. In other words, this decline of language competence is subsumed to natural rather than pathological reasons (Ni, 2007).

The far-reaching education reform in Chinese universities has reframed the English program from a two-year compulsory course into a one-year course. It means from the second year on, university students studying for non-English majors in China can choose not to continue their English courses although various English related optional courses are open to them. This, in a large degree, has resulted in a general decline of their English competence that has been acquired in the past 13 years since their primary schooling. For those studying non-English majors in China, English, as a foreign language, is mainly acquired through classroom teaching, which has served as the primary, or even the mere input to a majority of them. Although many a higher institution in China endeavoured to arrange differing selective English related courses or specialist English courses to cater for the needs of non-English majors, the effectiveness was proved “unsatisfactory”, as stated by Chen and Hu (2010, p141). The main reasons for this phenomenon lied in the fact that there lacked criteria, as effective as those for the nation-wide compulsory English courses, to assess students’ performance in these selective courses, which resulted in students’ decrease in their interests and motives, thus bringing English into a state of being attrited.

This study aimed at investigating EFL attrition exhibited on university students studying for non-English majors in a Chinese university, which endeavoured to address the following questions: i) Dose EFL attrition occur in Non-English majors during 9-21months of disuse, and if so, to what extent and in what way did their EFL attrite? ii) What are the variables that affect EFL attrition on non-English majors in China? By exploring EFL attrition exhibited on non-English majors, some effective ways against EFL attrition were suggested in order to maximize English language learning and teaching in China.

## **Literature review**

The literature provides much more information on language acquisition and learning than attrition. Language attrition was established as a discipline at a landmark conference -the first Conference on the Attrition of Language Skills in 1980 at the University of Pennsylvania, which became “a milestone work” in the field of language attrition, as commented by Wang (2010, p.25). It was not until then that systematic study on language attrition was begun (Wang, 2010). A variety of hypotheses were developed to explain the nature of foreign language attrition, the

conditions under which it occurs and the factors that affect the amount and/or rate of it. The threshold hypothesis is well documented in literature, which holds that what is learned best is the least vulnerable to language loss (Berko-Gleason, 1982; Lambert, 1989). With regards to the variables influencing EFL attrition, there lacks consensus on the effect that personal and circumstantial factors can have on the attritional process (Köpke & Schmid, 2004). A variety of factors have been advanced in EFL attrition, which comprise such diverse aspects as language proficiency and language acquisition style before attrition (Ni, et al, 2006), emotional and attitudinal factors (Schmid, 2002), amount of exposure to and use of the language in question (Paradis, 2007).

The general trend in recent years has shifted from “successful language learner” to “successful language maintainer” (Čepon & Zavašnik, 2007, pp. 137-148), which particularly centres on the following two areas. The first area relates to the possible existence of a learning method that are immune to later language attrition, which is “the method effect” (Čepon & Zavašnik, 2007, p.139). And second concerns language teaching that stresses the improvement of learners’ language literacy through instructional approaches including the intensity and contents of language teaching.

Influenced by the wave of the language attrition studies abroad, a handful of Chinese professionals had done systematic research on EFL attrition from the aspects of the purpose, process, approach of foreign language education, and of the educational economy (Ni, 2009). However, relatively less effort has been addressed to the loss of their English competence. Notwithstanding recent significant developments in China, overall, the language attrition research in China is still at the budding stage (Wang, 2010). English language attrition with Chinese English learners as subjects is not yet extensively or theoretically sophisticated enough, and it is mainly descriptively oriented. There exists improvement in the research on multivariate pertinence of language attrition, particularly the attrition analysis of the correlation between humanitarian research and linguistic environment on non-English majors in China is yet to be done (Guan, 2014).

### **Methodology**

The present study was mainly designed to investigate English attrition exhibited on Chinese university students studying for Non-English majors after they completed their compulsory comprehensive English courses at the first year of their university life. Utilising a cross-sectional method (Baltes, 1968), data was gathered through questionnaires and language tests conducted in one of the comprehensive universities located in Chongqing, China.

A multi-part questionnaire was designed and spread on the university webpage through the Questionnaire Star (a software like Survey Monkey in Australia) in order to secure information concerning students’ learning and use of English before and after their compulsory English programs (see the appendix) come to an end.

Follow-up language tests were conducted on 114 volunteers who had expressed their interest for further language test to diagnose their EFL attrition in terms of listening, reading, writing and translation skills. The test sampling was divided into two student cohorts with group 1 (n1=52) who completed compulsory English courses 9 months and group 2 (n2=62) 21 months. Using SPSS 24.0, Paired T-tests were conducted among two cohorts with an aim to find out their

generic attributes of English attrition in the four basic skills. After that, three groups were further divided among the two cohorts according to the common practice in attrition test, and grouped paired T-test were taken in order to determine the relationship between language attrition and students' English proficiency.

## English Attrition of Non-English Majors

### General Attributes in English Attrition

Like acquisition studies that track change over time, attrition studies also measure change over time. As Neisser (1984) mentions timing is crucial in attrition test. Wang (2010) insists that the essential design feature of attrition studies is a comparison between knowledge at peak attainment and knowledge during or after loss. The test papers were taken from the two equivalent final exams, whose reliability and validity had been through with strict scrutiny. The exams the students had originally taken when they finished their course were assumed as their peak attainment (termed as Exam 1. The diagnostic exams conducted after their systematic English instruction came to an end 9 to 21 months (termed as Exam 2).

Of the 52 participants who terminated their compulsory courses 9 months, their mean score in Exam 1 was 63.3 with 67.3 percent of participants passing over 60 while in Exam 2, the mean score was reduced to 50 with 21.1 percent of passing rate. The paired T-test score was shown in the following table.

Table-1 *Paired t-test for participants 9 months after completion of compulsory English program*

Pairs (EX1-EX2)	Mean	Std. Deviation	T	Sig (2-ailed)
Pair 1: Total score	13.33	10.09	9.53	.000
Pair 2 : Listening	3.71	4.38	6.11	.000
Pair 3: Reading	2.22	5.74	2.79	.007
Pair 4: Writing & Translation	7.40	5.70	9.37	.000

As indicated in the table above, the difference in the total mean score between two exams was 13.3365 with Exam 1 higher than Exam 2, and the Sig  $p=.000 (< 0.05)$ , signifying there existed a statistically obvious differentiation between the two exams. In addition, the mean score difference between two exams in listening, reading, writing & Translation was 3.7115, 2.221, and 7.404, respectively, and the coordinated sig (2-tailed) was .000, .007, .000, which means that these respondents had suffered attrition in their English competence in terms of listening, reading, writing and translation skills.

Likewise, of the 62 respondents who terminated their mandatory English programs 21 months, their mean score difference was 14.8 with a disparity of 40.4 percent of passing rate between the two exams. The paired T-test of the two exams was illustrated in Table 2.

Table-2 *Paired t-test for participants 21 months after completion*

<b>Pairs (EX1-EX2)</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>T</b>	<b>Sig (2-tailed)</b>
Pair 1: Total score	14.76	10.90	10.76	.000
Pair 2: Writing	3.33	3.35	7.91	.000
Pair 3: Reading	4.32	6.30	5.44	.000
Pair 4: Listening	2.63	4.76	4.40	.000
Pair 5: Translation	.48	1.84	2.05	.045

As aforementioned, the Paired t- test demonstrated a difference of 14.76 in the total two mean scores, and Sig = .000 (< .05). Meanwhile, the statistics displayed a difference of 3.33, 4.32, 2.63 and 0.48, respectively in terms of writing, reading listening and translating with all Sig below .05, signifying these respondents had undergone apparent English attrition.

To generate from the statistics, all the participants under investigation had experienced EFL attrition after 9 to 21 months' completion of compulsory English instruction in terms of listing, reading, writing and translation. This research accords with the previous studies on language skills' susceptibility to attrition, which consistently confirm that productive language skills (e.g., writing and translation) are more subject to attrition than receptive ones ( e.g , listening and reading.) (Spolsky 1998, Hansen & Reetz-Kurashige 1999). In this research, although the progressive attrition order for two cohorts was a bit different, it can be seen that productive skills are generally more susceptible to attrition than receptive skills.

The Correlation between Language Proficiency and Attrition Rate

A question that has intrigued language attrition researchers is whether attrition is related to the learners' original language proficiency level. In order to find out the impact of students' original proficiency level on their EF attrition, this study, based on the scores of Exam 1, differentiated each cohort into Group A, B and C, respectively and conducted grouped paired T-test. In view of the fact that there lacks a consensus in the threshold mark for non-English majors in China, this study, as done by most of the common practice in attrition diagnostic test, as done by Zhang (2015), assumed the top 25% of participants as Group A (the highest level in proficiency) based on their total score in Exam 1, and the last 25% as Group C (the lowest level) with the left 50% as Group B (the middle level). The grouped paired t-tests in each cohort were shown in the tables below.

Table-3 *Grouped paired t-test-21 months after completion*

Grouped Pairs (EX1-EX2)			Mean	Std. Deviation	t	Sig.(2-tailed)
Group A	Pair 1	Total Score	17.22	8.68	7.93	.000
	Pair 2	writing	2.75	3.73	2.95	.010
	Pair 3	Reading	4.69	5.38	3.49	.003
	Pair4	Listening	4.78	4.84	3.95	.001
	Pair5	Translation	.56	1.82	1.23	.236
Group B	Pair 1	Total Score	15.61	10.38	8.37	.000
	Pair 2	writing	3.42	3.04	6.26	.000
	Pair 3	Reading	4.92	6.85	4.00	.000
	Pair4	Listening	2.48	4.24	3.26	.003
	Pair5	Translation	.48	1.73	1.56	.130
Group C	Pair 1	Total Score	10.66	13.18	3.24	.006
	Pair 2	writing	3.75	3.64	4.12	.001
	Pair 3	Reading	2.78	6.15	1.81	.091
	Pair4	Listening	.78	5.04	.62	.545
	Pair5	Translation	.38	2.17	.69	.500

Table-4 *Grouped paired T-test--9 months after completion*

Grouped pairs (EX1-EX2)			Mean	Std. Deviation	t	Sig (2-tailed)
Group A	Pair 1	Total Score	13.54	9.96	4.90	.000
	Pair 2	Listening	5.04	4.83	3.76	.003
	Pair 3	Reading	1.73	4.95	1.26	.232
	Pair 4	Translation/ writing	6.77	5.95	4.11	.001
Group B	Pair 1	Total Score	16.31	8.14	10.22	.000
	Pair 2	Listening	4.23	3.75	5.75	.000
	Pair 3	Reading	4.04	5.21	3.95	.001
	Pair 4	Translation/ writing	8.04	5.06	8.11	.000
Group C	Pair 1	Total Score	7.19	11.66	2.22	.046
	Pair 2	Listening	1.35	4.49	1.08	.302
	Pair 3	Reading	.923	6.39	-.52	.612
	Pair 4	Translation/ writing	6.77	6.91	3.53	.004

As illustrated in the tables above, both Group A and Group B both cohorts were found to have suffered some attrition in different degrees in terms of the basic skills while Group C, the lowest proficiency level, did not show conspicuous symptom of erosion. This finding seems contradictory to the Inverse Hypothesis put forward by Vechter, Lapkin and Argue (1990), which postulates that there is an inverse relationship between proficiency level prior to the onset of attrition and the rate and/or amount of loss. However, this finding was in accordance with Ni's (2009) research. This phenomenon can be explained by the traditional 'forgetting curve' (Weltens & Cohen, 1989), which holds the higher-proficiency participants lose more because the 'have more to lose'. Namely, 'the more you know, the more you forget' (Nelson, 1985). As compared with the higher proficiency groups (Group A and B), who had more to be lost, Group C with lowest proficiency had less to be eroded, thus their attrition was less severe.



## **Variables Affecting English Language Attrition**

With an aim to detect the factors influencing students' attrition, the constructed questions in the questionnaire were grouped into four parts including demographic information, English learning before and after the completion, their motivation and attitudes, and English use after the completion. After the release of the questionnaire, 350 out of 499 responses collected were deemed as effective though manual screening. A 5-point Likert scale was employed to with an intention to quantify the data obtained in the questionnaire.

According to Schmid and Dusseldorp (2010), EFL attrition takes place, in the same tracks as acquisition, is determined by "a complex and multifactorial web of language internal and language external influences" (p.125), and when considering the impact of the variability among individual learners or attriters, attention needs to be paid to its interplay with all other factors. Based on the questionnaire and document analysis, the predictor variables under investigation fell into the following three categories.

### **Acquisition Style: An Important Variable for English Attrition**

Acquisition style has frequently documented as an important variable influencing learners' language attrition (Ni, 2009). As found in the analysis of survey, 71.7 percent of the 350 respondents had expressed the desire to improve their oral English (in No. 23), of which 40.29 percent regarded the lack of confidence as their biggest hurdle in English learning, particularly in English speaking (No.13), for they were frequently haunted by the idea of making mistakes. This study also revealed that, a majority of the respondents (43.71%), rather than focusing on speaking practice, mainly centre on reading practice in their daily study (No. 12).

Therefore, it is not hard to see that most of the Non-English majors surveyed tended to adopt explicit learning style instead of implicit learning. According to Yang, et al. (1994), implicit learning, as a learning out of learners' unconsciousness, is conducive to retention whereas explicit learning, which involves learners' strategic learning controlled by strong purposeful consciousness, is more likely to be eroded (Reber, 1967). The current research demonstrated that a number of the respondents, driven by strong purpose of achieving higher scores in exams, heavily relied on mock reading and writing, or even rote learning. This kind of explicit learning, as asserted by Yang, et al. (1994), is liable to be terminated when the compulsory courses was formally finished, which is susceptible to attrition.

This survey revealed that nearly half of the respondents (46.57 percent) showed their preference for intercommunication between students and teachers in classroom activities (No.15) while 26.57percent prefer original drama show and role play, and 15.43 percent prefer peer discussions. However, merely one third of (32.57percent) of feedback from the students under investigation (No. 16) reported being trained in class of the skills in speaking while a larger number of participants (50.57 percent) reported they were mainly trained in class the practice of reading. Preoccupied by the idea of "reading priority", 43.71 percent of the participants in this research spent most of their time and energy on the enhancement of reading competence. The number was more than those spent on listening (occupying 27.71 percent) and speaking (16.57

percent) (see No.12). In particular, the cultivation of English speaking competence was not adequately considered by some students. Learnt in this, their English competence is liable to be worsened quickly once they stopped learning.

### **Exposure to English: A Fundamental Variable for Attrition**

The amount of exposure to EFL is a determining factor influencing the rate and amount of attrition, as argued by Edwards (1977). Ni (2007, 2010), through empirical studies, found the close relationship between language exposures with foreign language attrition, claiming the fundamental cause for attrition is due to the reduced exposure to and/or disuse of that language, which is a “provocative source” of foreign language attrition. If without this primitive factor, all the other variables will have no impact on language attrition at all (Ni,2010, p. 27).

Compared to Exam 1, the respondents had suffered English attrition in exam 2 with reduced mean scores and passing rates. The primary reason lies in the greatly reduced time spent in English learning after the completion of the course, which resulted in a lowered amount of exposure to English. Based on scheduled module for English courses in that university under investigation, except four hours of weekly classroom instruction, which embraces two hours practice of reading and writing skills plus two hours of listening and speaking, students of Year 1 are required to take four hours of after class extra-curriculum learning including two hours of autonomous learning plus two hours of reviewing and preparing.

While in this survey, although half of the respondents (54.86%) reported they continued to spend some time learning English (no. 1), 70 percent of them admitted spending nearly 2 hours a week in English learning (No.20). That is, 17 minutes per day if equally divided in a week. Besides, 34.57 percent of respondents expressed that “since the completion of English course, they practically stopped English learning”, which means they were shut off to the exposure to English (No. 18). With regards to how English was used in their daily life, a majority of the students (75.71%) reported using English in their recreation, for example, English movies, songs or games, and 42.57 percent used English mainly as academic reference, 25.43 as communication language with foreigners, 21.71percent for chatting on line and 11.43 percent for academic article composition (No. 22). When inquired of their prospects about English in their future occupation, 35.71 percent of participants expected doing some occupations related to the use of English while 43.14 percent of them anticipated that English could be used now and then in their future jobs.

Ni (2010) claimed that there exists an inverse relationship between the amount of students’ exposure to English and the amount and/or rate of attrition. “The higher amount of exposure pertains to longer survival of English” (Ni, 2010, p. 28). This research revealed that during 9-21 months following compulsory English courses, most non-English majors greatly reduced their contact with English, and some even completely stopped English learning, which resulted in a ‘vacuum’ in English learning and/or use, thus leading to a deterioration of English skills acquired since their childhood (Ni, 2010, p. 28).

### **Emotive Factors : Indirect Variables in English Attrition**

There is a substantial body of research into the role of attitudes, motivation and emotions for language attrition, providing compelling evidence that these factors are among the most important for predicting success in the ultimate attainment of foreign language learners (Schumann, 1994, 1998; Masgoret & Gardner, 2003). It is generally assumed that a positive attitude towards the target language is conducive to maintenance, while negative feelings, and particularly traumata, can lead to a higher level of attrition (Schmid, 2002; Ben-Rafael & Schmid, 2007).

As frequently documented in literature on language attrition, there are two categories of motivation: comprehensive and instrumental. The former is used to refer to learning for integrating into the target language community while the latter refers to learning out of practical purposes, for example, gaining credits, passing exams, etc. although both are conducive to language learning, instrumental learners tend to learn the knowledge they consider as ‘a must’, and once their goals achieved, they are likely to stop learning abruptly (Gardner et al. (1985,1987). On the other hand, comprehensive learners desire to be integrated into the culture of the target language, and this kind of ever-lasting learning is more immune from being eroded.

In the current research, although 57.71 percent of respondents reported they were ‘interested very much’ or ‘rather interested’ in English learning, nearly one third of them (36.28%) admitted that their attitudes were ‘highly positive’ or ‘rather positive’ (No. 4), and about one out four(27.14%) self-evaluated their efforts made in English learning as ‘highly industrious’ or ‘rather industrious’(No.7). With regards to the purpose of English learning (No.11), only around one third of the respondents (33.71%) were found ‘intrinsically motivated’ in learning English while the rest were found to learn English out of certain purposes, for exam, to pass CET-4 and /or CET-6 (34.29%) , to meet the requirement of course credits (7.71%), future occupations ( 5.43%) , or for studying abroad (18.86%).

It is not hard to see that, quite a number of non-English majors learned English out of instrumental purpose. English learnt with this attitudes and motivation is likely to be eroded. That is one of the reasons why their English acquired tended to be eroded.

### **Conclusion**

This study revealed some characteristics of EFL attrition among university students studying for non-English majors in China as follows. First, both participants under investigation experienced statistically notable attrition after they completed their mandatory English learning 9-21 months. Second, students’ pre-attrition proficiency was a decisive predictor of language attrition. The higher proficiency pertains to less attrition during a certain during of non-use of language. Three, many factors affect EFL attrition of Chinese non-English majors, the most decisive ones are their original language proficiency and their acquisition styles before attrition. Other factors such as attitudes and motivation towards English, the amount of exposure to English learning and English use after completion of English courses also count in students' attrition.

How to effectively maintain the knowledge and the competence acquired by university students has become a lynchpin to solve the phenomenon of “low efficiency yet time-consuming” that has been perplexing English teaching in China (Cai et al., 2004, p. 925). Non-English majors in Chinese universities, due to the reduced classroom input of English following the completion of their compulsory English courses, plus that some of their proficiency level was below the ‘critical threshold value’, and their explicit acquisition style and their motivations and attitudes, and so on, had suffered notable decline in English competence. Therefore, some effective measures should be taken in order to retain the outcome achieved by both university learning and teaching. There appears a need, first, for universities to optimise the course module, guaranteeing continuous English learning and use all through the four years of university life, and second, for English teaching to take some anti-attrition measures, for example, implementing explicit teaching methods, creating more contact with and use of English after completion of English programs, and fostering students’ positive attitudes and motivation, etc. But most important is to enhance students’ peak attainment.

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## Appendix 1

### Survey for English Language Attrition for University Students studying for Non-English Majors

#### 非英语专业本科生大学英语磨蚀状况调查

Thank you for participating in this survey.

This is an empirical study on university students' learning and use of English. This finding is expected to be beneficial to English teaching and learning among university students in China. Please answer the questionnaire according to your own case.

There is no right or wrong answers to the questions in this survey. It is accordingly important that you answer each question as honestly as you can.

Please choose the one most appropriate response to each question. Do not spend a long time on each item: your first reaction is probably the best one.

Do not worry about projecting a good image. Your answers are CONFIDENTIAL.

Thank you for your cooperation again.

Boli Li

Email: [Berlinlee998@126.com](mailto:Berlinlee998@126.com)

亲爱的同学，您好！

感谢您参加此次问卷与测试调查。这是一项关于我国非英语专业本科生英语磨蚀状况的实证研究，该研究将会对我国大学英语英语学习与教学具有非常重要的反拨作用，请您实事求是地填写下面的调查问卷。

向您保证，您提供的信息绝对保密，不会将其用于任何非学术之目的，这些信息不会对您的学习和生活产生任何影响。如果您对我个人的研究过程和预期成果感兴趣，请直接与我联系。

请仔细阅读调查问卷中的表述，对您认可的选项画“V”，您的答案无正确错误之分。

再次感谢您的积极合作！

祝生活愉快，学习进步！

李伯利

[Berlinlee998@126.com](mailto:Berlinlee998@126.com)

#### 一、基本信息

姓名：

性别：

学校：

年级：

专业：

大学英语学习时间：A 大一学年    B 大二学年    C 大一、大二学年

英语四级考试时间：

英语四级成绩：

英语六级考试时间：

英语六级成绩：

英语选修课名称：

英语专业课名称：

电子邮箱：

二、请认真阅读以下内容，请按照个人实际情况在每个问题的选项中选择适合自己的最佳选项，答案无正误之分。

1、您是否还在学英语？

A 是 仍在学英语



B 否 停止学习 ( 如果选此项 · 请继续完成 C-F )

C.停止半年左右了 D.停止一年半左右了  
E.停止二年半年左右 F. 停止三年半年左右

2、对自我英语水平的评价是

A.优秀 B.良好 C.中等/一般 D.较差/不理想 E.非常差

3、对学习英语兴趣程度的自我评价是

A.非常感兴趣 B.较感兴趣 C.一般 D.没有兴趣 E.一点都不感兴趣

4、对英语学习态度的自我评价是

A.非常积极 B.比较积极 C.一般 D.讨厌 E.非常讨厌

5、对英语学习信心的自我评价是

A.非常大 B.比较大 C.一般 D.没有 E.一点都没有

6、对英语学习努力程度的自我评价是

A.非常努力 B.比较努力 C.一般 D.不努力 E.一点都不努力

7、与其他各科相比,您在英语学习上投入的时间与精力

A.最多 B.多 C.差不多 D.少 E.最少

8、您觉得大学一年级(或者大一二年级)的英语学习有必要吗?

A.非常有必要 B.有必要 C.无所谓 D.没必要 E.完全没必要

9、您觉得大学一年级(或者大一二年级)您所掌握的英语对您的生活、学习有帮助吗?

A.非常有帮助 B.有一定的帮助 C.帮助不大 D.没有帮助 E.完全没有帮助

10、您通过大学英语学习,您的英语水平提高程度

A.提高非常大 B.有所提高 C.几乎没有提高 D.退后到中学水平 E.不及中学水平

11、您进大学学习英语的目的是什么?

A.学习英语已是大势所趋,我也顺应潮流,而且我也乐在其中

B.为了通过 CET-4、CET-6 C.学分要求 D.为了将来出国 E.为了以后找个好工作

12. 大学英语学习期间,你花的最多的时间是在哪一方面?

A. 练习听力 B. 练习口语 C.练习阅读 D. 练习写作 E.练习翻译

13、您在大学英语学习期间碰到的最大困难或挑战是

A. 实际应用或说英语时缺乏信心·总担心出错而不敢开口说英语

B. 英语基础差·跟不上教学内容

C.没有英语学习的兴趣

D.没有语言环境练习口语、听力等

E.专业课学习太忙,没有时间学习英语

14、影响您大学英语学习的最主要因素是:

A.教师的教学方式 B.教材的内容 C.自身的英语基础

D.自身的兴趣爱好 E.英语学习的环境氛围

15、您最喜欢的英语课堂教学方式是:

A.师生互动 B.同学间的讨论交流 C.老师教授,学生记笔记为主

D.课堂书面练习 E.话剧表演、角色扮演

16、在上英语课期间您的英语老师授课**强调**的重点是

A.单词 B.读写 C.听说 D.语法与习题 E.综合

17、您认为英语学习最难的是

A. 记单词 B. 语法 C. 句式结构 D.篇章理解 E. 口语对话

18、您目前的英语学习情况是: **(此题可多选)**

A. **大二开始不开设英语课了·我基本已经放弃了英语学习**

B. **我不再系统地学习英语·只是偶尔看看英语报刊杂志**

C. **我参加英语提高课、选修课的学习·继续学习英语**

- D. 我进行专业英语的学习·继续学习英语
- E. 虽然进行了专业英语学习·但其实是蒙混过关
- F. 继续学习英语·准备过级考试 ( CET-4、CET-6)
- G. 继续学习英语·准备其他考试 ( IELTS, TOEFL, BEC 或者考研)
- H. 继续学习英语·为将来工作准备
19. 您目前取得的英语成绩是：(此题可以多选)
- A. 过了 CET-4
- B. 过了 CET-6
- C. 英语期末考试都通过了，但没有通过任何过级考试
- D. 英语期末考试还有不及格的
- E. 通过了其他考试，如 IELTS, TOEFL, BEC 等
20. 您现在每周接触英语的时间是多少？
- A. 根本就不学习
- B. 2 小时左右 C. 4 小时左右 D. 6 小时左右
- E. 8 小时左右 F. 10 小时及以上
21. 您目前学习英语的方式是：(可以多选)
- A. 从不学习英语 B. 专业英语学习 C. 记英语单词
- D. 看英文影片、电视剧 E. 读英文报刊、杂志 F. 浏览英文网站
- G. 听英文广播 H. 写英文日志
22. 您目前在进行何种活动时会使用英语活动？
- A. 与外国人交流 B. 查阅资料 C. 网上聊天 D. 论文撰写 E. 娱乐休闲 ( 电影，歌曲，游戏等)
23. 您目前最想提高哪方面的英语能力？
- A. 听说能力 B. 阅读能力 C. 写作能力 D. 英汉翻译能力 E. 本行业英语专业知识能力
24. 您的日常生活中是否使用英语？
- A. 经常使用 B. 偶尔使用 C. 几乎不使用 D. 不使用 E. 一定都不使用
25. 你感觉自己的本专业学习和英语水平之间的关系是：
- A. 兴趣至上，英语强于所学专业 B. 专业强于英语 C. 齐头并进两手抓
- D. 毫无关联 E. 此消彼长，更关注所学专业
26. 你期望将来的工作与英语的关系是：
- A. 经常使用英语 B. 偶尔使用英语 C. 一般不使用英语
- D. 少使用英语 E. 完全和英语无关

## **ADVANCING EQUITY TO TRANSFORM TEACHING: CONNECTING ACROSS CONTEXTS**

**Sandra L. Hardy**

### **ABSTRACT**

*Transformative teacher education occurs at all stages of the teaching continuum. Each stage influences the others. Novice educators often bring new ideas to the local contexts that may transform teacher education for the novice and veteran alike. As well, veteran educators with professional development and experience serve to transform education and often support formally or informally the novice teachers' transformation in further learning to teach.*

*The meta- synthesis which follows stemmed from a purposeful sample of three original research studies. Two of the studies were conducted by the author and one study was in collaboration with a colleague. These three qualitative research studies employed multiple case study methodologies pertaining to further understanding induction needs of novice teachers within and across contexts. The purpose of these three studies and subsequent meta-synthesis was to better meet the needs of novice teachers in the induction period as well as to inform teacher education programs and transform teacher education that advances equity and connectivity within and across contexts.*

*Data triangulation in the meta-synthesis of the three original research studies served to identify and reconfirm common themes and sub-themes across cases and contexts. Furthermore, the meta-synthesis, a meta-study -incorporated critical interpretive synthesis, thematic synthesis, and textual narrative synthesis to reveal fresh interpretations. The contextual constructions and inherent limitations served to further illuminate possibilities in advancing local to global connections within and across contexts to promote equity of opportunity for all learners.*

## **ADVANCING EQUITY TO TRANSFORM TEACHING: CONNECTING ACROSS CONTEXTS**

Tremendous inequities exist in educational opportunities. There is poverty in the economic sense, but also poverty in many other areas that manifest through a lack of resources either because the resources are simply unavailable or because the resources are allocated in such way equity of opportunistic experiences for professional development is stunted. “Over the past century, researchers have grappled increasingly with these social, cultural, economic, and educational struggles with increasingly sophisticated research. At the same time that we celebrate these accomplishments, we must also acknowledge that research has proved insufficient to shift patterns of cultural exclusion and inequity that pose serious threats to democracy” (Oakes, 2018, p. 101).

These inequities affect children and require schools and society to collectively support the areas of greatest need for the common good. “The greater the disparities in children’s living conditions, the greater the effect of these disparities are expected be, so educational access is a function of how schools provide educational opportunities and how children are supported by the society at large to take advantage of these opportunities” (Darling-Hammond, burns, Campbell, Goodwin, Hammerness, Low, McIntyre, Sato, & Zeichner, 2017 p. 12). This then defines equity of educational opportunities and consequently inequity. Abundant resources and the lack there of assist in defining lines of division that cross over into learning and teaching opportunities and experiences. Perhaps the greatest cause for concern is the discernment and dispersment of resources often times does not reach the areas of greatest need. Herein resides one of the main roots of the problem. It is important to recognize not all resources stem from monetary frameworks however. Even the linking of progressions to share experiences and support within and across contexts is a valuable resource that brings about tremendous returns to teachers and students.

The manner in which these disparities occur for k-12 students and also teachers may have far reaching implications. Here, the focus is on reversing inequity of induction opportunities where contexts are perceived by novice educators as lacking. Avenues of opportunities so as to learn through collaborations within and across contexts, with colleagues, and other teacher educators combine with the great variations in induction experiences and afforded subsequent support services available to educators and other professionals in education. The ramifications of a lack of adequate resources are found in multiple areas including high staff turnover rate, feeling of isolation, overwhelming frustration, and other elements of inequities. Such experiences are evident in teacher preparation that carries over into induction experiences with the need for further, and when possible, comprehensive support.

The focus here is a meta-synthesis of three primary qualitative research studies pertaining to areas of inequity in teacher induction and how that is influenced by contexts as well as in what ways cross-contextual connectivity may enhance overall induction opportunities. These three studies were purposefully selected and examined for the induction commonalities as expressed by novice teachers in k-12 district mentoring program improvement efforts, as highlighted in case studies of novice special education teachers in four separate school districts, and as noted in a survey distributed to teacher education students in continuing education courses.

What follows is a brief synopsis of each study preceded by emergent patterns in the data as revealed through the meta-synthesis. Finally, the meta-synthesis highlights the importance of connecting within and across contexts to advance equity of educational opportunity of novice teachers' induction and beyond.

**Overview of the three research studies:** Three primary qualitative research studies were examined to find patterns within and across the studies that illuminate the role of contexts in promoting equity for teachers' induction. These three studies were selected because of the researcher's intimate involvement with the in-depth analyses of data in all three studies, and the data collection in two of the three studies. The roles of contexts in opportunities for equity in induction opportunities was a line of inquiry into these studies that resonated as the result of the researcher/author's participation in The Commission of Classroom Teacher as Associated Teacher Educator, commissioned by former Association of Teacher Educators (ATE) President, Nancy Gallavan. Two of these studies are in fact available as chapters in two of the three books produced by the commission. The first study "Transforming Induction: Contexts and Practice" by Sandra L. Hardy: is chapter 2 (pp. 17-36) in "Dynamic principles of Professional Development: essential Elements of Effective Teacher Preparation" (2017). The second study "Critical Understandings of Classroom Teachers as Associated Teacher Educators on Learning in Landscapes of Practice: A case Study Approach" (pp. 85-108) by Sandra L. Hardy and Caroline M. Crawford is found as chapter 5 in "Teacher to Teacher Mentality: Purposeful practice in teacher education (2017). The third study was a dissertation which served as the primary starting point of the commission's work. Therefore, all three of these original qualitative research studies have been published and may be accessed in their entirety.

**Study #1:** The first study, "Transforming Induction: Contexts and Practice" examined the induction needs of novice teachers in a k-12 school district in the Midwest as part of program development.

**Problem:** The central office administration in a K-12 district would like to improve upon their mentoring program. They would like to formalize the program and are seeking information to know what improvements need to be made in this regard.

**Purpose:** The purpose of this study was to identify and describe the areas needing improvement in a K-12 induction program.

**Participants and Environment:** Participation was voluntary. Participants were 11 novice and 7 new to the K-12 public school district teachers. Participants provided information concerning their prior teaching experiences. Teaching experience ranged from 0 – 24 years. Participants selected dates and times for the interview that were most convenient for them. The participants were explained fully the purpose of the interviews to gather information so as to improve the district's induction program in regards to mentoring. Each of these teachers had been assigned an informal mentor. Prior consent was obtained and anonymity assured both in writing and in person to each of the participants and was honored.

**Significance:** Data obtained in this study served to reveal the areas I need of improvement in the induction program from the view point of the novice and new to the district teachers.

**Researcher:** The researcher was also a teacher in the district and a doctoral student conducting the study to fulfill her internship requirements. The researcher had the full backing of the district's central administration and had worked with some of the teachers concerning tutoring of students in the district. Therefore, the researcher knew the district and the administration, as well as many of the teachers prior to the study.

**Guiding questions:** The questions were purposefully kept simple and go from very general to more specific. Furthermore, there were numerous probing questions that occurred in the very natural and non-threatening posture of the interviews that created more of a dialogue with the interviewer seated in a student's chair and listening, taking notes, and listening with an open posture. The intent was to create a safe and open atmosphere for the respondents to share information.

How long have you been teaching? What were your previous teaching assignments? Have you had formal mentors before? If so, please elaborate on that experience. As a new teacher to this district what would be most helpful to you from a formal mentor?

**Methodological framework:** Data was gathered through qualitative interviews with each teacher in their respective classrooms at a time convenient to them. These face-to-face interviews were conducted by the researcher who was also a teacher in the school district. Confidentiality was assured and maintained in all manner of collecting and analyzing the data as well as in reporting the data to the administration.

**Data analysis:** Comments were recorded verbatim. The data was then analyzed by research question as well as across data for emergent patterns and themes.

**Findings:** Six of the participants had formerly had a mentor. Fourteen of the 18 participants preferred to meet with their mentor routinely. Proximity played a huge role in the opportunities for interaction. Five teachers indicated additional information was needed on curriculum before the start of the school year. Twelve teachers shared they needed more information on policies and procedures. Four teachers desired help from their mentor with classroom management. Four teachers indicated the need for meeting with grade level teachers.

Noting these similarities and differences, the teachers identified with the current contexts as confining them. They expressed a desire to reach outside and across contexts to communication, collaboration, and shared resources with their colleagues. Some found their teacher education program instructor continued to be available by email, some preferred these instructors be available in the novice's classroom, and most all of the teachers expressed a need for the school university connection to continue after their graduation and that they need to connect with other teachers for multiple purposes in the induction phase.

There was within these contexts of school districts in the mid-west and southwest of the United States a need to share ideas, resources and supports that transcended the norm of induction experiences. These contextual factors would engage the education profession spectrum to elevated heights that reached schools and districts in the contexts of states and nations.



**Qualitative data and Implications:** Verbatim quotes as examples of the teachers' responses: emphasize contexts and connectivity and how such can address equity of opportunity in the first few years of teaching.

“Observing other teachers now to learn from them would be more helpful to me now than when I was in my teacher education program.”

“It must be real, nothing artificial.”

“Sharing space helps to talk to the mentor more often.”

“More time with mentor set aside for just that purpose.”

“Conferencing with parents, how to say things to parents.”

“Meet one on one before the first day so you know what to expect.”

“It’s the little things, how to use the copy machine, and what paper to use.”

The unique needs of each teacher as an individual vary within the contexts. It is important to keep that frame of reference in mind. The data gathered here represents the situation for these teachers in that district at that time. However, these are similar preferences of most novices or new to school teachers.

**Limitations:** This study only examined the perceptions of these novices and new to this district teachers based on interview data. Follow-up surveys and even observations of these teachers interacting with their mentors and students in their teaching environment may have verified or further added to the findings in a broader and deeper manner. Further – additional research data from other sources such as surveys and observation would have served to triangulate the data and findings to strengthen this needs assessment study.

**Conclusion:** Induction programs carry the capacity to support new and experienced teachers to better serve their students in the unique contexts presented. “Cultural contexts of learning environments present opportunities and challenges to tailor induction experiences that adequately meet the needs of the individual teachers and schools in terms of resources” (Hardy, 2017, p. 32).

Teachers are impacted by the multitude of contexts in which they find themselves. Therefore it is imperative that schools and districts strive to create transformative teaching and learning environments for their teachers that foster further learning to teach so as to promote equity of resources and educational opportunities for novices as well as for their colleagues and their students. Further – these learning and teaching contexts would benefit from collaboration within and across contexts to promote learning that fosters and sustains a network of comprehensively shared resources and subsequent professional development.

### **Study #2: “Constructing Exemplary Practice in the Teaching of Writing and Professional Language English Arts Standards: Implications for Novice Special Education Teachers”**

The second research study, a dissertation, qualitatively examined a purposeful sample of four case studies involving novice, less than four years, special education teachers who provided language arts instruction to their students. The focus of this study was to explore the novice special education teachers' “perspectives, beliefs, professional development and induction needs, and practice concerning the professional standards of exemplary writing instruction” (Hardy, 2015 p.123). The qualitative research examined as to what extent these novice teachers



felt prepared to teach writing in accordance with professional standards and their current contexts in terms of supportive professional development in this regard.

**Participants and Environment:** The participants were purposefully selected based on their years of teaching, teaching special education, and teaching language arts. The participants agreed to participate in interview, survey, and to be observed teaching a lesson that involved writing on three separate occasions. The teachers were assured of confidentiality throughout and following the study and all participants signed a written consent to voluntarily participate in the study.

Each of the four novice teachers taught in a separate elementary school district in the Midwest.

**Significance:** Identifying the needs of novice teachers and their unique perspectives on further learning to teach may serve to open channels of building connections to meet those needs. The increased level of support then may serve to enhance teaching as well as teacher retention and student achievement.

**Guiding Research Questions:** Professional standards were defined as those areas in common with national board of professional teaching standards and Illinois state teaching standards and form the definition of exemplary teaching practice.

1. How do the descriptions by special education teachers of exemplary writing practices align with the professional standards?
2. What do special education novice teachers perceive as the role of teacher educators, mentors, other teachers, administrators, as well as classroom and school contexts in learning and applying the professional standards in their writing practices?
3. How do novice special education teachers' beliefs about learning and instruction of writing influence their acquisition of pedagogical knowledge pertaining to the professional standards in their writing practices?

**Methodological Framework combined with analysis:** Explored qualitatively through the in-depth case studies of 4 novice special education teachers as to their perspectives and beliefs concerning continued construction of exemplary writing instruction and associated induction professional development needs.

Audio taped interviews were conducted in the respected novice teacher's classroom at a time and day at their convenience. The taped interviews were then transcribed by the researcher verbatim and open coded as well as coded by research question to reveal patterns or themes and subthemes in the data. Both within case and across case analyses were conducted with all interview data.

Observations were conducted of a full language arts class period and notes were taken throughout the observations. The notes were typed by the researcher and shared with the participants to double check for accuracy of interpretation. Observation data was then coded by research question and open coded within and across cases.

A third element of data collection utilized surveys that the teachers were given to complete in their own time. The written responses were typed by the researcher verbatim and respondents were identified by code numbers. These typed reports of the respondents' responses were shared

with them for verification of accuracy as a member check. Data was recoded to reveal patterns in relation to the research questions as well as emergent patterns of themes and subthemes.

**Triangulations of data:** All three forms of data were then cross-checked to confirm findings. The findings were written into a report and member checked with each respondent. No inaccuracies were reported.

Finally – the researcher kept a reflexive journal throughout the study. This too was coded by research question and open coded. Emergent patterns and themes were noted.

**Findings:** Themes revealed in the data: (1) Novice teachers shared their experiences in learning to write as a K-12 student – the contexts of teachers as k-12 learners and the equity of those experiences across contexts. The novices were influenced by how they were taught as k-12 learners which then influenced how they taught as teachers. (2) Teacher as Learner was another context concerning teacher education programs and the need for more equitable connectivity within teacher preparation among other teacher education students. This carried over beyond graduation into induction with the continuation of teacher education and professional development opportunities across contexts in ways to enhance collaboration. (3) Learning to teach writing as practicing teachers – ties into the above statement. (4) Preferred ways to learn to teach writing – ties into the learning to write as K-12 students as referenced. (5) Beliefs about learning and the instruction of writing were also tied to prior learning experiences.

Contexts and acquisition of pedagogical knowledge was noted by participants as the contexts where they taught directly impacted their efforts to improve their teaching: “The contexts of the school can hinder how I teach.” “The atmosphere of the school made collaboration challenging.”

Even well-prepared teachers may experience the school context where they initially teach as preventing the implementation of instructional changes “the comprehensive induction support network that they had indicated would best serve their needs they found was not available. Consequently, they sought this knowledge and skills by pulling together bits and pieces and scrounging around for materials” (Athansases & de Oliveira, 2008). In this sense equity is stifled and contexts are limiting. This is exactly such an instance for increased collaborative connections across contexts to transform teaching by providing opportunities for more equitable learning to teach experiences in induction and beyond.

Connectivity is lacking and so the novices create materials and gather knowledge in isolation. This creates a lack of equity in teaching and therefore in learning. Therefore, induction program development pulls many contexts and other resources together to create a network of supports across contexts – to further foster equitable induction and learning opportunities. The roles of mentors and administrators are also part of the contexts

**Implications:** Contexts are greatly shaped by resources including the resources of other teachers across the spectrum and from varied locations and contexts.

**Limitations:** Time spent in the field was short. There needs to be a longer engagement with follow-up studies to trace the impact of contexts over time for novices. Further, this study was limited to only four novice teachers.

**Summary and Conclusion:** In summary, the novice teachers felt unprepared to teach writing and lacked sufficient support in their contexts of teaching during their induction period. They were desperately seeking resources and connections to learn to teach in the contexts where they were teaching. They also made it very clear that they would like university teacher educators to continue as a part of the contexts where the novices then taught. They expressed the need for the university teachers to be present in the K-12 classrooms occasionally during the induction period to help bridge the gap between teacher preparation and induction contexts.

In conclusion the role of contexts in preparation and induction opportunities was powerful for these novice teachers. They each expressed a very strong need for collaboration to be enhanced within and across contexts and extended this concept to include university teacher educators in the induction field classrooms.

**Study #3:** The third study, Chapter 5 in “Teacher to Teacher Mentality: Purposeful Practice in Teacher Education: C.M. Crawford & S.L. Hardy (Eds.) **“Critical Understandings of Classroom Teachers as Associated Teacher Educators on Learning in Landscapes of Practice: A Case Study Approach”** (Hardy & Crawford, 2017 pp. 85 - 107) was also a qualitative study. It differed from the first two studies in many ways. It was not a needs assessment for program development – nor was it in depth cross case analyses for a dissertation, rather this study looked at data pertaining to the perception of teacher education students in a university teacher education program concerning the contexts of expectations.

**Focus of this study:** Nancy Gallavan ‘s founding of the ATE Commission on Classroom Teachers as Associated Teacher Educators, subsequent inquiry evolved concerning perceptions of classroom teachers as focused upon field-based teacher education programs of study. A snapshot of understandings was required to guide the commission’s efforts.

**Purpose:** The purpose of this case study approach was to further expand the professional knowledge base pertaining to classroom teachers engaged in supporting teacher education programs of study.

Furthermore, this research sought to examine the perceptions of the needs of novice classroom teachers in beginning their career paths within the realms of elementary and secondary classroom teaching.

**Participants and Environment:** Participants consisted of 32 classroom teachers from 2 a suburban school districts consisting of both elementary and secondary sites that surround a large metropolitan area within the southern United States. Five of the participants were coaches and a baseball coach taught chemistry. The teachers voluntarily participated in a brief open ended questionnaire; 8 of the respondents reported years of experience ranging from 7-28 years; 20 participants provided information as to the subject taught, and 5 were coaches.

**Significance:** The critical impact of classroom teachers as associated teacher educators is clearly influential and necessary towards the teacher candidates’ success and further stands to promote the practice of professional teacher educator standards as well as provide opportunities for building and sustaining collaborations within and across contexts. These connections are essential to share ideas, professional knowledge, resources and support that form a vast network to link teachers across classrooms, schools, districts, states, and nations. This global concept of

teachers as associated teacher educators recognizes policies as contextual as well, and thus seeks to find common ground to propel equity of opportunity in further learning to teach and related supports into the 21<sup>st</sup> century contextually and beyond.

**Guiding Research questions:**

What would classroom teacher want university supervisors to know?

What would veteran classroom educators want novice classroom educators to know?

What are the important qualities/components of teacher leaders that are necessary to support novice teachers?

What would novice classroom teachers want veteran classroom educators to know?

**Methodological and Analytical Framework:** Multiple case study approach was applied with multiple participant groups and sub-groups identified by grade levels taught, content area, and years of teaching experience. Color coding and coding by symbols were utilized to bring out the patterns in the data. All data was printed and cut into strips, then laid out on a large poster board with color and codes to create a sort of quilt of analyses.

Subgroups based on content and experience were compared and contrasted for each research question. Repeated analyses involved emergent patterns and themes within and across participant subgroups as mapped out through detailed analysis of verbatim quotes. Data were further analyzed multiple times for emergent patterns and sub-themes pertaining to each research question within and across subgroups. Finally, open –coding was conducted and repeated across all data.

**Role of the Researcher(s):** There were several researchers involved in this study. First there was the researcher who gathered the data. This researcher was a student in a teacher education program. Next, there was the researcher who analyzed the data thoroughly without the background knowledge that may be absorbed from actually gathering the data first-hand from the participants directly. Finally, there was the co-researcher who knew both of the gathering of data and the multiple analyses and served to verify findings and interpretations by the other researcher who conducted the ‘quilted’ data analyses.

**Findings** Presentation of data as verbatim written quotations organized and analyzed for patterns and emergent themes throughout to reveal importance of learning to teach in clinical settings supported by university based teacher educators. This collaborative context brought university coursework to clinical collaborations with the informed realities of students in the classroom.

**Implications:** Respondents indicated there was a need to collaborate further with school and university teacher educators. Connections of clinical practice and research intersections of coursework stand to create contextual changes to promote equitable educational opportunities for all teachers as learners.

**Limitations**

Data were limited to one source of survey questionnaire. While the original data was analyzed, it was not member checked. Although the data were very thoroughly analyzed, detailed information about the participants concerning the contexts in which they taught may have

influenced the interpretation. Such information would have provided greater insight into the resources they had available to them as well as further needs for advancing equity from their unique vantage point. Further, onsite visitations to these environments may have also yielded much rich data through observations of teachers and the contexts in which they taught. This includes the contextual elements present in further learning to teach such as the other teachers and administrators as well as the school culture and climate in general and specifically.

Data analyses performed by researchers who did not collect the data first hand – provides for a more detached and perhaps fresh interpretation. The opportunity to follow-up with two more data sources as interviews and observations would have served to bring much more validity to the study.

## **Conclusion**

In summary, contextual connections to equity of educational opportunities may be stunted by perceived disconnections between school and university, teacher as student and as novice, and the limited role afforded to the university teacher education staff, as well as other teachers. The influences of teachers and administrators at all levels on contexts are paramount to building environments of learning conducive to promoting more equitable opportunities for learning and learning to teach. This applies to contexts of resources, but also of connections with other educators of the same grade and subject and school, across grade levels, across subjects, across schools, and branches out to other states and countries to most fully realize the benefits of connectivity across contexts of policies concerning the advancement of equitable educational opportunities for novices and for all learners.

## **Meta-Synthesis of these Three Qualitative Studies:**

Drawing from the work of Barnett-Page & Thomas, (2009), the meta-synthesis was conducted as a meta-study which included critical interpretation synthesis, thematic synthesis, and meta-syntheses of purpose, contexts, and methodologies. The meta-purpose was identified as an enhanced equity of opportunity through collaboratively linked resources within and across contexts including those contexts of policy and practice with the opportunity to connect with colleagues throughout. Meta-synthesis of participants found all the participants were voluntary. The district needs assessment and the exemplary studies were both purposeful samples. The questionnaire survey sample was a convenience sample. Meta synthesis of methodologies consisted of analyzing the analyses of methodologies and epistemological frameworks (Barnett-Page & Thomas, 2009). Thus, all the methods were qualitative and consisted mostly of case studies with interviews.

The epistemology for all three studies was social constructionism with the environment significant. However, the environment was significant in both positive and negative aspects as the contexts was reported by several of the novices to be confining and lack the opportunity to collaborate, or the needed support from other teachers due to proximity, as well as a lack of desired connections with teacher educators based at the university to be present in the classroom of the K-12 schools during that transition period of induction. Critical appraisal also noted there was a need for larger follow-up studies in all three original research studies, extended time in the field, varied context from which to draw data, larger more diverse groups of participants, as well as the need for more than one researcher's interpretation of the data.

The purpose of the studies was made known to the participants in writing and verbally throughout the three studies. The textual narrative synthesis examined ways methodologies employed to assist participants in expressing their perspectives (Barnett-Page & Thomas, 2009) found there were many methods employed. Interviewing was conducted in the participants' classrooms in two of the studies at a time and date of their choosing. The interviews were transcribed and member checked for accuracy of transcription and interpretation. The participants were assured in many ways throughout the data collection process of confidentiality and that was maintained. Observations were part of the methodology for two of the studies. These observations were prescheduled so that the participants chose the day and time of the observation and therefore could prepare a lesson they wished the researcher to observe.

Meta-theory arrives at a more deep and broad understanding of an existing theory or may also develop broader theory that encompasses the existing theories (Barnett-page & Thomas, 2009). Perhaps a meta-theory of meta-social constructivism theory stemming from Vygotsky's work (1978) was proposed from the meta-syntheses. The meta-theory of social constructionism recognizes the importance as well as the limitations of contexts, interactions, resources, and political discourse. Such a meta-theory would seek to broaden teaching contexts that value the individuality of each teacher as well as the teaching profession within communities of learning in practice. The meta-synthesis of findings noted teachers perceive the tremendous need for further collaborations within and outside of their immediate contexts.

Meta-study and critical interpretive synthesis were conducted to reveal a farther reaching fresh interpretation of the data (Barnett-page & Thomas, 2009). Meta synthesis of original data revealed an across studies interpretation of a common need expressed by teachers of both expanding and connecting within and across contexts to promote professional development which may also be interpreted as equity of educational opportunities in further learning how to teach.

Meta-synthesis of limitations consisted of noted singular data source for two of the studies that were limited to teachers' self-reported perceptions. One study did include observations. There was across studies limited engagement in the field, limited number of participants, sites, and a lack of follow-up studies. Finally, limitations found in the meta-synthesis also consisted of a singular interpretation of the data – that of the researcher conducting the study. This was perhaps further compounded by the construction of a construction in that the researcher who conducted the original studies was also the researcher who performed the meta-synthesis of their own works.

The conceptual framework of this paper serves as a reference point for the contexts of contexts, the constructions of constructions that show the tremendous ability of connecting across contexts to learn from one another as professional teacher educators. The triangulation of data presented here – suggests strongly the need for identifying and sharing resources including the resource of collaboration. In looking outside of the US contexts for evidence of equity in induction and learning to teach we find much greater tendencies for collaboration built in to the day.

### **Theoretical Implications and Summary:**

In conclusion of the meta-synthesis, teacher educators in universities, K-12 schools, and other learning communities in practice would benefit from accessing powerful resources of



connections and collaborations across contexts. Local to global connections advance equity of educational opportunities that transforms 21<sup>st</sup> century education and beyond. “An element of global “21<sup>st</sup> century skills and international standards have led to the global focus on reforming teachers. However, these concepts did not emerge from a single source. Instead, they slowly emerged as a result of global policy actors influenced by the global education culture.” (Akiba, 2017, p.157). Thus, it is necessary to examine and learn from educational contexts and practices, as well as the roles of policies internationally.

In Shanghai, education systems may create novel topics of study which extend and connect learning to other environments and contexts that include museums and science centers for learning and teaching (Zhang, Ding, & Zu, 2016). Connectivity across contexts creates an infrastructure that both supports the teacher as individual learner as well as offers flexible accommodation for the contexts of the immediate learning and teaching environment and those that expand from there to connectively form a network of support across contexts that transforms teaching. Even highly qualified teachers require adequate material and support resources to teach effectively. “If teaching is to be effective, the policies that construct the learning environment and the teaching context must be addressed along with the qualities of the individual teachers” (Darling-Hammond et al., 2017 p.18). This connectivity across contexts goes beyond the immediate environment to encompass global initiatives. The functionality of such connectivity requires linking of resources including the resources of ideas, knowledge, professional colleagues, and contextual elements to bring about reformative transformation in learning to teach. Such a reform measure surpasses the current systems in place where efforts are snapshots and self-contained to limited extents that result in a downward spiral of those with less having less. “...the variable knowledge of teacher reform tends to focus on snapshots of teacher education and perspectives of teachers and their classroom and work contexts instead of the interactions between global dynamics and national and local teaching, and policy environments for influencing the process of developing and implementing a teacher reform.” (Akiba, 2017, p. 163.)

Rather – if resources are shared and linked with connectivity across contexts these opportunities create pathways that are opened up to promote positive opportunities and shared resources to advance educational opportunities far better than singular efforts of state or nation. It is in the global contexts of connectivity and shared resources that learning finds the greater good paramount. The better the connectivity across contexts, the stronger the reinforcements of these networks of opportunity transcend barriers to reach into rural areas. Such efforts identify and address poverty in multiple contexts and geographic areas to bring a more equal footing to the threshold of opportunities for everyone in the process.

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## **TRANSFORMATIVE STEM TEACHER EDUCATION SUPPORTING TEACHER IDENTITY DEVELOPEMNT THROUGH DESIGN AND MAKING**

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### **ABSTRACT**

*A research effort focused on “Design and Making” is explored through multiple research-based approaches for supporting the identity development of teachers at a large Hispanic Serving Institution in the United States. The researchers present transformative teacher preparation approaches that integrate design-based, making experiences for pre-service teachers that focus on teamwork, self-efficacy, communication, and identity formation. A review of research in teacher preparation and professional identity development will outline some of the challenges and needs for transformative teacher preparation course redesign and a presentation of this integrated approach. A preliminary research effort that involves faculty who prepare teachers is outlined and preliminary qualitative research findings regarding the impact of “Maker Spaces”, novel learning environments that utilize high and low technologies, will be presented. The insights gained from this research will enable local and global institutions to restructure design-based education preparation courses so as to enhance student teacher success by incorporating makerspace-based design projects. An overview of scaffolded activities, formative assessments, and summative assessments that are effective in such teacher preparation courses are also presented as a low cost and replicable approach to prepare confident technologically savvy teachers.*

## **TRANSFORMATIVE STEM TEACHER EDUCATION SUPPORTING TEACHER IDENTITY DEVELOPEMNT THROUGH DESIGN AND MAKING**

### **Introduction**

This study is one subset of the research that comprises what we call “The Engineering Education Maker Identity Project”, which is a research effort aimed at investigating the effect of makerspaces on student identity and learning. Our team is comprised of cross-disciplinary engineering education researchers from Texas State University’s departments of Engineering Technology, Curriculum & Instruction and the LBJ Institute for STEM Education & Research. For this part of the study, the team organized a professional development intervention to integrate learning experiences for faculty who prepare teachers (teacher educators) in a laboratory space with digital, robotic and simple hand tools- referred to as a “maker space” to seek to uncover key concepts and principles that might particularly enable a more diverse group of teacher educators to leverage their own creativity and innovation toward inclusion of design and making into a variety of teacher preparation courses. In this process, the development of teacher identity as designers and technically-savvy “Makers” is explored.

### **Makerspaces Facilitate the Development of New Sets of Skills**

Makerspaces are a recent addition to the list of what Blikstein refers to as that “new set of skills and intellectual activities that are crucial for work, conviviality, and citizenship and that often democratizes tasks and skills which were previously accessible only to experts” (1). Of late, the makerspaces concept, which originated in the do-it-yourself community (DIY), has received the attention of universities, schools and public libraries as a means of facilitating learning, especially in STEM disciplines. However, the effect of makerspaces on student learning in STEM and STEM Education has not been thoroughly researched. Closely related to the application of makerspaces in engineering education is the notion that engineering design is in itself an educational pedagogy. Resnick and Silverman suggest that the “best learning experiences come when learners are actively engaged in designing and creating things, especially things that are meaningful to them or others around them” (2). However, engineering design, a major part of which is rooted in engineering sciences, is almost always a highly constrained, analytical activity. This aspect of design pedagogy, in addition to disenfranchising several types of learners, also does not facilitate creativity and inventiveness (which abilities are fostered by exposure to “shop work”). Some researchers (3) have suggested that design, as a mechanism for learning, is accessible to many types of learners. Makerspaces can encourage safe experimentation where learners make mistakes but still retain their confidence and identity to pursue their interests. In other words, the organizers of makerspaces value the prior life experiences of learners.

## Review of Research

### Teacher Preparation and Professional Identity Development

Research indicates that despite efforts to improve teacher preparation and professional development many teachers feel inadequately prepared to teach. As teachers prepare to apply theory to practice in pre-k-12 classrooms, they encounter a disconnect between theory and practice (Russell, McPherson, & Martin 2001). The following chronicles the experience of a first year English teacher “I knew my content, and I was knowledgeable about many creative pedagogical strategies, but I couldn’t figure out how to place myself in the classroom – who was I as a teacher? How much of my old self could I bring to my class? How much of a new persona, did I have to create to interact effectively with students? I felt disoriented and a little off balance. I didn’t know how to be a teacher, even though I knew the fundamentals of a teacher’s work. In short, I struggled with assuming a *teacher identity*” (Alsup, 2004). Hong (2010), Ingersoll (2003) and Mahan (2010) suggest that the development of teacher identity may have significant bearing on how well teachers do, how long they persist in the profession and how they feel about themselves as teachers in the classroom.

The benefits of studying teacher identity development is twofold. First, learning about teaching should be informed by issues of identity formation if learning is to be deep rooted (Loughran 2006). In fact, in an analysis of the why science teachers do not adopt inquiry-based teaching practices (despite the advocacy of this pedagogy by the science education community), Gilmore, Hurst and Maher (2009), suggest that to facilitate the required teaching reform, teacher education programs must address the development of one’s professional identity as a teacher. Second, as the role of teachers has changed, from being one of transferring knowledge to facilitating learning processes (Klaassen et al. 1999), teacher preparation may provide opportunities through which student teachers may redefine their professional identity (Lamote and Engles, 2010).

### Teacher Identity Definitions

Some issues in defining the terms- Despite nearly two decades of interest and research on the concept of identity, the term is far from being well defined (Castaneda, 2011). Identity has complex and varied meanings. These relate to a person’s individuality, uniqueness, or personal characteristics that distinguishes them from others and pattern of interpersonal communication (Lerseth 2013). Equally so, the term teacher identity is not defined uniformly (Beijaard, Meijer, & Verloop, 2004, Izadinia, 2013). It is conceptualized as complex, dynamic, evolving and emergent (Beuchamp and Thomas, 2011; Beijaard et al., 2004).

While Luk (2008) refers to identity as “our sense of self” or who we are”, others such as Farrell (2017) and Reeves (2009) suggest that notions of identity has shifted from a focus on the individual to the inclusion of the society in which the individual lives and interacts. Teacher development is viewed as a contextualized process (McLean, 1999). Consequently, some studies have focused on the professional identity of a teacher being related to their images of self while others have focused on teachers’ roles (Lamote and Engles, 2010). However, the two foci are not mutually exclusive, as in teaching what one is as a person is interwoven with how one acts professionally. Loughran (2006) suggests that “it seems unlikely that the core of the personal

will not impact the core of the professional”. Along similar lines Alsup (2004) suggests that in order to be successful as a teacher that one must have a developed a well-rounded identity or sense of self as also meet societal expectations that the teacher be selfless and generous with their personal resources. Thus, an aspirant will need to balance the need to be *selfless* with the need to be *selfish* in order to be successful as a teacher.

### **Frameworks for Conceptualizing Teacher Identity Formation**

As noted earlier the concept of identity has varied meanings. Beijaard, Meijer and Verloop’s (2004) review of literature on teacher identity suggest different constructs of teacher identity stem from differences in theoretical traditions that undergird these definitions. Thus, there is a need for theoretical frameworks on the basis of which researchers may pursue lines of enquiry in teacher identity development.

Lerseth (2013) indicates that there are three complementary perspectives which offer different frameworks for operationalizing theoretical constructs of teacher identity and for identifying theoretical lenses for the study of development of teacher identity. These three frameworks include 1) the Gee’s framework based on the notion of “Who a teacher is”; 2) the Beijaard, Verloop, and Vermunt framework based on the notion of “What a teacher does” and 3) the Moje and Luke framework based on the relationship between identity and literacy.

#### **Gee’s framework -who a teacher is.**

Gee (2001) defines identity as a certain “kind of person”. His conception is that people have multiple identities that are linked to their personal selves and their societal interactions. These multiple identities include: nature identity, institution identity, discourse identity, and affinity identity.

#### **Beijaard’s framework – what a teacher does.**

Beijaard et al. (2000), define identity in terms of factors impacting what a teacher does. What a teacher does in this framework includes the following factors: content knowledge, pedagogical decisions, and didactical experiences. Teacher identity was explored through context of literacy research and instruction in Moje and Luke’s framework (2009). In this framework identity is conceptualized through five components. These include: identity as difference, identity as sense of self/subjectivity, identity as mind or consciousness, identity as narrative, and identity as position.

#### **Wegner’s framework- identity is a nexus.**

Some other frameworks include those suggested by Wegner and Zhang. Wegner’s framework is based on the notion that identity is a nexus of multi-memberships and that identities are formed as consequence of tensions between our multiple memberships and ability to negotiate meanings in these multiple contexts (Wegner, 1998). Accordingly, identity formation in Wegner’s framework is a dual process of identification (with multiple communities) and negotiation of meanings (in the context of multi-memberships) (Nghia and Tai, 2017).

### **Zhang's framework- intrinsic and extrinsic values composition.**

Zhang's model conceives teacher identity as composed of intrinsic and extrinsic values. Intrinsic values pertain to an individual's subjective beliefs about the inherent nature of the teaching profession including work contents and work characteristics while extrinsic values pertain to beliefs about the external aspects of the teaching profession to include status, income etc. (Zhang, 2016).

### **Factors Affecting Teacher Identity Development**

A study by Flores and Day (2006) suggest that teacher's identities were influenced by personal and professional histories, pre-service training, and school culture and leadership. Teacher identity is shaped and reshaped by professional interaction (Beauchamp and Thomas, 2009). Research by Koc (2011) and Rogers (2011) suggests that identity formation is enabled when student teachers undertake course work in teacher education. These viewpoints find consolidated expression in Lamote and Engles (2010), according to whom factors affecting teacher identity development include biographical factors, the knowledge and learning environment provided in teacher education and experiences in teaching practice.

Biographical factors pertain to teachers' experiences from childhood to adulthood and encompasses interactions with family members and teacher role models who may have had a formative influence. Teacher education offers opportunities for individuals to integrate elements of preconceptions about teaching, personal practical knowledge, and research-based knowledge. Student teaching affords further development of teacher identity by redefining one's position in the context of becoming a member of a professional group and participating in professional practice (Vahasantanen et al., 2008).

### **When and where does teacher identity happen?**

Teacher identity development happens in a continuum over a period of time from very early in one's life and continues as one gains insights of the professional practices, the values, skills, and knowledge required, and subsequently when practiced within the profession (Chong et al., 2011). Schempp et al (1999) suggest that formation of the self as teacher occurs when pre-service teachers gain experiences as pupils in the classroom with teachers. Lotrie (1975) terms these experiences as "apprenticeship of observation". According to Alsup (2004), the key process of merging personal subjectivities with professional and cultural expectations which research suggests is important to be successful as a secondary teacher happens during teacher preparation. This happens in course of self-engagement and engagement with students, mentors, teacher educators, family, and peers. Such engagement is in the form of deployment of various genres of discourse. Nghia's and Tai's (2017) research indicates that teacher identity is a "recursive process during which pre-service teachers form expectations, challenge these expectations when facing real-life situations, modify them and let a new version of their identity emerge".

### **Facilitating teacher identity development.**

As noted earlier, pre-service teachers' identity tends to be autobiographical and self-referential as well as being influenced by social and cultural images of teaching and teachers (Chong et al.,



2011). During teacher preparation pre-service teachers' identity is continually challenged (Danielewicz, 2001). Since biographical factors and prior beliefs and knowledge are acquired by student teachers prior to formal, explicit education in this regard, the teacher education program offers the key avenue for reconciling the many multidimensional and complex constructs of teacher identity in a deliberate fashion.

Therefore, to be effective the teacher education program must be deliberate in attempts to facilitate identity development as there are many impediments to such development. First, past experiences and ideas may be difficult to change during the teacher education program (McAdams, 2001). Second, teacher educators do not engage in holistic pedagogies and instead deploy methods, pedagogy and courses that focus on the acquisition of discrete knowledge and skill sets (Alsup, 2004). Such knowledge and skills include state educational standards, lesson planning, etc. that are relatively easier to teach and assess in an era of accountability and standards. However, while it is easier to implement these partial models of pre-service education, these models are no substitute for a more comprehensive model of teacher development (Alsup, 2004).

Lerseth's study (2013) showed that since identity development is a social and institutional process, teacher education programs can have a high impact on teacher identity formation. In particular, both the teaching practicum (Riynati, 2017) and student teaching (Lerseth, 2013) are important in this regard. Both involve experiential learning wherein the transition from student to teacher is negotiated. Beeth and Adadan (2006) suggest that a key benefit of the practicum is that it is of a "capstone" character affording opportunity for pre-service teachers to apply their knowledge from the university coursework. Beauchamp and Thomas (2011) suggest that as pre-service teachers shift from universities to school communities of their initial practice their identities undergo shifts. Likewise, Lerseth (2013) suggests that student teaching is a period when theory is applied to actual teaching practice in an elementary school and that often times pre-service teachers feel tension reconciling the following: what they have been taught in the university, what they have experienced in prior years of education and what they experience in the K-12 classroom. Comprehensive models of teacher education should enable students to work through this tension.

Thus, there is a call for deploying pedagogies that impact identity development. Alsup (2004) recommends that "we make the induction phase of the new teacher easier by giving assignments or facilitating experiences that encourage the expression of various genres of integrative teacher identity discourse, including narratives and metaphors, resulting in experimentation and exploration of ideological, affective, and corporeal borderlands." These include: asking pre-service teachers to provide narrative, or anecdotal evidence to support pedagogical decisions, asking pre-service teachers to compose reflective writings or teaching journal entries grounded and contextualized in real narratives of experience, requiring pre-service teachers to either role play classroom scenarios or videotape themselves teaching and reflect narratively on the experience, and encouraging pre-service teachers to create either visual or text-based metaphors that re-conceptualize abstract ideas and philosophies as concrete images (Alsup, 2004). Other



researchers, such as Henry (2016), caution against relying on reflective writing as having privileged access to the process of becoming a teacher,

The relationship between the pre-service teacher and their supervising senior teacher can also facilitate identity formation. Yuan (2016) indicated that oftentimes supervisors interfere too much with practices that pre-service teachers may want to implement or assign tasks that detract from the process of identity development. Thus, research suggests that a strong empowering relationship between pre-service teachers and their mentors is significant for identity development (Nghia and Tai, 2017). Another, aspect of the mentor-student relationship that can positively impact the pre-service teacher identity development is provided by Henry (2016). Henry's research conceptualizes pre-service teacher identity as a complex dynamic system, one which involves shifts (in identity) that take place in everyday interaction. Henry advocates bringing in "complexity thinking" (Byrne, 2014) into mentoring whereby mentors become "complexity coaches" (Steenbeek and Van Geert, 2015) who enable students to use complexity-based insights in comprehending identity transformations. This approach to mentoring is believed to help retain students on the long term.

### **Transformational Teacher Preparation**

#### **Makerspaces**

Blikstein and Krannich (2013) suggest that "every few decades, a new set of skills and intellectual activities become crucial for work, conviviality, and citizenship". They further suggest that digital fabrication and 'making' is a new and major chapter in this revolution. Others such as Hatch (2014) suggest that "making is fundamental to what it means to be human. We must make, create, and express ourselves to feel whole". The Maker Faire report (2010, p. 1) describes making as "tinkering, hacking, creating, and reusing materials and technology". One definition of the term makerspaces is that "makerspaces are community workspaces, where users have access to manufacturing tools and machines to build prototypes and objects (Weinmann, 2014). The makerspace movement is growing and is diverse; nonetheless the movement is unified by a shared commitment to open exploration, intrinsic interest and creative ideas. There is also a growing national recognition of the maker movement's potential to transform how and what people learn in STEM and arts disciplines (Vossoughi & Bevan, 2014) Many researchers see in making the prospects for expanding participation in STEM fields and in STEM workforce development by leveraging the strengths of interest-driven, multi-disciplinary STEM learning communities. These efforts generally engage high school and university students in engineering and design projects. When strategically structured, these efforts can also bring engineering and design into non-STEM contexts to further enhance curricula.

#### **Design as an engineering pedagogy**

A close relationship exists between the engineering design process and making. The relationship between making, design and learning in engineering is strong and historic. At the very root of the practice of engineering are the iterative processes of design, test, respond to feedback and redesign (Petrich, Wilkinson & Bevan, 2011). Implicit in the iterative process is the inclusion of making and tinkering processes. Without these processes, designs cannot transform into products

and systems and without products and systems there can be no testing. However, engineering's strong ties to making and tinkering which dominated the discipline during the first half of the 20th century was undermined by the dominance of engineering science that is so essential to design in the age of Apollo. This resulted in a significant push towards analysis and mathematics, and away from traditional shop work. The professional engineer of the first half of the 20th century was replaced by the scientific engineer of the second half (Blikstein, 2013). Over time, this shift resulted in the removal of the engineering design experience (and the concomitant processes of making and tinkering) from not only college curriculum, but also from K-12 education. Shop class became vocational education for those who supposedly could not handle serious math or science (Blikstein, 2013).

### **Theoretical Framework**

The theoretical framework for this research is based on the works of Dewey (1902), Papert (1980), Freire (2009), Dym (2001), Beckman & Barry (2007) and Lewin (1979). The first theoretical underpinning is based on Dewey's idea (1902) that learning should be experiential and connected to real-world objects. Second, Papert's (1980) constructionism (1980), that maintains that the construction of knowledge happens remarkably well when students build, make, and publicly share objects. Freire's idea (2009) is that the latent learning potential of students is unleashed when they are provided learning environments in which their passions and interests thrive. Dym (2001), Beckman & Barry (2007) and Lewin (1979) maintain that design is in itself a learning process.

### **Research Questions**

This research investigated the effect of makerspaces on engineering education by seeking answers to the following specific research questions.

	<b>Research Questions</b>
Q1	To what extent does involvement in a makerspace affect faculty who prepare teachers in terms of their understanding about making and designing and their professional identity development as Educators and Makers?
Q2	To what extent does involvement in a makerspace affect faculty who prepare teachers in terms of their own instructional approaches and value attributed to making and design activities?

### **Methodology**

A comprehensive mixed methods evaluation process was used that included varied strategies for data collection and measurement of the impact of the activities in the effort described above. The two guiding research questions were used as a framework for the formative and summative assessment and themes of identity were explored by using a survey including Likert scale questions, open ended questions, and discussion forum posts. A preliminary overview of descriptive statistics for pre and post assessments will be presented.

## Participants

Texas State University faculty who participated in this study were 22 educators who regularly work with pre-service teachers (student teachers) in STEM education courses and who expressed interested in learning about Making by attending seminars to learn skills to allow them to utilize Making resources for design projects in their upcoming semester courses. Participants were required to commit to attending an education/ skill development program during the first semester and to implement a Making activity into their courses in the following semester. Participants were also required to complete a pre-survey in the Fall semester and a post-survey after the Spring semester.

Figure 1. Gender of Participants

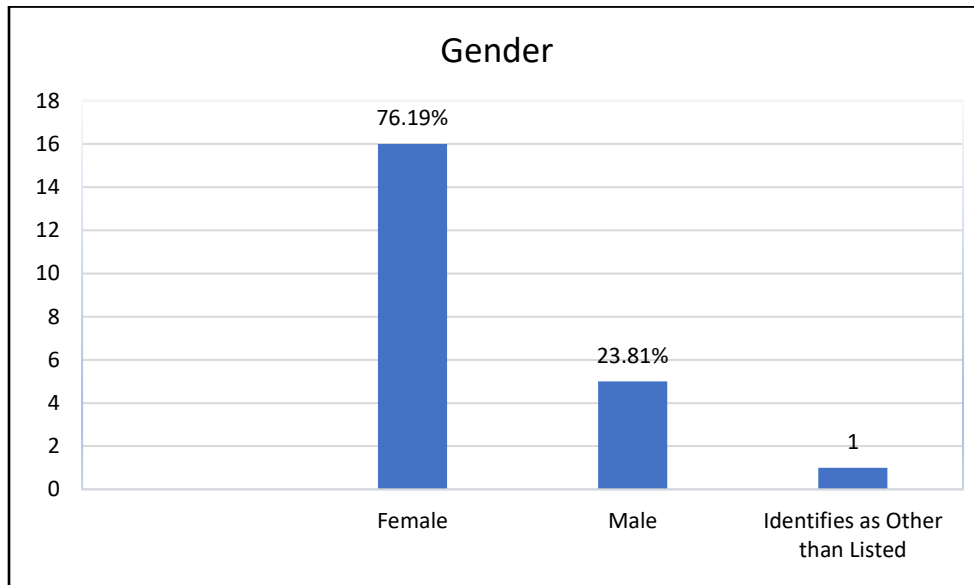


Figure 2. Academic Rank of Participants

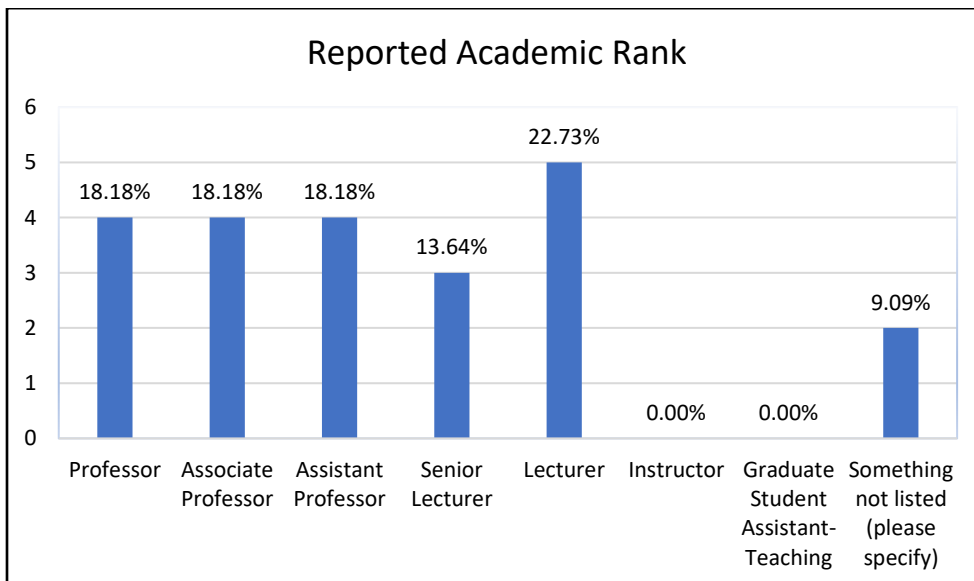


Figure 3. Target Courses for Making Activities Identified by Participants

Bilingual Content Areas, K-6	Creativity: Theories, Research, and Applications	Science in Elementary Education	Curriculum and Technology in Secondary Education
Connecting Reading and Writing in the Classroom	Integrating Reading and Writing	Science in Elementary Education	Reading Across the Content Areas
Architectural Design II - Technology in Construction	Capstone Mathematics for Secondary Teachers (of Mathematics)	Seminar for Teachers of Young Children (4310) and Curriculum for Preschool and Kindergarten Children.(4352)	Manufacturing 3316
Social Studies in the Elementary & Middle School	Additive Manufacturing	Intro Psychology	Project-Based Instruction

### **Intervention: Professional Development for Faculty Who Prepare Teachers**

The intervention program designed for the participants took place over a university semester and included three lectures to provide theoretical overviews and presentation of major themes related to design, making and engineering. The sessions were open only to the participating educators and included the following major elements: a) Overview of design-based learning and making; b) visual reasoning, engineering design process and 3D making technologies; and c) Textiles, electronics, & integrating design and making into “non-STEM” courses. Since the nature of design and making incorporates hands-on-learning, additional workshops that allowed participants to learn and practice creative design and making were held. Some of the topics included the following: a) scanning a 2D drawing (using MakerBot Print Shop) and converting that digital element into a 3D model; b) using a Bernina Sewing and embroidery machine using digital file interfaces along with manual hand stitching techniques; c) learning about basic concepts of electricity and circuitry using simple circuit resources, soft circuits, conductive thread, and LED lights & resistors. Finally, a learning management system familiar to all of the participants was designed and used for online forum discussions and resource sharing.

### **The Maker Space Mindset**

When introducing the concept of making and maker spaces, it is important to note that it is not just a focus on tools or materials rather it is an opportunity to explore mindsets which enable agency, creativity, persistence, and problem-solving. Whether in a formal or informal learning, the facilitator must be thoughtful about nurturing maker mindsets and strategies for supporting our learners during difficult experiences with failure and problems that arise throughout the creative design process and explorations with unfamiliar materials and techniques. Using certain picture books to set the stage for makers of all ages, including some of these titles below. These

books can help to break the ice by acknowledging that we support a collaborative, failure positive environment where we want everyone to have fun while they are learning and making.

- The Most Magnificent Thing by Spires
- What do you do with an Idea? by Yamada & Besom
- What do you do with a Problem? by Yamada & Besom
- Rosie Revere Engineer by Beaty & Roberts
- Iggy Peck Architect by Beaty & Roberts
- Ada Twist Scientist by Beaty & Roberts

In addition to engaging with these types of texts, simple activities can be integrated to unlock creative thinking. For example, IDEO's 30 Circle activity is a quick 3-minute timed activity that asks participants to turn circles into recognizable objects using a pen/pencil and paper. Some may find the task daunting due to the open-ended nature or the time limit; however, it sparks creative thought, risk-taking and provides a playful way to get everyone to loosen up prior to engaging in making activities. This and other activities can be adapted to suit various contexts and needs (Youth Creativity, Innovation & Sustainable Leadership, 2013).

### **Maker Activity Evaluation and Assessment**

Leveraging formative assessments can allow learners to engage in continuous reflection as they develop their maker mindsets and examine both process and product during their design experiences. Reflective prompts are very useful for encouraging deeper learning of thematic concepts and also provide the opportunity to check for understanding. These can also provide opportunity for multi-modal responses (create an image, poem, journal entry, photography, video, music) that further enable creativity and differentiation. Using reflective exit tickets based on K-W-L strategies, a 3-2-1 exit ticket is helpful for identifying what the learners understood from the experience, what they want to learn more about, and what they were most proud of during the experience. These can also help facilitators with their own reflective practice changes to activities as well as provide a starting point to follow up with learners' interests. One example of a 3-2-1 exit ticket is as follows:

3. List three things **you learned today in the makerspace:**
2. List two things **you want to learn more about in the makerspace:**
1. List one thing that **you are proud of from your work in the makerspace today:**

Encouraging learners to capture images and video clips throughout their design experiences helps them to more deeply examine their process in addition to the final product. This helps them more concretely see their iterative design process and helps them see progress in the midst of mistakes and failures throughout the design experience.

Lastly, this collection of formative assessment reflections, images, and video clips can be used for further evaluation when framed as a summative assessment to examine one's own creative evolution throughout a long-term recurring experience or course. One example of this includes a reflective video project/final "exam" which can serve as a culminating project and can be graded using an autoethnographic rubric (Smith, 2017). Participants create a (<10 minute) reflective

video that documents their semester-long experience in the course, including processes engaged in, artifacts created, and implications for future practices. This autoethnography focuses on the participant's uniquely individual experiences/creations/images (not the generic experiences/creations/images of others). Students then present this video at the final class meeting and have the option to present as part of a larger University Maker Fest Show and Tell Event.

### **Scaffolding Maker Activities**

Many learners and participants will have varying degrees of experience with common crafting; however, they are less likely to have confidence in more advanced materials and techniques, including graphic design, CAD modeling, digital fabrication technologies (digital paper/vinyl cutting, laser engraving, 3D printing), circuit design, and coding. Therefore, purposeful scaffolding of familiar non-digital techniques is needed in order to provide comfortable entry points into each type of materials exploration. This will then enable greater confidence building as learners engage with more challenging and advanced digital techniques throughout the design experiences. Based on our work, we suggest the following sequences based on materiality to support making with teachers:

- Upcycled Explorations: Give common materials new life and purpose to explore design and content.
  - Upcycled Materials: common craft materials, collection of clean recyclable materials (cardboard, empty cardboard toilet paper tubes, straws, etc.), basic office supplies (paper clips, binder clips, brads, etc.)
  - Upcycled Weekly Topics:
    - Upcycled Artistic Transformations
    - Novel Engineering: Identifying and Prototyping Solutions for Storybook Characters
- 2D Explorations: Scaffold hand-cutting and digital-cutting to understand 2D shapes and space.
  - 2D Tools: vector-based design software (i.e., Silhouette Studio, Inkscape, Adobe Illustrator), Silhouette Cameo paper/vinyl cutting machines, laser engraving machines, sewing machines, embroidery machines
  - 2D Materials: paper, vinyl, cardboard, acrylic, and textiles
  - 2D Weekly Topics:
    - Kirigami Techniques: Artful Cultural Studies Across Place & Time
    - Modular Paper Engineering: Pop-ups, Sliceforms, Slidetogethers, & Shape Nets
    - Textiles: Sewing, Embroidery, Knitting, & Printmaking
    - Choose Your Own 2D Exploration, Gallery Walk Presentation & Discussion (i.e., create artifact, write artist statement or create lesson plan)
- 3D Explorations: Scaffold sculpting, CAD modeling, and 3D printing to understand 3D forms and space.
  - 3D Tools & Materials: CAD modeling software (i.e., Tinkercad, Blender, Autodesk Education Initiative free access software, Makerbot PrintShop), 3D

- drawing tools (i.e., hot glue guns, 3D pens with PLA filament), and 3D printers (i.e., MakerBot Replicator Mini, MakerBot Replicator)
- 3D Weekly Topics:
    - Transitioning from 2D to 3D Using Hot Glue Drawings and 3D Pens
    - 3D Printing: 3D Drawing, 3D CAD Modeling, Ethics, & Replicability
    - Wearable Forms: 3D Pendants, Rings, Bracelets, & Modular Pieces
    - 3D Scanning: The Case of the Missing Piece
    - Choose Your Own 3D Exploration, Gallery Walk Presentation & Discussion (i.e., create artifact, write artist statement or create lesson plan)
  - Simple Electronics Explorations: Scaffold circuit design with various materials to understand electricity fundamentals.
    - Electronics Tools & Kits: LittleBits, SnapCircuits
    - Electronics Materials: batteries (AA, AAA, CR2032), conductive materials (steel thread, copper tape, aluminum tape, paper clips, alligator clips), LED lights (diodes with resistor legs), motors (DC motors, pager motors), and additional craft materials
    - Electronics Weekly Topics:
      - Input + Output: Making Things “Happen” with Inexpensive LEDs & Motors
      - Paper Circuits: Conductive Tape, Conductive Paint, Inputs, & Sensors
      - Sewable Circuits: Conductive Thread, Sensors, & Textile Techniques
      - Choose Your Own Electronics Exploration, Gallery Walk Presentation & Discussion (i.e., create artifact, write artist statement or create lesson plan)
  - Coding and Interactive Explorations: Scaffold computational thinking activities and visual-based coding with physically interactive capabilities.
    - Electronics Tools & Kits: Scratch Jr., Scratch, Makey Makeys, Picoboards, Arduinos, Robot Mouse Boardgame, Unplugged CS Activities
    - Electronics Materials: conductive materials (steel thread, copper tape, aluminum tape, paper clips, alligator clips) and additional craft materials
    - Coding and Interactive Weekly Topics:
      - Computational Thinking: UnPlugged Computer Science Activities, Robot Mouse Game, and Expository Writing
      - Coding in Scratch Jr. and Scratch
      - Interactive: Connecting Code with Physical Micro-controllers
      - Choose Your Own Electronics Exploration, Gallery Walk Presentation & Discussion (i.e., create artifact, write artist statement or create lesson plan)

The above is not an exhaustive list; however, it is an example of what has worked for our particular context at our institution. Additional resources can be located with additional activity ideas, including *The Exploratorium's Tinkering Studio* (<https://tinkering.exploratorium.edu>).

### **Survey Instrument**

A thirty-eight question pre and post survey compiled by the authors but based on ‘validated surveys on identity and making’ (author, author) was administered using an online link sent to each participant prior to the first lecture and after completion of the Spring semester student



implementation course project. The themes explored in the survey included questions in the four areas shown in figure 4, below.

Figure 4. Survey subsections and references

Survey Reference	Survey themes explored/ data collected
Authors	<ul style="list-style-type: none"> <li>• Demographics and university experiences</li> </ul>
Authors	<ul style="list-style-type: none"> <li>• Insights into engineering, designing, educational theories and making</li> </ul>
Self-Efficacy Instrument (Carberry et al.)	<ul style="list-style-type: none"> <li>• Feelings of confidence, motivation, success and anxiety regarding making, design, and engineering</li> </ul>
Student Involvement Survey (Linsey et al.):	<ul style="list-style-type: none"> <li>• Familiarity and involvement with maker spaces, and related resources</li> </ul>

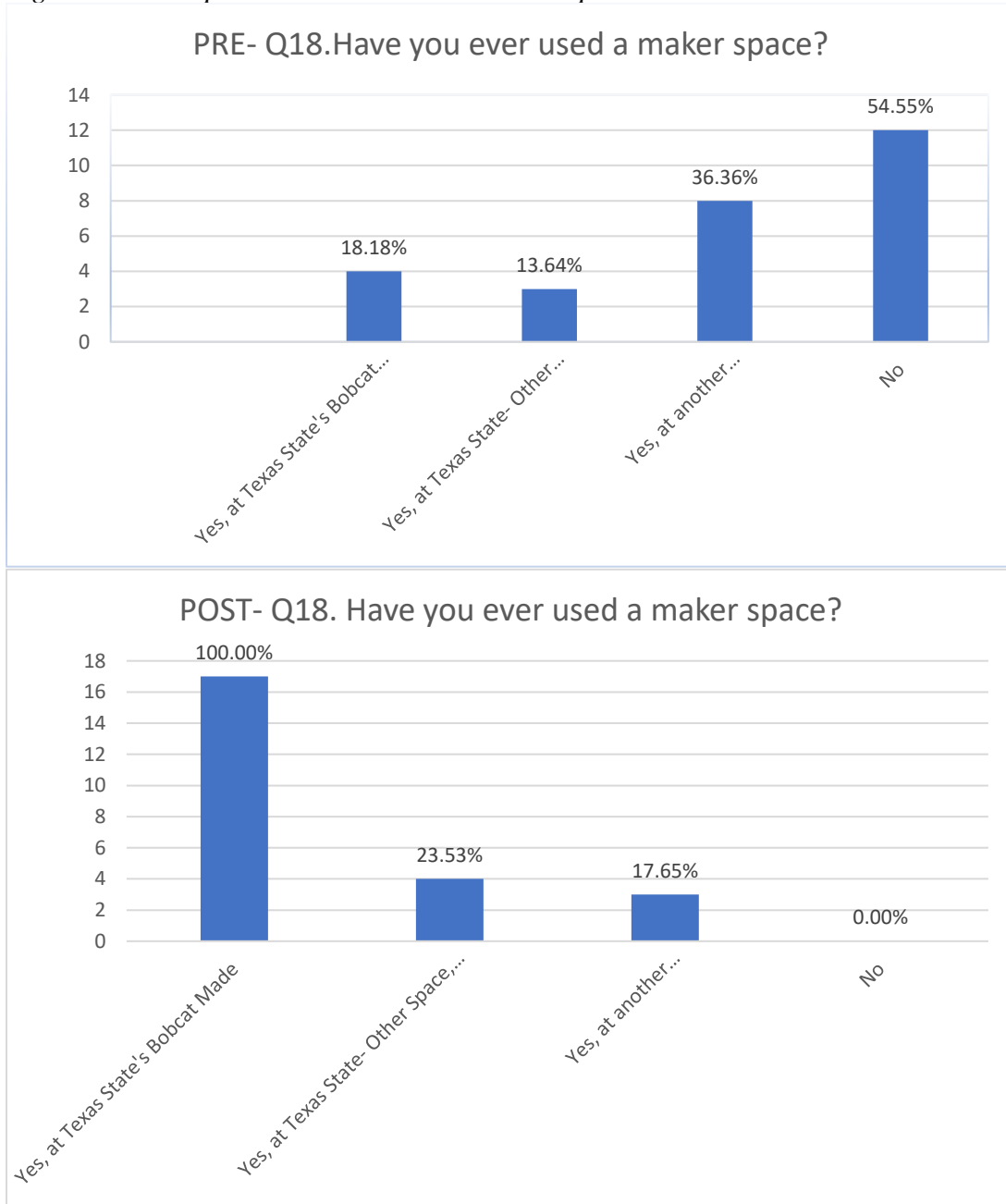
### Preliminary Data Analysis

For various reasons, some participants were not able to complete fully the two-semester commitment of this study. Therefore, only the data for the 16 faculty who participated in the full study is presented. In this preliminary data analysis, no in-depth quantitative analysis is presented. Rather three major comparative highlights between pre and post surveys of the same participants are presented.

#### Faculty increased in their usage of Maker Spaces

Prior to participating in this effort, more than half of the participants report not ever having used a Maker space (54%). After the intervention, all 100% have used the maker space.

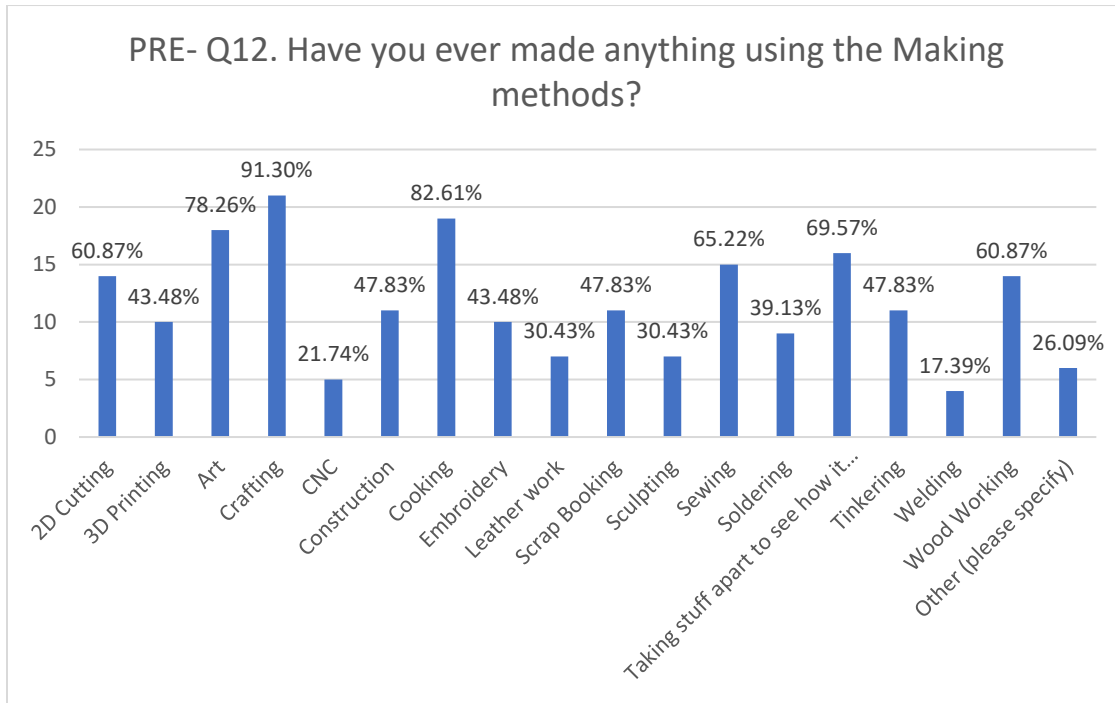
Figure 5. Participants who have used a Maker Space



**Faculty increased in their experience in using Making methods**

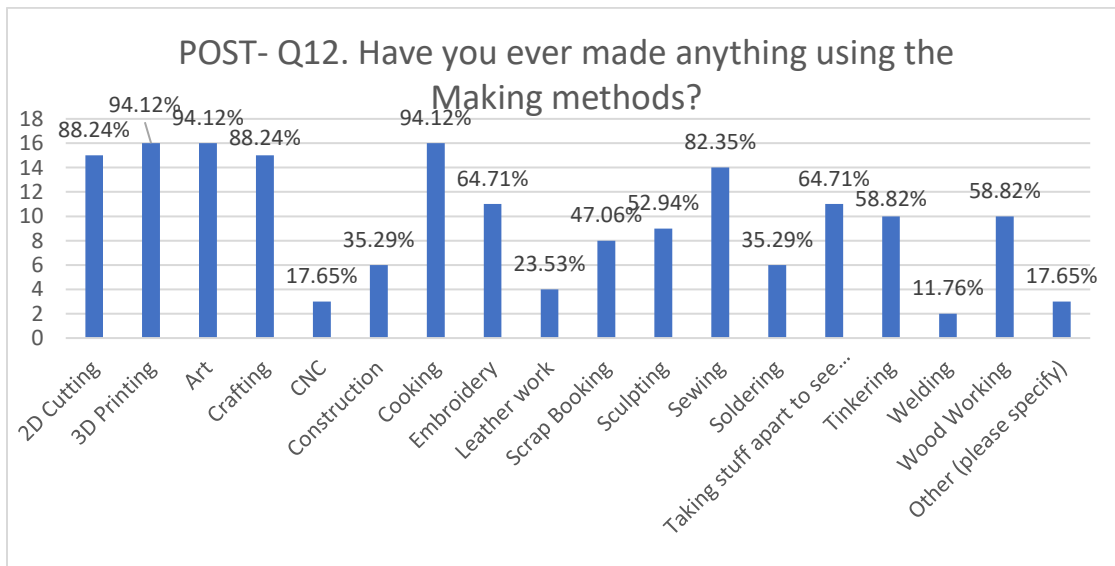
Prior to participating in this effort only 7 of 18 kinds of Maker methods are reported by a majority of the participants (higher than 50%) as ones in which they have directly used. These are 2D cutting, art, crafting, cooking, sewing, taking stuff apart and wood working, as shown below in figure 6.

Figure 6. Pre-Survey- Experience with Maker Methods



After participating in this effort 11 of 18 kinds of Maker methods are reported by a majority of the participants (higher than 50%) as ones in which they have directly used. These are 2D cutting, 3D printing, art, crafting, cooking, embroidery, sculpting, sewing, taking stuff apart, tinkering, and wood working, as shown below in figure 7.

Figure 7. Post-Survey- Experience with Maker Methods



### Increase in number of faculty who think of themselves as Makers

Prior to participating in this effort only 45% of participants report identifying as Makers (see figure 8), while after participating in this effort, 76% of participants report that they definitively identify as Makers ( see figure 9).

Figure 8. Pre-Survey- those who identify as Makers

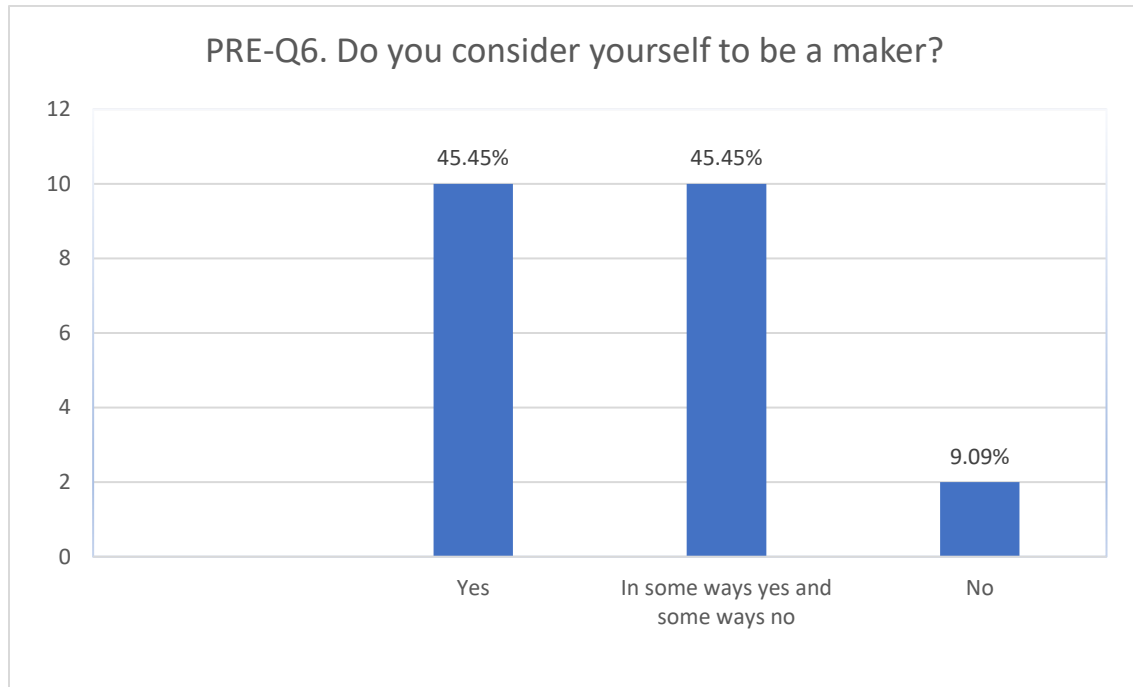
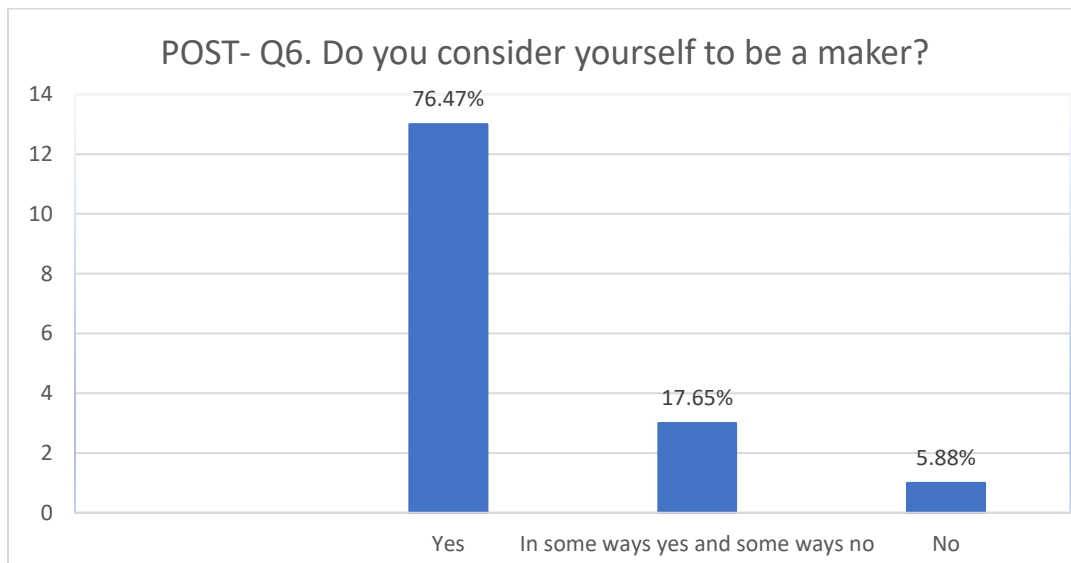


Figure 9. Post-Survey- those who identify as Makers



## Discussion

Design and making experiences allow for unique hands-on learning experiences that naturally infuse cross-disciplinary concepts while promoting agency, creativity, persistence, and problem-solving. Blikstein (2013) notes that these types of projects and design-focused environments promote deep learning because “physically constructing an object is both a context for learning and an expression of learning” (p.1). In these types of learning environments, individuals learn while engaging in the iterative design of creative artifacts, which involves development, building, evaluation, and recurring reflection (Bekker, Bakker, Douma, van der Poel, & Scheltenaar, 2015). This approach is amplified through the use of design-based learning (DBL) instructional strategies, which encourage learners to be active participants, engage in creative problem-solving, facilitate personal connections to knowledge, experience interdisciplinary contexts, have a sense of audience, and have a space for reflection and discussion (Kafai, Peppler, & Chapman, 2009; Resnik, Risk, & Cooke, 1999). DBL can include project-based approaches to solving challenges (Hmelo, Holton, & Kolodner, 2000; Nelson, 2004) and/or creative experimentation with materials in order to gain deeper understanding of content concepts (Petrich, Wilkinson, & Bevan, 2013; Ryan, Clapp, Ross, & Tishman, 2016).

As teacher education faculty begin their journey into integrating design and making, they acknowledge that it is often a “messy” process, both literally and figuratively. At times, it is time consuming to carefully structure activities and allow time for productive struggle within an authentic iterative design process. Other times, it is filled with uncertainty about how students (in-/pre-service teachers) will respond to seemingly unconventional pedagogies. How will they respond when there is no worksheet or formal lecture with PowerPoint slide notes provided? How will they negotiate the uncertainty of creative assignments that have open-ended boundaries and/or creative time constraints to purposefully spark transformative learning?

Once students begin to see the promise of these design-based learning practices, both by personally engaging in them and reflecting on their potential for transformative learning in their future classrooms, they will become empowered to be the change they wish to see among the educational landscape. This is exemplified in the final reflective video project of Grace (pseudonym), a pre-service teacher who wishes to become a middle school mathematics teacher. Throughout her video she showcases the artifacts that she created and explicitly notes how she was able to infuse her culture and her identity to each artifact in surprisingly meaningful ways. As she recounts the creative processes she engaged in throughout the course, she notes how much she learned from each mistake she made and how critical it was for her to persist through the struggles productively in order to complete each artifact. She notes that this will help her facilitate persistence with her own future students. Through looking back at her entire experience, she notes how it enabled her to see multi-disciplinary connections all around her and how this new awareness will enable her to become a better mathematics teacher. This example showcases how providing time for students to connect their interests and content-specific contexts with design and making allows for rich opportunity in developing their identity as a creative individual and a creative practitioner who is confident in their ability to transform learning for future students. In essence, design and making experiences such as these overthrow

the didactic methods of the past and can prepare pre-service teachers to become the transformative teacher they *want* and *need* to be in order to best serve the changing needs of future classrooms.

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## **THE EFFECT OF REFLECTIVE PORTFOLIO LEARNING ON STUDENTS' MOTIVATION IN LEARNING ENGLISH**

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### **ABSTRACT:**

*English is a frequently used foreign language in Hong Kong. A teacher-directed learning environment is commonly observed in English lessons of Hong Kong. Teachers design and assign the learning tasks for students to absorb texts passively, which may hamper the development of students' self-directed learning skills because of the lack of opportunity to reflect of their learning progress and outcomes.*

*Portfolio learning has been advocated by teachers to extend students' learning by encouraging them to construct, document and evaluate their own performance and decide for further action to improve performance. It is commonly used as a learning tool for teaching, learning and assessment of writing in English as a secondary language setting.*

*Theoretically, portfolio learning in classroom level makes students experience the responsibility for their learning, which can stimulate their affective motivation.*

*MSLQ questionnaire (Pintrich, 1991) was a 31-item questionnaire used for assessing students' motivation in learning in term of their expectancy, value and affection of learning on Likert scale in the research. Surprisingly, compared to portfolio learning, students in non-portfolio learning have a significant higher motivation in intrinsic goal orientation, task value and self-efficiency. Further investigation is required to understand how to let students get benefits from portfolio learning.*

## **THE EFFECT OF REFLECTIVE PORTFOLIO LEARNING ON STUDENTS' MOTIVATION IN LEARNING ENGLISH**

### **Literature review**

#### **What reflective portfolio learning is.**

Reflective portfolio learning is defined as a documentary of the students' artefacts created over time to display their efforts, growth and achievements (Genesee & Upshur, 1996). The rationale of reflective portfolio learning is to encourage independent learning and self-monitoring at different stages of learning process. The purpose of the reflective learning portfolio is to allow students to reflectively explore and document their own learning process and evaluate the achievements of courses, desired outcomes and skills over a period of time. (Barrett, 2007)

Reflective portfolio learning has been advocated by teachers to extend students' learning by encouraging them to construct, document and evaluate their own performance and decide for further action to improve performance. It is commonly used as a learning tool for teaching, learning and assessment of writing in English as a Secondary Language setting (Lam, Promoting self-regulated learning through portfolio assessment: Testimony and recommendations, 2014).

Compared to the portfolios which focus on students' learning outcomes (showcase portfolio), reflective portfolio learning which focus on students' learning progress can train students to become more reflective and self-directed learners. The development of reflective portfolio concerning students' learning progress can let students describe their own professional improvement over time. The reflective portfolio should contain the previous work, the reflection on the strength and weakness of their work, and the plans to improve their work in the future.

Reflection is a very crucial component of reflective portfolio learning which focuses on students' learning progress. It is believed that reflection, which is defined as critical and careful consideration of the learning outcome, can promote the learning effectiveness because it can help students to develop knowledge and skills through examination of present achievements and preparation of future plan. Students' prior knowledge can be refreshed by the new knowledge. They can make new meaning on existing information and use new strategies of action to study. (Dewey, 1997; Moon, 2013) Reflective portfolio learning is a very useful tool to stimulate students' reflection through examination of efforts and achievements in one or more areas. Teacher, peer and parents can provide feedback to students based on their artefacts and reflection. A high quality feedback allows students to identify their strength and weakness, especially provides constructive individualized advice on the feasibility and effectiveness on their future plan on learning. (Black & Wiliam, 1998) Students can freely adjust their learning based on the given feedback.

There are three levels of reflective thinking of tasks, which are content reflection, process reflection and premise reflection. (Wallman, Lindblad, Hall, Lundmark, & Ring, 2008) Students are expected to reflect on how they feel and think when they are doing a task (content reflection). Then, they need to evaluate the effectiveness of their performance in finishing the task (process reflection). Finally, they need to reflect on why they use this approach to finish the



task and how they will act on future situation. The development of the deepness of reflection is a transformative process and is very important to learning of knowledge, which is built from the acquisition of past experience which one uses to interpret present and future experience.

Reflection allows students to have a higher authority on learning because it provides opportunity for them to direct their own learning by choosing suitable individual learning tasks that suits and are relevant to their own needs and interests. Self-directed learning is focused on meta-cognitive controlling learning processes. People's commitment of learning is greater when they have a higher control over the learning method. (Mezirow, 2000). William (1996) suggested that personally relevant learning tasks can stimulate intrinsic motivation in learning. According to Zimmerman (2008), self-regulation, motivational feelings and beliefs are considered as important initiators of self-regulated learning. The "factors of initial motivation", such as self-efficacy beliefs, outcome expectations, task interest and value affect the motivation of learning. Intrinsic motivation is the enjoyment gained through the performance of tasks and there is a positive relationship between utility value, which refers to how individual's future plans are suited in tasks, and intrinsic motivation. Beliefs about one's ability play a prominent role in different motivation theories. In accordance with the attribution theory proposed by Weiner (1985), individuals who viewed ability as improvable characteristics over time have a high motivational consequences. Attributing success to ability has positive motivational consequences. Development of portfolio, especially the development of reflective skills, allows students to authorize the learning tasks which can further improve their learning ability.

The motivational aspect about self-efficiency beliefs, task value and goal orientation can be measured by the Motivated Strategies for Learning Questionnaire (MSLQ) designed by (Pintrich, 1991). It is a self-report instrument to assess secondary students' motivational orientations and the use of learning strategies for a secondary school course. The part of students' motivational perceptions is adapted to assess students' motivation for portfolio learning. The questionnaire aims to find out whether reflective portfolio learning promotes students' motivation in learning in term of value components such as task value, intrinsic and extrinsic goal orientation; Expectancy component such as control of learning belief and self-efficacy for learning and performance and affective component such as test anxiety. In MSLQ, intrinsic goal orientation concerns about the extent which students perceives themselves to take a course because of the challenge and mastery they have. Extrinsic goal orientation concerns themselves to participate a course because of the grades and rewards given. Task value concerns about the evaluation how interesting and important of performing a task is. Expectancy component: control of learning belief concerns about the belief the outcomes dependent on the effort they have paid. Self-efficacy for learning and performance concerns about the mastery of their learning skill. Test anxiety refers to whether they feel nervous to take a test.

Students who have developed a habit of reflection through the use of a portfolio could continue to reflect on their own performance well after the initial experience of portfolio construction. (Grant & Huebner, 1998) Theoretically, portfolio learning in classroom level makes students experience the responsibility for their learning, which can stimulate their affective motivation (De Bruin, Van der Schaaf, Oosterbaan, & Prins, 2012). However, there is research indicate that the quality of portfolio use could be affected by student characteristics and environmental factors. (Chen, Liu, Ou, & Lin, 2000) Students may get frustrated if they are asked to develop

their own portfolio without enough guidance because of the open structure of portfolio, especially if their self-directed learning and reflective skills are not well trained. The above factors could reduce the positive effects of portfolio learning. Students can only write a surface and short reflection which students cannot structurally assess their own performance and plan for the future academic study.

### **English Learning in Hong Kong**

English is a frequently used foreign language in Hong Kong. A teacher-directed learning environment is commonly observed in English lessons of Hong Kong. Teachers design and assign the learning tasks for students to absorb texts passively, which may hamper the development of students' self-directed learning skills because of the lack of opportunity to reflect of their learning progress and outcomes. It leads to present of off-task and other disruptive behaviors in typical Hong Kong classrooms. (Cheung, 2001) It makes learning English like a memorization of grammatical rules instead of a meaningful language for communications. Teachers are fully responsible for assessing students' performance. They set all the learning targets and activities to all of their students based on their implementation of the curriculum designed from the government without much interaction with students. Students are weak in developing skill in formulating their educational needs and selection of suitable learning tasks.

In addition, Lam (2013) suggested that the traditional writing instruction in English lesson is generally exam-focused and product-based. Much effort in the lessons is prepared for Hong Kong Diploma of Secondary Education Examination (public exam for universities) There is no teaching of writing techniques in the English lesson as students are expected to hand in a 300-500 words composition after the topic is given to students in a 70-minute lesson. (Lee, 2008) The composition is marked by teacher without much guidance given during the lessons. In a typical speaking class, students are separated into group with a topic given. Once they finish the group discussion for about 10 minutes, teachers immediately comment on their speaking skills and without much follow-up for future improvement.

### **How reflective portfolio promote students' motivation in English learning**

The reflective learning portfolio allows students to revise on their draft work with peers and teachers with feedback returned. The purpose of the reflective portfolio is to provide a chance for students to improve their English through repeated feedbacks, modification of learning strategies and practices. Their final work would be marked only. Students' effort throughout the learning progress can change their final grade.

In a lesson with the use of reflective learning on writing and speaking, students are allowed to choose topics to present. The topics can be related to the latest social issues or even fairy tales. They need to prepare a draft summary of the issues and present to their peers. After peer's evaluation, they can make another draft. After writing several genres, students reflect on all drafts and consider their strength and weakness on writing and presentation. Their achievements were then graded accordingly.

### **Purpose of the present research**

The aforementioned literature indicates the beneficial effects of learning portfolio on students' interest in learning.

The purpose of the research is to investigate the effect of portfolio learning on the motivation of junior form students in learning English.

There is 1 hypothesis in our research:

I hypothesize that relative to teacher-centred lesson (non-portfolio teaching), the development of student-centred learning portfolio motivates students to learn English, especially in intrinsic goal orientation, task value, control of learning beliefs and self efficiency.

### **Method**

#### **Subjects**

The 152 participants in this study were students from secondary 1 to secondary 3 (aged 12 to 14) in different local secondary schools in Hong Kong. The students were mainly from the Southeast Asia and their cultural backgrounds were diverse, including Pakistani, Indian, Filipino, Nepalese and Chinese. The secondary schools located nearby to the experimental school are invited and selected randomly.

### **Materials**

#### **Reflective Learning Portfolio**

Students in English lessons are provided with basic learning motivations which include genres about holidays, fairy tales and daily news in Hong Kong. They are expected to write a passage to introduce their findings and present in front of the classmates and they are graded by teachers after the completion of tasks. Students with reflective learning are provided with 2 chances of peer discussion and evaluation and 1 chance of discussion with teacher for further improvement before graded. In non-reflective portfolio class, students' work is submitted to teachers for grading after they have completed the tasks, without any peer or teacher's evaluation.

#### **Motivated Strategies for Learning Questionnaire**

To assess students' motivation for portfolio learning, the part of students' motivational perceptions of MSLQ is adapted to assess students' motivation for portfolio learning. The questionnaire consists of 31 questions, which assess students' motivation in 6 aspects.

1. Intrinsic Goal Orientation (4 items; Cornbach's alpha= .553)
2. Extrinsic Goal Orientation (4 items; Cornbach's alpha= .642)
3. Task Value (6 items; Cornbach's alpha= .785)
4. Control of learning belief (4 items; Cornbach's alpha= .623)
5. Self-Efficiency (8 items; Cornbach's alpha= .836)
6. Test Anxiety (5 items; Cornbach's alpha= .728)

The result of the motivation of MSLQ was statistically analyzed by SPSS. T-Test was performed to compare the motivation of 2 groups of students (with or without the use reflective portfolio) in learning English in term of expectancy, value and affection of learning.

### **Procedures**

A quasi-experiment designed was adapted in the research. A group of students was instructed to compose the learning portfolio in the teaching curriculum for 2 school semesters, but another

group of students was instructed with the teacher-directed learning style throughout the academic year with the same teaching curriculum.

Rubrics of the assessment of the learning portfolio are issued and students are guided to set goals at the beginning of the school semester and artefacts are documented as evidence of the learning process. Reflection is another important component of the portfolio learning that requires students to evaluate the learning process they have used and personal progress towards goals. Students are requested to present the self-reflection at the end of the school semester and different stakeholders, including themselves, teachers and parents will judge the quality of students' learning portfolio through the examination of documented processes and provide feedback for the development of the next portfolio.

After the completion of the academic term, they were invited to complete the MSLQ questionnaire (Pintrich, 1991), which was a 31-item questionnaire commonly used for assessing students' motivation in learning in term of their expectancy, value and affection of learning on Likert scale.

### **Result**

Surprisingly, compared with portfolio group of students, non-portfolio group of students has a significant higher mean ( $\alpha < .05$ ) in intrinsic goal orientation, task value and self efficiency (Table 1 and 2). There is no significant difference in extrinsic goal orientation, control of learning beliefs and test anxiety between 2 groups of students.

### **Discussion**

It is observed that students without the use of portfolio have a significant higher mean in intrinsic goal orientation, task value and self efficiency. As the aforementioned literature, students who newly adopt the use of reflective learning may get frustrated especially if their self-directed learning and reflective skills are not well trained. As the students under the portfolio group are trained to reflect on their work for half and year only, they may not master the skills in reflection well. In addition, they may not treat peer's comment seriously because some of the students think ungraded task is meaningless and time consuming. The quality of reflection is not deep enough that students cannot successfully identify their weakness in the work and make the corresponding plan to modify their learning styles. Further guidance is needed for students to get the advantages of portfolio learning.

### **Conclusion**

Compared to portfolio learning, students in non-portfolio learning have a significant higher motivation in intrinsic goal orientation, task value and self efficiency. Further training in creating a reflective portfolio is needed for students to get the advantages of developing portfolio.

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14	When I take tests I think of the consequences of failing.	
15	I'm confident I can understand the most complex material presented by the instructor in this course.	
16	In a class like this, I prefer course material that arouses my curiosity, even if it is difficult to learn.	
17	I am very interested in the content area of this course.	
18	If I try hard enough, then I will understand the course material.	
19	I have an uneasy, upset feeling when I take an exam.	
20	I'm confident I can do an excellent job on the assignments and tests in this course.	
21	I expect to do well in this class.	
22	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.	
23	I think the course material in this class is useful for me to learn.	
24	When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.	
25	If I don't understand the course material, it is because I didn't try hard enough.	
26	I like the subject matter of this course.	
27	Understanding the subject matter of this course is very important to me.	
28	I feel my heart beating fast when I take an exam.	
29	I'm certain I can master the skills being taught in this class.	
30	I want to do well in this class because it is important to show my ability to my family, friends, employer, or others.	
31	Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.	

### Appendix B (Statistical analysis of MSLQ of different groups)

Table 1: Mean score between Portfolio and non-Portfolio Students in MSLQ

#### Group Statistics

	School	N	Mean	Std. Deviation	Std. Error Mean
Intrinsic Goal Orientation	Portfolio	29	3.5259	.64207	.11923
	non-Portfolio	123	3.8232	.49767	.04487
Extrinsic Goal Orientation	Portfolio	29	4.1121	.61451	.11411
	non-Portfolio	123	4.0874	.61486	.05544
Task Value	Portfolio	29	3.7874	.55616	.10328
	non-Portfolio	123	4.0393	.52967	.04776
Control Of Learning Beliefs	Portfolio	29	3.7328	.55874	.10376
	non-Portfolio	123	3.9390	.62753	.05658
Self Efficiency	Portfolio	29	3.4957	.59432	.11036
	non-Portfolio	123	3.7713	.53291	.04805
Test Anxiety	Portfolio	29	3.3793	.82522	.15324
	non-Portfolio	123	3.3236	.79363	.07156



Table 2: Independent T-test of means between Portfolio and non-Portfolio Students in MSLQ

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Intrinsic Goal Orientation	Equal variances assumed	3.918	.050	-2.730	150	.007	-.29731	.10892	-.51252	-.08210
	Equal variances not assumed			-2.334	36.327	.025	-.29731	.12739	-.55560	-.09902
Extrinsic Goal Orientation	Equal variances assumed	.047	.828	.194	150	.846	.02467	.12691	-.22609	.27544
	Equal variances not assumed			.194	42.239	.847	.02467	.12687	-.23131	.28065
Task Value	Equal variances assumed	1.105	.295	-2.282	150	.024	-.25194	.11038	-.47004	-.03384
	Equal variances not assumed			-2.214	40.827	.032	-.25194	.11379	-.48176	-.02212
Control Of Learning Beliefs	Equal variances assumed	.698	.405	-1.624	150	.106	-.20627	.12701	-.45723	.04469
	Equal variances not assumed			-1.745	46.193	.088	-.20627	.11818	-.44413	.08159
Self Efficiency	Equal variances assumed	13.60	.001	-2.451	150	.015	-.27565	.11248	-.49791	-.05340
	Equal variances not assumed			-2.290	39.298	.027	-.27565	.12037	-.51906	-.03224
Test Anxiety	Equal variances assumed	.008	.930	.338	150	.736	.05573	.16506	-.27042	.38189
	Equal variances not assumed			.330	41.095	.743	.05573	.16912	-.28580	.39726

### AUTHOR NOTE

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## **TO BE A BETTER TEACHER: PRE-SERVICE TEACHERS' REFLECTIONS ON COMMUNITY ENGAGED LEADERSHIP EXPERIENCES IN LOCAL AND GLOBAL CONTEXTS.**

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### **ABSTRACT**

*In this study we examine findings that illustrate the kinds of transformative learning that occurred for pre-service teachers who were required to participate in community engaged learning and leadership projects with English language learners and their families. This study is premised on socio-constructivist notions that transformative education requires learners to identify, critically reflect, and then act upon an object of knowledge and particular ways of being (Freire, 1987). Accordingly, when learners are afforded such opportunities they can experience significant shifts in their individual behavior or consciousness (Mezirow, 1996). These shifts in understanding and being occur through human interactions, and especially those situated in contexts that expose learners, as future teachers, to issues of social justice and equity (Lund & Lee, 2015).*

*We examine candidates' reflections on their leadership projects that ranged from the organization of events and services to support K-12 students and their families in the United States and abroad, to the design and implementation of co-curricular activities in schools, including multiliteracies, athletics, and tutoring. Findings illustrate the ways in which teacher candidates' reflections illustrate their insights and new meaning with regards to their academic agency, social justice, and civic responsibility. Findings support the literature with regards to innovative characteristics for teacher educators, effective citizenship and transformative learning, including an understanding of social issues, especially with regards to diversity, power relations, and self-consciousness about their place and role as change agents.*

*Keywords: pre-service teachers, community engaged learning, transformative learning, reflections*

## **TO BE A BETTER TEACHER: PRE-SERVICE TEACHERS' REFLECTIONS ON COMMUNITY ENGAGED LEADERSHIP EXPERIENCES IN LOCAL AND GLOBAL CONTEXTS.**

At a time when higher education in the United States is increasingly pressed to prepare students to be civically minded and ready to participate in a democratic society (Colby et al. 2003; Ramaley, 2000), institutions are also under increased pressure to recruit and retain undergraduate students. Teacher preparation is no exception to these circumstances, and for those students desiring to become teachers the relevancy of a higher education degree becomes even more significant to their persistence. In the United States, there is a national downward trend in overall college enrollment, and teacher preparation institutions have also witnessed this decline. A 2018 report by the American Association of Colleges for Teacher Education (King & Hampel, 2018) acknowledges that “The number of undergraduate education degrees awarded annually peaked at almost 200,000 in the early 1970s and is less than 100,000 today” (p.8). Although several reasons help explain this decline, including rising tuition that requires more students work while studying, increased opportunities to study elsewhere, diminishing teacher salaries, and challenging work conditions, the bottom line is that teacher preparation programs need to find alternative means to recruit, retain, and graduate future teachers.

These university challenges to prepare teachers are coupled with the fact that the United States continues to experience unprecedented diversity in PK-12 classrooms. By 2025, predictions indicate that the number of “students who are White will decline from 50 to 46 percent, and Black (from 16 to 15 percent).” This is juxtaposed by projected increases in students who are “Hispanic (from 25 to 29 percent), Asian/Pacific Islander (from 5 to 6 percent), and of two or more races (from 3 to 4 percent). The percentage of students who are American Indian/Alaska Native is projected to be about 1 percent in 2025” (National Center for Educational Statistics, 2017). Furthermore, the United States Department of Education has identified an increased demand for teachers in the following fields: bilingual education, English language acquisition, foreign language, math, reading, science, and special education (AACTE, 2018)). Paradoxically, the increased diversity in PK-12 is not reflected in colleges of education and “in 2018, 52% of students in public schools are projected to be non-White, but only 25% of those earning undergraduate degrees and certificates from colleges of education are people of color” (AACTE, 2018, p. 9). Therefore, to attract and retain diverse college students wishing to become teachers into these high need fields, institutions would do well to reconsider program and curriculum design, as well as the types of experiences and opportunities they provide for future teachers to develop teaching and leadership skills that equip them to work in our culturally and linguistically diverse in classrooms and communities.

In this paper we present an analysis and discussion of future teachers' reflections on their civic learning and professional agency that result from their participation in a community engaged leadership project. These projects are a requirement in a university co-curricular program, *Cumbres*, that supports teacher candidates in the high need area of English as Second Language (ESL), to promote transformative learning and the development of professional leadership skills. We explore the notion of transformative education (Taylor & Cranton, 2012) by

examining findings from pre-service teachers' reflections on these experiences in designing, implementing, and/or participating in leadership projects in communities locally and globally.

We begin with a consideration of some of the key issues facing teacher preparation and higher education. We explore the role of transformative education and high-impact practices, and how we support ESL teacher preparation. We then describe the design, purpose, methodology and participants in this study. The findings focus on how teacher candidates' reflections illustrate their insights and new meaning with regards to their academic agency, social justice, and civic responsibility. In the discussion, we examine how the findings support the literature with regards to innovative characteristics for teacher educators, effective citizenship and transformative learning. We conclude with some considerations of potential limitations, and future directions.

### **Transformative education for future teachers**

This study is premised on socio-constructivist notions that transformative education requires learners to identify, critically reflect, and then act upon an object of knowledge and particular ways of being (Freire, 1987). Accordingly, when learners are afforded such opportunities they can experience significant shifts in their individual behavior or consciousness (Mezirow, 1996). These shifts in understanding and ways of being occur through human interactions, and especially those situated in contexts that expose learners, as future teachers, to issues of social justice and equity (Lund & Lee, 2015). From a transformative perspective "meaning is constructed through experience and our perceptions of those experiences, and future experiences are seen through the lens of the perspectives developed from past experience," (Taylor & Cranton, 2012, p. 8). Moreover, and in order to be transformative, this process requires learners to critically examine and challenge not only their individual ways of being and engaging in the world, but also those dominant ideologies that shape the community and society in which they exist.

From a higher education perspective, universities are increasingly seeking out pedagogical approaches (Butcher, Bezzina, & Morgan, 2011; Carson, Domangue, 2010) to provide students with high-impact educational practices (Kuh, 2008). These include designing educational opportunities for students to participate in writing intensive courses, learning communities, diversity and global learning, collaborative assignments, and community based-learning. Community-based learning is explained as a field-based experience or "experiential learning" that provides students with "direct experience with issues they are studying in the curriculum and with ongoing efforts to analyze and solve problems in the community," (Kuh, 2008). High-impact practices have been found to positively correlate with students' deep learning and self-reported personal and practical gains. In addition, correlations exist between students' active and collaborative learning with community-based learning. Furthermore, community-based learning promotes students' professional agency and affords opportunities for applied learning and integration of diverse perspectives, as well as educating students for social and personal responsibility (Clayton-Pedersen & Musil, 2009).

As the number of English language learners (ELLs) in the local school district where this study was conducted reaches 25%, significantly higher than the national average of 9.4% (NCES, 2017), we face increased pressure to prepare future teachers who are knowledgeable and understand how to teach diverse learners. This necessitates education programs deliver meaningful opportunities for ESL teacher candidates to meet teacher licensure standards, as well as the Teaching English to Speakers of Other Languages (TESOL) Professional Standards for classroom and content instruction. These include knowledge of language and culture, skills in planning, delivering instruction and conducting assessment. In addition to this prerequisite knowledge, the ESL teacher candidates must demonstrate their ability to “work collaboratively with school staff and the community to improve the learning environment, provide support, and advocate for ELLs and their families.” (TESOL, 2010, p. 63). This means that future ESL teachers need to be prepared as professional agents of change and educational leaders. They must show that they know how to build partnerships, serve as a community resource and understand how public issues impact the education of English learners. However, designing and providing opportunities for candidates to develop such leadership skills, within the scope of traditional academic professional programs, is not without challenge. Many teacher preparation programs promote the concepts of critical thinking and applied learning, yet when candidates are placed in the field “They are motivated in attempting hands on methods in their school placement and become disappointed because their classroom setting is focused on skill and drill teaching” (Cavazos, 2017, p. 45). As a result, there is a disconnect between what candidates are taught in the program and the real-world teaching that occurs in many classrooms today. One solution to this disjuncture is that programs require pre-service teachers to participate in community engaged experiences that are removed from the traditional classroom. Pre-service teachers can then document, reflect upon these experiences and report back to others about their learning because “It is through careful reflection that service-learning—indeed any form of experiential education—generates meaningful learning” (Ash, Clayton & Atkinson, 2005, p. 50)

Within the field of teacher preparation Varshney posits that “there are many issues that need urgent attention for improving the quality of teacher education programs and one of them is the necessity of innovation in teacher education programs,” (as cited in Cavazos, 2017, p.44). Cavazos further argues that in addition to the innovative, programs also offer creative opportunities to future teachers so that they can “become bold advocates to develop the sorts of learning dispositions needed for our learners and their future. This means spending less time explaining through instruction and investing more time in experimental learning” (p. 51). To this end, some teacher preparation programs are exploring ways to design community engaged learning experiences that enhance or complement the classroom and practicum experiences that future teachers are required to complete.

### **Design and purpose of the study**

In this study, we examine findings that describe the kinds of transformative learning that occurred for pre-service teachers who were required to participate in community engaged learning and leadership projects with English language learners and their families. We reject “the use of the word service, because it seems contrary to the fundamental principle of

reciprocity by implying inequality among participants” (Jacoby, 2014, p.10). Instead, we adopt the term community engaged learning “to emphasize engagement with the community, rather than viewing the community as a base or setting in which learning occurs” (Jacoby, 2014, p. 10). The leadership projects (listed below), were in some instances designed by the teacher candidates, or in others were initiatives that they collaborated on. In all instances the projects yielded concrete experiences and opportunities for teacher candidates to undertake critical reflection related to their knowledge of teaching and working with culturally and linguistically diverse learners. Accordingly, we ask three interrelated questions:

- 1) How do future teachers reflect upon and illustrate the development of their academic and professional agency?
- 2) What do future teachers’ reflections show about their awareness of social justice issues?
- 3) How did participation in these community engaged leadership experiences impact future teachers’ sense of civic responsibility?

### **Methodology and Participants**

This study focuses on data gathered from the Cumbres Teacher Preparation Program. Cumbres is a co-curricular and support services program that recruits, supports, and provides mentoring for undergraduate students who pursue a degree in education (Early Childhood, Elementary, Secondary or Special Education), and who also declare an endorsement in English as a Second Language (ESL). The program is designed to recruit diverse teacher candidates to engage with and support the increasing number of culturally and linguistic diverse students in K-12. Cumbres is located within a School of Teacher Education, at a mid-size public university in the Western United States.

From the beginning of their undergraduate studies, Cumbres students experience the four components of the Program: (1) Living community, (2) Learning community, (3) Mentorship, and (4) Leadership development. Through these engaging and innovative high-impact practices, the pre-service teachers interact with faculty, mentors and peers to develop various skills that will allow them to be successful in college and gain new knowledge to become excellent teachers, educators and leaders in the K-12 system.

One of the four key components of the Cumbres requires candidates to participate in a Community Engaged Leadership Project in their junior year in college. In this community engaged experience, pre-service teachers learn about various leadership abilities, as described in set criteria for completion of the project, that they are expected to develop and incorporate in their work. For example, skills such as self-motivation, communication, creativity, and discipline. In addition, they expected to reflect upon issues of social justice in its various forms.

We examine data from thirteen participants, all seniors. Seven of the participants self-identified as White female students, five as first-generation Latina students and one as a first-generation Latino male student. Four of the six Latinx students self-identified as non-traditional, transfer



students who completed their first two years of study at a community college or elsewhere outside the university. Participants' ages ranged between 20-26 years, and one non-traditional student was in her thirties.

### **Data Collection and Analysis**

We used a “qualitative design coupled with our experiential [co-]curricular strategy” (Iverson & James, 2010) to analyze pre-service teachers' professional presentations and reflections on their experiences and learning from their community engaged leadership projects at Senior Night on campus. This event is attended by other pre-service teachers and peers in the program, faculty and community partners, and it requires students to deliver a visual poster and professional presentation, and question and answers with the audience. Reflection allows insights into candidates' shifts in understanding and thinking, while also illuminating changes in their ways of being. We consider that this culminating experience illustrated how pre-service teachers had designed and participated in their projects and allowed students to critically reflect on their own learning.

The presentations were video recorded and transcribed for analysis. We used qualitative methods to code and begin to categorize the data and to identify major themes that emerged (Miles & Huberman, 1994; Corbin & Strauss, 1998). We categorized key quotes and expressions used by students into themes, and then cross-checked these through a deductive analysis shaped in part by our institutional framework and guiding principles for Engaged Student Learning Outcomes that encompass three domains; Academic and Professional Agency, Social and Ecological Justice, and Engaged Citizenship. We also drew upon the five dimensions of citizenship “values, knowledge, skills, efficacy and commitment” (Elyer & Giles, 1999) to further examine findings.

### **Findings**

#### **Community engaged learning experiences**

In the following sections we describe and analyze students' reflections from their presentations on these experiences. The pre-service teachers' community engaged learning experiences showed variability in both the focus and nature of the activities. Seven of the students worked on individual projects, and six worked on collaborative projects with their peers. Two of the individual projects engaged pre-service teachers in international contexts, and the remainder where in the United States. Some of the projects were designed entirely by the pre-service teachers, and others were conducted in collaboration with new or existing initiatives. The following list provides project titles with a brief synopsis and student names in parenthesis.

*An Elementary Tutoring Program, (Jessica):* Designed and delivered by pre-service teacher, in coordination with a school district volunteer to provide individualized tutoring at the local school.



*English Camp in China, (Rebecca):* Designed and delivered by pre-service teacher to provide intensive English classes for university students, including many aspiring to be English teachers.

*Girls on the Run, (Dalena):* An afterschool elementary program designed to inspire girls to lead and healthy life and believe in themselves to achieve their goals and develop community service activities.

*Inglés en México, (Brittney):* Designed and delivered by pre-service teacher, English classes, tutoring and self-reflection activities for teenage girls in an orphanage.

*Latino Cougars Working Together, (Leticia):* Designed and delivered by pre-service teacher, developed a fundraising program to support scholarship opportunities for students at her former rural high-school.

*Leading Hope, Kid's Hope, (Allison):* A tutoring and mentoring program working to support English learners and their families with academic success.

*What I Wish Someone Had Told Me, (Maria):* Researched and designed a presentation and information to share with high school Latino students about college access and financial aid opportunities.

*Solid Gold Abilities Formal, (Erika & Carlos):* Designed and delivered by pre-service teachers to provide low income, high need, local high school students with exceptionalities an accessible and inclusive formal dance event.

*We All Smile in the Same Language, (Susana, Kate, Megan & Allison) :* Pre-service teachers collaborated with an afterschool young authors program working with immigrant and refugee high school students to write and publish their stories in a book.

While the experiences varied across pre-service teachers and contexts, we found evidence in all instances of similar experiences that can be grouped into three categories.

### **Developing academic agency: “Collaborating on a super professional level”**

In this section we present examples that illustrate the evidence for how future teachers were developing their academic and professional agency. This includes understanding how they worked to find creative solutions to community issues and the ways in which they were able to apply disciplinary knowledge, incorporate diverse perspectives and practical skills based on integrative learning and meaningful problem-based inquiry. Integrative learning requires the application of knowledge and views from different disciplines in contexts where they are working to address a particular problem or need (Huber & Hutchings, 2004). For example, when describing her experience, one of the future teachers explains how:

“I came up with a list of resources that will give them (high-school students) access to school scholarships. Here we have a universal scholarship. So, you fill out one and it fills out many of them and a couple of websites with those as well” (Maria).

Maria recognized the new knowledge that she had acquired as a first-generation Latina student in university, especially concerning how to navigate the financial aid system, and she presented this in a meaningful way to educate other Latino students about how to apply for scholarships and aid. For another future teacher, Brittney, her participation in an international experience, and especially working with Latina girls, was an opportunity to develop her professional teaching and leadership skills, and moreover provided important cultural connections, as she describes:

“I’m just really glad to have had this experience because I can understand my students and I am like so able to connect with them on a level that I would never have been able to connect with them if I hadn’t gone to Mexico” (Brittney).

In this regard, through the engaged learning experience, she acknowledges that she is more confident in her teaching self-efficacy (Richards & Levesque-Bristol, 2016) and that she has increased her knowledge about how to engage and address “what needs to be done” (Eyler and Gyles, p. 159). This idea was echoed by Amy who worked with her peers and teachers on the young authors project, when she stated, “My biggest part that I took away from the leadership project was collaborating on a super professional level.” The leadership projects also helped build students self-confidence and their sense of professionalism readying them for their teaching practicum. As another candidate explained to her peers:

“So, like that’s gonna happen to you. All of a sudden you get in your TESL practicum, and then all of sudden your literacy practicum, or your practicum if your secondary lit. And *you’re* going to be in charge. You’re going to be teaching. So, take the opportunity and be with students... I was so scared, but I knew her (the teacher), so that was very helpful. She was so welcoming. She’s awesome. So, you’ve made connections with teachers in the school” (Kate)

As these examples illustrate, when future teachers are able to assume responsibility, especially through collaborative work, they increase their academic and professional agency. These experiences also stimulate learning and reflection of other matters. In the next section, we examine evidence for students’ increased awareness of social justice issues.

### **Social Justice: “Embracing difference”**

In our institutional guidelines for engaged student learning outcomes, informed also by general education maps and markers from the American Association of Colleges and Universities (2015), we identify social and ecological justice as a dimension whereby students will “assume shared responsibility to address social issues by demonstrating an understanding of their own perspective along with other diverse views across sociocultural, historical, linguistic and other differences or gaps in opportunity.” Pre-service teachers, in this study, recognized how their community engaged experiences increased their awareness of social justice issues in different

ways. For example, one bilingual Latina teacher candidate explained how through her work to support writing and language with immigrant and refugee students, she learned that:

“inclusivity is about embracing difference, not necessarily like assimilating to this culture- to the American culture- It’s about being *so* into your language and loving where you come from; it’s -it’s just huge.” (Kate)

The concept of inclusivity was also present in other pre-service teachers’ projects. When Jessica explained how she designed instructional support activities for students using technologies, “So that they [students] aren’t feeling like they’re being forgotten, or like we are working with one student more than another, so that they get that one-on-one personal attention and that’s exactly what they need. That’s what they kind of lack in classrooms because teachers have a lot to worry about...”

For Maria, another pre-service teacher, it was through participation in a game designed to promote awareness of difference and how individuals are treated it showed how:

“if you have a diverse classroom, it [the game] gives everyone an opportunity to see the other on the other spectrum... So, if you are lower class, when you get this [card] expect to be higher, and higher class will be in the lower class. It shouldn’t be like this though, and that’s the point of the game. We shouldn’t be treated differently because of the way we look, or what your social class is or what your financial needs are.” In this instance, Maria displays her heightened awareness of multifaceted difference, including social and cultural difference, as well individual economical differences. These differences were especially evident for future teachers who engaged with the local school district. As Carlos, the Latino male, reminded his peers:

“If you’re out in the local school districts or schools in general, you’ll see that’s really rare to find a school that has less than 50% of their student population on free and reduced lunch. Most of these schools are above 50% and, if we’re seeing that most of the students can’t afford to bring their own lunch, how can we expect them to purchase their own ticket for a formal [dance event].”

In their reflections on these experiences, teacher candidates were able to move beyond merely conceptualizing and framing this event as a simple act of charity. Rather, they deliberately designed it to be a transformative experience by assuming their role in recruiting others to assist with fundraising, and even encouraging peers to continue the program to organize future formal dances for higher schoolers. In this way, the project aspired to address ongoing issues of social justice and access. The social justice and transformative nature of the community engaged experiences was also evident in the ways that for some of the teacher candidates, this was an opportunity to pay-it-forward. As a first-generation Latina college student, who had struggled student to figure out to make it to college, Leticia was determined to make a difference in the lives of other high-school students. She explained:

“I want to say that this community is like -White students- and then some Mexican students. There’s no scholarships that really help Mexican students. So, I wasn’t really told to go to

college. I was just like, let's have you apply to college and get some scholarships and let's see if you go. It wasn't like *you should* go to college... Anyways, when I graduated [high -school], I went back in and worked with the most amazing students I could ever have. They are the ones that put me here."

The teacher candidates who identified as Latino displayed a critical consciousness of their own learning and development, especially about how "to do college" that in turn shaped their desire to pay-it-forward. This was conveyed by Maria, when she described how "When I walk into a classroom, the first thing they see is that I am a female, I'm Mexican-American, I'm a dual language speaker and lower middle class." Therefore, we noticed that for the future teachers of color in this program, they assumed a shared responsibility toward their younger peers and were eager to ensure that the junior students could learn from the challenges and obstacles they had overcome. Maria's experiences on campus empowered her to recognize that:

"There is a need is to create awareness for them [Latino high-schoolers]. College has been such a good experience, but there are so many things that people could have told me coming in that they didn't they didn't tell me. But not just about financial aid, not just about how big your class will be, or about sitting in crowd, but how *you feel* sitting in classroom with predominantly White people."

Accordingly, by working to address issues of social justice future teachers are also demonstrating their commitment to collaborate and be responsible members in their communities and society.

### **Civic Responsibility: "To be a better teacher"**

Eyler and Giles (cited in Iverson & James, 2010) pose that a commitment to do something is indeed the "ultimate test" of effective citizenship. The community engaged leadership projects that students developed had very specific actions and outcomes, most of which were designed to address the inequities or needs they encountered in different communities. For Rebecca who was working in China, it meant her realization that her Chinese peers, who were training to be English teachers:

"don't get the opportunity to come to America to learn English, as much as they would love to, but it just is literally impossible for them. They're kind of limited to be able to teach in China. And so, we got to go to them and bring our 'culture' and like just get to spend two weeks, just really showing them that we care about them and that we wanted to share a little bit of our culture and like just help them learn English."

The future teachers demonstrated a responsibility and willingness to teach diverse learners how to embrace their uniqueness and empower themselves. Leticia, a Latina candidate explains how important it is share with other Latino students that, "You know, don't let anyone put us down for our life and especially being Hispanic, being a minority, being female, but like they have no idea what we are capable of. And until someone informs them and lets them know they can do it [go to college], then they definitely will." Empowerment also meant inspiring self-confidence, especially with younger students. For example, Dalena describes how for her the Girls on the

Run project sought “to raise *our* girls to be healthier and to be confident, and to believe in themselves and to achieve their goals ... We discuss every little negative aspect and they would turn the negative into a positive, and then we would explain to them how to change it and we pop the balloon and all the negative things just poof away!”

Likewise, for the students who planned and organized the formal dance event, they recognized that the “inclusive social event that has not been offered as an opportunity to the students within the School District area before, will also bring awareness to parents of culturally linguistically diverse backgrounds about the importance of attending a formal event.” As teacher candidates, it is apparent that they acknowledge the supportive role and place of families in students’ lives. Essentially, the future teachers’ development of civic responsibility was intertwined with the desire to be a better teacher by holistically understanding their culturally and linguistically diverse students and their lives. Brittney perhaps said it best, when she summed it up as follows:

“I think if you have the opportunity go to a Latin-American, Spanish speaking country, go because a big population of your students are going to have Latin-American backgrounds. And, the biggest way to be the best teacher you can be, is to connect with your students. And now, I can connect with my students and I’m able to be a better teacher than I could have been before.”

## **Discussion and Implications**

The findings illustrate how teacher candidates’ perceptions of their community engaged leadership and learning projects can be categorized in to three areas: Academic and professional agency, social justice, and civic responsibility. In this section, first we discuss how the findings exemplify some of the innovative characteristics of 21<sup>st</sup> Century educators (Cavazos, 2017). Next, we consider how the findings broaden and advance the five dimensions of effective citizenship (Eyler & Gile, 1999). Finally, we consider the transformative nature of these experiences on teacher candidates who will work with culturally and linguistically diverse students.

Pre-service teachers’ reflections from their community engaged learning and leadership projects embody many of the innovative characteristics for the 21<sup>st</sup> Century Educator posited by Cavazos (2017). In particular, teacher candidates were able to develop as *visionary leaders* by applying their professional knowledge to support learners across a variety of contexts and communities. As Alison explained: “my role- it started as I said as a mentor and since then I have become part of the leadership team for this community.” Or as Susanna stated, “the idea of leadership in general for me. ... for me it was really just knowing that we all had a goal. The end goal in sight was obviously getting this book and getting these reflections written. So, getting a shared vision.” The teacher candidates’ reflections show how they approached these experiences with *empathy*, as Rebecca said, “just really showing them that we care about them,” and as Jessica shares, “They [students] need to understand those basic skills, ... so I know I’m really glad, and I’m sure you guys are really glad, to have the opportunity to be able to help them with is and just kind of get them to that next level where they can feel confident enough to succeed in their school careers.” Teacher candidates’ reflections often referred to how these experiences encouraged *team building* with peers and in communities. Candidates stated “it’s that

collaboration piece that is definitely a huge part of the program and just trying to get that leadership team built together” or “I have a great team of people doing this with me. And, “For me, the biggest aspect of leadership that I got out of this project was the concept of teamwork.” We found that these instances further illustrate how they built respectful and mutually beneficial cross-cultural relationships with the communities where they engaged.

Eyler & Gile (1999) propose five interrelated dimensions of effective citizenship: *value*, *knowledge*, *skills*, *efficacy*, and *commitment*. We consider here how the findings from this study broaden those definitions in new directions.

*Value-added learning.* When teacher candidates engaged in community contexts with English learners, especially when they identified with the community where the project was located, this became a powerful motivating factor; be it because of their own cultural identity, such as the Latino candidates with their communities, or on a professional level, such as working with future English teachers in China, or on a personal level, by inspiring young girls’ well-being, they found value in their efforts. This in turn yielded added value to their professional preparation and for those with whom they engaged.

*Knowledge application.* The community engaged leadership projects were rich sites for teacher candidates to apply the academic knowledge, accrued over three or four years in college, to impact and support English learners beyond the classroom. In this regard, “Students [pre-service teachers] who participate in high-quality service-learning have the opportunity to see and act on the problems individuals and communities face, engage in dialogue and problem solving with the people most affected, and observe firsthand the effects of racism, sexism, poverty, and oppression” (Jacoby, 2014, p. 11)

*Expanding skill sets.* For the most part, the pre-service teachers from Cumbres went into their community engaged leadership projects with a good skill set, in particular, with regards to teaching and learning, and working with English language learners. However, findings indicate that through these community-based experiences, and in contrast to the often-scripted classroom-based practica, candidates were able to strengthen and expand their skill set. One example from Kate, in the young authors program, illustrates how she came to appreciate new techniques and ways to authenticate student voice and autonomy, instead of only focusing on academic correctness. She explains, “we never wanted to take away any authenticity from students and I think going into a future classroom hopefully, I can apply that. I mean of course you should have proper grammar but allowing them to feel that *they are in control* of their learning and the work that they do is their own.”

*Collective efficacy.* For many candidates it was the very nature of their involvement in the community engaged project that increased their self-confidence and sense of accomplishment. Interestingly, candidates acknowledged their achievement in relation to a collective (team) effort. As Megan notes: “the biggest aspect of leadership that I got out of this project was the concept of teamwork... I thought a leader was someone up on a pedestal showing people the way, and what they should do is remain as a model. But I found that a good leader may do that, but they also come down from that pedestal and work alongside the people that they’re leading.”



*Community commitment.* While commitment as expressed by Eyer and Giles refers to the students' (or pre-service teachers) 'doing something', we found that the teacher candidates recognized not only the value in their own doing but valued also the ways in which they were able to support the learners they worked with to accomplish something. For example, Leticia explains how with the young girls, she would encourage them: "So today my [your] goal is to run 5 laps. And so, they get five little beads, and they love that because they feel like they are getting something from it, like they are accomplishing something. I mean it's just amazing. Oh!"

Furthermore, we propose that these kinds of community engaged leadership experience can result in transformative learning (Enos & Morton, 2003) for teacher candidates due to their unique design, and especially due to the freedom from the constraints of the traditional classroom-based experiences. This transformative nature can be attributed to several key factors.

1) In many of the examples presented, as we have shown, the community engaged experiences yielded some form of *tangible product or outcome*. For example, the Young Authors Book, the Formal Dance, a Fundraising Program, or English classes.

2) Accordingly, these concrete actions and products becomes a "*material symbol* for new relationships" (Crabtree, 2008). In so doing, this expands the teacher candidates' sense of accomplishment, while also increasing their professional network and leadership skills.

3) Many of the community engaged experiences involved *creative activities*, designed or delivered by the pre-service teachers, that allowed for meaningful or authentic learning for both the teacher candidates and the learners with whom they engaged.

4) Additionally, and since many of these opportunities collaborated involved non-profit agencies or similar they *reinforced democratic values* and TESOL standards related to professionalism and advocacy for learners.

Finally, the community engaged leadership projects transformed pre-service teachers' attitudes, knowhow, and skills through direct application and experience. This impacted their awareness and insights into what it means to be a teacher, especially by transcending self-interest, or "me the teacher" and reframing this to create a heightened awareness and collective meaning of "us the learners." Maria summed it up best, when she explained:

"If kids come to us from strong healthy functioning families, it makes our job easier. If they don't come to us from strong healthy functioning families, it makes our job much harder. That's why as future teachers, we all want to make a difference because someone made a difference in our life."



### **Limitations and future directions**

Notwithstanding the findings presented here, there are some limitations to this study. First, the relatively small sample of participants that included approximately half of the graduating seniors and future teachers from the given year. Since some students graduate in fall and others in summer, it would be valuable to conduct a study that includes all students across a given year. The primary data source, teacher candidates' reflections derived from participants' self-reporting of their learning the community engaged experience. While the validity of some self-reported data and reflections can be questioned, it is worthwhile to remember that reflection is not only a common form of assessment in community engaged learning but that, more specifically, reflection is "the term is used to pull together a broad range of previous thinking or knowledge in order to make greater sense of it for another purpose that may transcend the previous bounds of personal knowledge or thought." (Moon, 1999, p. 5). Finally, we recognize that additional data sources, including pre-post measures, in-situ reflections from teacher candidates, as well as the feedback from participants or communities with whom they engaged would all significantly enrich future iterations of this work.

The findings of this study support prior studies (Jenkins & Sheehy, 2011; Lucas & Frazier, 2014) that indicate that high-impact practices such as the community engaged learning opportunities presented in the form of leadership projects for teacher candidates during their college experience are beneficial (Malone, Jones, Stallings, 2002). We found they enrich their development as civically minded educators and can generally enhance teacher education programs. However, since this project resides within a co-curricular program, we acknowledge the need for increased partnerships and collaborations between Teacher Colleges, Colleges of Education and Co-Curricular/Student Support Services or programs on campuses to develop and implement effective community engaged learning opportunities for pre-service teachers. In closing, Teacher Education Programs would do well to continue to explore additional ways to be more innovative and promote high-impact practices that are effective not only in enhancing the preparation, but also the recruitment and graduation, of future teachers.

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## **TEACHER EDUCATION IN REFUGEE ENVIRONMENTS: A MULTI-INSTITUTIONAL COLLABORATIVE APPROACH TO TEACHER EDUCATION IN DADAAB REFUGEE CAMPS, KENYA**

**Lorrie Miller, University of British Columbia, Canada**  
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### **ABSTRACT**

*Dadaab Kenya is known as the world's largest protracted refugee camp, currently home to over 300,000 people, and at one point close to half of a million adults and children, some of whom have lived more than 20 years in the camps. In the Dadaab refugee camps there are presently 7 high schools and 23 primary schools. This is also the site where the first post-secondary teacher education program was offered to untrained teachers from the camps and the host community. A unique multi-institutional collaboration began in 2009 between The University of British Columbia, Canada; Moi University, Kenya, offering the first courses to those in the Secondary Teacher Education diploma program in 2014. This project was under the broader umbrella program, BHER: Borderless Higher Education for Refugees, housed out of York University's Centre for Refuge Studies. <http://dadaab.educ.ubc.ca/>*

*Also in Dadaab, there are related research projects including the work of Dr. Cynthia Nicol and Dr. Karen Meyer – as they sought to better understand notions of living, learning and teaching in this particular refugee camp. <http://lltd.educ.ubc.ca/> Ultimately, this research seeks to identify ways of improving learning and teaching in such environments.*

*The teacher education program was offered in two and three-year cycles, with students specializing in at least 2 curriculum areas within either the sciences or humanities. The courses were delivered in several formats: on-site face-to-face, on-line, and also a variety of blended courses with components of the two.*

*By the summer of 2018, about 85 students had graduated from the Moi University – UBC diploma, had continued teaching or in related fields, had gone onto pursue university degrees, and in some instances, began their own schools. Follow-up surveys and interviews have provided insights to student experiences in this program, and into how this program has impacted them, their lives, as well as their students and communities. We are just beginning to understand the ripple effect of program.*

*In November 2017, Mohamud, an alum who graduated from the Moi-University – UBC diploma in Teacher Education in 2016 while living in Dadaab Refugee Camp, opened a primary school in Kudhaa Somalia, his home town, where previously the children had no access to formal education. Today there are more than 800 girls and boys attending this new school. He and his team have launched a non-profit organization in Somalia, secured the use of former army buildings, and hired eight teachers.*

*This paper will provide an overview of this program, and initial look at the impact and implications of this unique teacher education program. Teacher leadership, such as Mohamud's, is truly transformative for both the school and community. We have much still to learn. By continuing to investigate best practices for teaching in challenging environments and listening to those who are teaching and learning in the field, we hope to better inform future education programs, develop curriculum, and policies surrounding those most at risk, those living and teaching in emergency contexts.*

## **TEACHER EDUCATION IN REFUGEE ENVIRONMENTS: A MULTI-INSTITUTIONAL COLLABORATIVE APPROACH TO TEACHER EDUCATION IN DADAAB REFUGEE CAMPS, KENYA**

### **INTRODUCTION**

A small acacia tree provides shaded relief as we wait for our driver in the UNHCR (United Nations High Commission for Refugee) compound in Kenya's Dadaab refugee camp. It's only 8:00 am and our white Canadian bodies sweat with the equator's heat. A breeze stirs hot red coarse sand around our feet, now caught between our toes. The drive from here to BHER (Borderless Higher Education for Refugee) Learning Centre is not long but requires crossing multiple security checkpoints, the last at the gates of the Learning Centre where students enter only with approval of one of the compound's two armed guards. Many students from Dadaab's refugee camps, Ifo, Dagahaley, and Hagadera, take local transport to the Centre; some brave the heat and walk more than an hour without shade. Stepping out of the air-conditioned vehicle, we greet our students, all smiling, excited to be university students in the first teacher education university diploma program offered within a refugee camp. [Nicol, Field note, April 2016]

Our paper explores the impact and implications of a multi-institutional collaborative approach to teacher education in Dadaab refugee camp. Due to the perceived temporary nature of being in refuge, where people are forcibly displaced within or from their homelands due to war, fear of persecution, famine, or climate change, refugee education has only recently become a priority for international refugee assistance agencies. As Walker & Leblanc (2005) note, education in refugee camps "fits awkwardly into the 'relief' model" of refugee assistance programs (p. 135). Other relief programs, such as medical and security needs, tend to focus on immediate survival. Education, on the other hand, requires decisions, negotiation, and collaboration on rationale, for whom, which curriculum and pedagogical approaches to use, and how it should be funded. In Dadaab refugee camp, the world's largest protracted refugee camp hosting close to 300,000 refugees (UNHCR, 2017), primary education up to grade 8, is offered in 35 primary schools and 7 secondary schools. In 2016 almost 68% of children in Dadaab were reported as not having access to school, while only 2% of eligible secondary school aged children were enrolled (WERK, 2017). Nonetheless, education is a major priority for those within Dadaab camps, with community members initiating the process of school building often by collecting, saving and trading UN food rations for educational supplies.

Teacher education within a refugee camp, such as Dadaab camps, presents even more challenges. Who are, and who should be, the teachers of students in refuge? In Dadaab camps, those who graduate from secondary school with passing grades will be asked to return to their schools as teachers. With no opportunity for further higher education in a particular field, or in teacher professional learning within the camps, new teachers teach with the skills learned as students. More recently in Dadaab camps, trained Kenyan teachers who are graduates of Kenyan university teacher education programs, also teach in Dadaab's primary and secondary schools. And in 2018, about 85 students graduated from a Moi University, Kenya-University of British Columbia (UBC), Canada, Diploma in Teacher Education program.



## RELATED LITERATURE

It is this secondary teacher education diploma program, the first of its kind to be offered as higher education in a refugee camp, that is the focus of our paper. Teacher education research, internationally and in North America, has focused on the challenges and possibilities of teacher education in rural communities focusing on teacher preparation, recruitment, staffing, and retention (Gallo & Beckman, 2016; McDermott & Allen, 2015; Mukeredzi, 2016; Reid, et al., 2010; Saigal, 2012). Research on teacher education has also focused on teacher professional learning in urban contexts highlighting the specific challenges and promising practices of researching diverse urban classrooms (Bland, 2016; Milner, 2012; Williamson, Apedoe & Thomas, 2016). Although there is some growing research on education in refugee or emergency contexts, there is almost no research on the possibilities of teacher education in refugee contexts. Our paper addresses this gap by reporting on our research project of building and providing university teacher education in Dadaab refugee camp. Our study provides insight to the challenges, creativity, imagination, and resilience needed to teach in some of the world's most complex contexts.

### Refugee Education in Dadaab Camps

Dadaab Refugee Camps are situated in Kenya's sub-Saharan territory. In 1991, Kenya hosted the first refugee camp around the small town of Dadaab following Somalia's civil war that led thousands to be forcibly displaced from their homelands. The Kenyan government in coordination with the UNHCR constructed the Dabaab Camps as temporary refuge for 90,000 people. Now, 25 years later, there are four camps: Ifo 1 and Ifo 2, Dagahaley, and Hagadera, with a total population close to 300,000 (UNHCR, 2017). Generations of people live and die in Dadaab camps. A few years ago with further civil unrest in Somalia and severe famine, the total camp population rose to over 460,000 (UNHCR, 2012). The camps, located in resource scarce geography and far from populated cities, are true encampments, isolating refugees from Kenyan nationals (Crisp, 2001). But the camps are also strategically located close to the Somali border to ease cross-border communication and possible repatriation back to Somalia (see Figure 1). Although the camps provide security, shelter, and access to food and drinking water they are also created under a model of temporary relief where international aid organizations provide assistance with short-term rather than protracted goals in mind. This means education, especially secondary and higher education, is "uneven and limited" making education a challenge to access, provide, and fund (UNHCR & Global Education, 2016).

Figure 1: Map of Kenya with location of Dadaab Refugee Camp



A recent report commissioned by the UNHCR on Dadaab camps' out-of-school enrolment indicates that 40% (2477) of males and 31% (1877) of school-aged children 6-13 years are enrolled in primary (Grade 1-8) school (WERK, 2017). For secondary school aged youth, aged 14-17 years, access to education is much lower. Only 2% (621) of secondary school-aged youth were enrolled. This means that almost 66,000 primary school-aged children and 35,219 secondary school-aged youth, for a total of over 101,219 school-aged children and youth are not enrolled or do not have access to education in Dadaab camps. Boys of primary school age were twice more likely than girls of the same age to be enrolled in school and this increases to three times more likely at the secondary level (WERK, 2017, p. 22). A number of reasons are offered by the report to explain the large number of out-of-school children and youth including lack of physical space for all children to attend school, lack of teachers, parental emphasis on religious training over formal education, high poverty making it difficult for some families to purchase required school uniforms and school supplies, and cultural practices. Nonetheless, access to education remains important to Dadaab refugees as seen in the community initiated, organized and developed secondary level community schools, in addition to the UNHCR organized schools. One school in each of the three camps is a community school, and all primary and secondary schools follow the Kenyan curriculum, organization, and examination procedures.

Secondary level schools draw upon the expertise of Kenyan national teachers, with university degrees in teacher education. In 2016 about 54% of secondary school teachers were national teachers, while almost 27% were untrained and the remainder trained or enrolled in certified training (WERK, 2017). Untrained teachers are typically refugee teachers who have successfully completed secondary school with a Kenyan Curriculum Secondary Education certificate. Opportunities for higher education within the camps are limited and include certificates for workshops or short programs that often do not ladder into further learning opportunities or advancements. Although there are a large proportion of untrained teachers in secondary schools, many with years of teaching experience, there are few opportunities for them to access university-level education or teaching certification. The Moi University, Kenya – University of British Columbia, Canada secondary teacher education diploma is an exception.

## **RESEARCH CONTEXT**

### **Higher Education in Dadaab: Moi University – UBC Teacher Education Diploma**

Negotiation, planning and collaboration for the Secondary Diploma in Teacher Education Program to be offered in Dadaab camps began in 2009. It involved numerous organizations, but began with conversations between The University of British Columbia (UBC), Moi University, Windle Trust Kenya, and World University Service of Canada (WUSC). In 2012, these organizations along with York University, Canada and Kenyatta University, Kenya become part of a larger project called the Borderless Higher Education for Refugees (BHER) with funding from Global Affairs Canada.

Moi and UBC decided to jointly offer the diploma on site in Dadaab and through distance-education to qualifying refugees (75%) and Dadaab host community members (25%). Students were first admitted to Moi as their home institution and as visiting students to UBC. Though

they would receive half of their credits from UBC, they would be transferred into Moi and graduate with a Moi diploma in education meeting Kenyan teacher certification standards. It was important to have a local academic credential when applying teacher certification in either Kenya or Somalia, or when applying for one of the possible degree programs at Moi, York, or Kenyatta Universities.

The teacher education diploma first enrolled students in 2014 in two and three-year cycles, with students specializing in two curriculum areas within either the sciences or humanities. Initially, 149 students were admitted to this diploma program in either the 2014 or 2015. However, 44 of these admitted students did not attend or participate in any course. This means that 105 have taken some or all of the program. To date, 85 students have met graduation requirements, thus, a graduation rate of 81%. The make-up of the graduating students, as of August 2017, are: 6% women, 63% refugees, 55% teachers (Borderless Higher Education for Refugees, 2018).

The courses were delivered in several formats: on-site face-to-face, on-line, and also a variety of blended courses with components of the two. The diploma was designed to be sensitive to the locale, the cultural and political context, and to meet the national standards for teacher certification in Kenya. Moi University focused on offering the subject matter content courses, while UBC focused on offering curriculum and pedagogy courses. Many of those enrolled in the program were currently teaching in Dadaab schools as untrained teachers at the primary level. Therefore, courses were scheduled during times in the school year where teachers had two three-week breaks to complete intensive university coursework. The program also included two eight-week practicum experiences between May and July in secondary schools within Dadaab camps. This meant students would complete one practicum course in each year of their program, with the first being formative (pass/fail) and the second summative and graded.

By July 2017, the first cohort of students graduated from the diploma program, and in July 2018 a second cohort completed the program, making a total of 85 graduates of the MU–UBC secondary teacher education diploma. Our research reported in this paper focuses on the outcomes of this program from the perspectives of graduated students.

## **RESEARCH CONTEXT and METHODS**

For this paper we draw upon data collected as part of a larger project focused on exploring living, learning, and teaching in Dadaab refugee camps (Meyer, Nicol, et. al., 2018) and data collected as part of anonymous feedback to the program. Specifically, we analyzed 5 focus group discussions conducted in July 2017 with graduates of the first cohort and students in the second cohort. These focus groups ranged between 30 and 45 minutes in length for a total of 225 minutes, involved 15 participants in total, and were facilitated by the first author (Lorrie Miller) together with colleague (Samson Nashon). The focus group discussions often occurred either outside under the shade of a tree or in the air-conditioned BHER Learning Centre computer lab.

The focus group conversations flowed between open-ended questions, and questions developed in an organic fashion building upon questions, ideas, or critical points initiated in the conversation by the participants. In each group, participants were invited to jump in and speak up at any-point in the conversation, and to first identify themselves with their name as they did. This allowed for developed responses and for researchers to connect the voices to the individuals when listening to the recording later. In addition to these focus group data, we had access to a 30-minute video response by one participant on his current projects following completion of the program. Former students of the camps, now university students in Canada as WUSC scholars, completed all transcriptions, as they were able to interpret participants' linguist accents and cultural references. Transcripts were analyzed with multiple readings of the texts, highlighting key passages focused on the guiding question: "What is your experience in the diploma program from when you began to where you are now?"

In addition to the focus group data we analyzed survey data collected in December 2017, and in April 2018, with participants as diploma graduates (cohort 1) or diploma students (cohort 2), providing responses by 49 participants. Data were organized through excel spreadsheets and visual graphs by question. Survey questions included open-ended as well selected-response type; participants also responded by email or through the social messaging platform WhatsApp, if they wished to elaborate on their experiences in the program. Many students offered detailed feedback, and some continue contact with UBC despite having completed the program. Of 87 students initially surveyed, 54 responded, and 8 email survey invitations bounced. Survey questions included background questions (cohort, specialty areas, transportation methods and time to BHER Learning Centre), perceptions on course delivery methods (online, face-to-face, hybrid), challenges and supports to completing the program, and future goals.

### **Diploma in Teacher Education Secondary:**

Students travelled to and from the campus to their home camps by bus in order to attend classes as some of the camps are up to 10km away and hours-long walk in the dry equatorial heat. The program offered financial stipends to the students to help with transportation and lunch costs (that had been previously identified as a barrier to participation). Instructors from British Columbia flew in from Canada, Moi instructors and travelled in from Eldoret Kenya by either plane or vehicle, and all stayed at the UNHCR compound while they taught courses nearby at the Kenyatta Campus where the BHER classrooms and administrative offices were situated.

Though the academic experience for the secondary diploma students varied in some course content, all students across the 60-credit program took the same core set of courses (30 credits) and practicum. These practicum experiences were coordinated with their employers to give them time away from their regular teaching schedule in order to engage in this essential part of their program; in addition, students were supported by the head teacher or administrator of their placement schools, BHER staff – practicum coordinator, and UBC faculty. UBC coordinated at a distance and assessed the practicum courses, with support of BHER and Windle Trust Kenya and instructors on the site. <http://dadaab.educ.ubc.ca/students/courses/>. UBC maintains program blog that was used during the program and remains live as a resource for alumni. <http://blogs.ubc.ca/dadaab/>

**Flexibility in program delivery:** As courses were offered over three years, modifications were incorporated along with way to respond to the reality on the ground to respond to student and program needs. Some on-line courses were adjusted to be offered as hybrid, and a face-to-face, scheduled course was offered as distance, and an additional course was added to the schedule to accommodate a small group of students who did not attend or pass one core course.

Supplemental exams were offered for each course, as was a supplementary practicum for a student who was unable to be in Kenya at the official time of the practicum due to repatriation and safety concerns in the area of Somalia where he had moved to work for an aid organization as a teacher. Another example of program innovation and flexibility was when an instructor and her team in Canada virtually held classes from 11:00 pm until 5:30 am (23:00 - 5:30) for students in Dadaab. The UBC team connected through Skype, WhatsApp, text, and email while students in Dadaab gathered in the BHER Learning with on-site support staff who facilitated the group lessons. They conducted this for one week with good levels of engagement and success.

## RESULTS

Survey results indicate that the key motivating factor to begin this program was to become a better teacher. Students also reported having experienced changes to the quality of their teaching as a significant outcome to the program. They describe a shift in their thinking about education and how they work with children and youth. They also expressed pride in their accomplishments as teachers and teacher-leaders, and repeatedly expressed great gratitude towards the program, the instructors and the agencies that funded this post-secondary program that allowed them the opportunity to qualify to the national standard of teachers in Kenya. This certification represents a significant status shift in the schools and communities where they teach, regardless if they are from the host community of Dadaab or from one of the refugee camps.

Students described shifts in their teaching strategies stating they now teach for the inclusion of gender, to ensuring girls remained engaged. Feisal (pseudonym) reported in a July 2017 interview:

Initially, before I had undergone this kind of training, I realize [now] that I was not using the right methods, because what I was doing is basically teacher centered but now I am able to engage students in group discussions, which are usually student-centered methods.

That group is composed of girls and boys. When giving them a task, we normally mix them in a manner such that the group consists of girls, maybe two girls, or boys in the group, [and] should not exceed more than five, so that they can be able to brief each other. The other thing is, we normally group these students according to their abilities, whereby we mix them according to the gender ... The text books are limited, we normally student sit them in groups, and that group we may have some boys and girls sitting together, so that they read together, and when it comes to answering the questions they will be able to help each other. (Feisal, focus group 2017, p.446)

This shift from teacher centered teaching to student centered that is sensitive to gender, reflects the emphasis placed on this in their education program. Participants described how their teaching had previously not included group work and would not have necessarily grouped girls and boys together. Girls would not have spoken out in class often, and they as the teacher, would not necessarily have called upon them to participate equally in class. But this has changed. Gender inclusion in education is a deliberate theme from all university offerings that ran throughout their courses, not a specific course on its own. Survey respondents were also asked to identify a particular course as having a special effect on their current teaching practice: 19% of respondents identified Special Needs Education. Learning about students with special needs and pedagogical strategies to support such students was significant for participants compared to the impact of particular content or content curriculum and pedagogy courses.

Participants' survey responses are elucidated through focus group conversations and volunteered individual follow-up feedback. For example, Mandere (pseudonym), a Kenyan National teacher, described her attitude from before she began the program to her current understanding and approach following the program:

I could teach. I thought I was the best, but my best was not good. So through this program I have worked hard and I have been using the skills learnt in the program.... Even the learner-teacher relationship is improving. (Mandere focus group, 2017 p. 476)

Mandere describes how her attitude towards the children and their individual needs have changed from teacher centered to learner centered. Prior to the program, if a child came late she would, as expected, punish the child. However, now, she tells us:

I realize that they are genuine learners who are not intending to come past seven, but because of some of the challenges they were facing at home, that is why they have come [late]. So now I listen to them like the UBC lecturers. [I ask,] Why are you late? Is there a genuine reason? Then now, there are those who do deserve the punishment, there are those who don't." (Mandere focus group, 2017, p. 476)

In a follow-up conversation, Mandere stated that she now teaches with her ears; when asked what she meant by that, she said, "I listen to the children and learn what they need."

Mandere describes the shift in her attitude and behaviour:

Before this training, I am a teacher, and I am final. I go across the class and everybody is seated and quiet, but little did they know that there was no learning taking place, it was just fear. But now I can go to class; the learners are seated; they are quiet, but each and every person is raising the hand, *madam, I have a problem here come and help me, come and help me*, and I have that heart to help them; but before [I'd say] *what do you want?* (Mandere, 2017, p. 477)

So not only did Mandere change how she felt and responded to the students, but also how she viewed herself. She told us: [At that time] "I was saying to myself, I don't even fit in that class



of teachers, I am not trained, they are better than me. But now at least when I sit I can see one teacher is coming another one is coming; we share experiences; we share stories. (p. 477)

She reports an academic improvement for her students from prior to her professional education to now:

In 2013 I was teaching Mathematics class 8, the Kenya KCPE [Kenyan Curriculum Primary Examination] results for that municipal was 37 point something, but last year the mean score was 68 point something.... I didn't do much, I think; I just did what was necessary. So, performance-wise it was seen. And even the title itself, although I have not announced that, I am now a professional teacher; inside me, I know I am now a professional teacher. Thank you." (478)

Mandere described her experience teaching some of the children with significant life challenges, perhaps an orphan, or whose mother is divorced, or whose father has moved away. She described how for some she has become a guardian at school, an advocate who stands up to the administration as she supports the child who faces expulsion for misbehaviour. In Dadaab, she has become an advocate for teacher education with the UNHCR and the Kenyan government.

Although Mandere story is compelling and personal, it also represents some of the themes that have emerged from this study: the diploma students' change of attitude and skills, increased sense of confidence, shift of social status in the school and community, and an increase of professional responsibility. These outcomes are further seen in an unexpected result where one of the graduates, Mohamud (pseudonym), used his skills gained in the program to further re-imagine education in his home country of Somalia.

Mohamud is a bio-chemistry teacher, and graduate of Moi University with a Diploma in Teacher education, and also awaiting degree graduation, now having completed the requirements for a Bachelor in Community Health Education. At 33 years of age, he has lived in Daddaab, Hagadaera camp since he was a child fleeing the civil war in Somalia where he lost both his parents and brothers. He has lived in Dadaab camps since 1991. He is a father of four, and has been teaching primary for over four years.

This past November, he contacted Lorrie Miller for advice regarding a new school he had just opened. The story began with a description of how could he raise awareness and funds for his school in his hometown of Kuhdaa in Jubaland, Somalia. In a personal conversation, he described a visit to see grandfather in the summer of 2017, when he discovered that the children in the town had no school. He rallied community leaders, parents, and religious leaders, and together they obtained permission to use old army buildings and transform them into a school. He and his partners have established a registered charity, launched a website about the school, and applied to the government of the region to officially register their primary school so they can qualify for additional funding.

Mohamud and his partners' wish list is long, but worthy. They presently have eight teachers (one is a graduate from Moi-UBC) teaching the 843 children between the ages of 7-15. They



also have a board of directors (3 women and 3 men) who are situated in this community. Mohamud reported to UBC that the school has brought about change among students, less extremism and radicalization; more girls are going to school. Mohamud told us that:

As a teacher, I break down social barriers that will have hindered development; I encourage interactions amongst all my learners regardless of religion, region, skin colour, gender and background.

What is so very hopeful in this comment is the fact that Mohamud can inspire and mobilize community members to bring about this change. When the school first opened there were over 400 students initially, but very shortly, it grew to just over 600, and now there are well over 800 girls and boys as families have moved in from the countryside to bring their children to school. Mohamud also calls for greater teacher training so that the quality of education can continue to improve. While still living in Dadaab and teaching at Hagadara, Bidi Primary school, Mohamud is also a teacher in the “Empowering Girls Program” within this school. He reports that 1057 girls regularly attend, and that girls and boys alike are encouraged to stay in school and avoid young marriage.

### **Discussion and Conclusion**

We now know that teacher education in refuge areas has implications beyond the walls of the classroom. When given opportunity for higher education, un-trained or non-certified teachers, leapt at the chance. They cared deeply about improving the quality of the education for the students in their communities. Graduates recognize their own strength and capacity to affect change as they transform themselves, their self-concept, and affect change in their communities. It has offered them more than a collection of teaching strategies, but rather it has offered them an opportunity to re-imagine an uncertain future.

**Personalized Student support:** The orientation to university education was a steep learning curve for some. Students learned about written citation, document searches, methods of submitting assignments, and an increased comfort with assessment for learning rather than all grades hinging on a single final exam. MU and UBC agreed that class participation and assignments would account for 35% of the final mark, and attendance and or participation (depending on the type of course delivery) was required in order to be eligible to sit the examination. When a significant number of students did not sit the first examination it was clear that supplementary, examination sittings would be necessary to accommodate the students. Both universities adopted this protocol.

Another method of student support throughout the program included tracking student progress and reached out to them via email from UBC, as well phone or text through on-site staff. We conducted distance and on-site academic advising. This method of student support revealed that there were some students who had applied to the program, were admitted, but in the end did not participate in any way. After the end of the first year, when the second cohort intake began, if the same missing students did not commence at that time, only then, were they removed from

the class lists. This allowed ample time for students to begin full-time in year two of the program, if they were unable to start in year one.

Other outcomes are identified by Marangu Njogu , the Executive Director of Windle Trust Kenya, who recently spoke at the BHER 2018 annual partnership meeting that through this program: “students believed in themselves and worked hard to achieve academic credentials. He also identified the development of *academic philanthropy*, “Working with refugee students was electrifying and created an emotional bond. Slowly, the professors started soliciting resources to support the students, and the universities desire to raise funds to keep this project going within their faculties or externally.”

**Implications:** In this day of highly mobile population, and at-risk residents in temporary and protracted refugee camps, the need for quality education persists. This is one possible model going forward. Though immersed in the project for several years, it is evident that there is a need for additional investigation of international and inter-institutional collaboration for humanitarian academic projects. We need to fully analyze the thousands of pages of data gathered during this program, create a set of clear recommendations for others who may want to take up a similar challenge in their region. By providing secondary teacher education in refugee contexts, the impact of those educated rippled beyond their classrooms and into the school as a whole and community.

By the summer of 2018, about 85 students had graduated from the Moi University – UBC diploma (conferred by Moi), had continued teaching or working in related fields, had gone onto pursue university degrees, and in some instances, began their own schools. Follow-up surveys and interviews have provided insights to student experiences in this program, and into how this program has impacted them, their lives, as well as their students and communities. We are just beginning to understand the far-reaching effect of this program.

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## CONSIDERING A REALIST APPROACH TO INVESTIGATING TRANSFORMATIVE TEACHER EDUCATION

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### ABSTRACT

*Researching teacher education involves understanding multiple layers of embedded, interdependent social contexts in a site of interest, their relations, and their organisation or structure. This paper looks at reviews of research into teacher education to find answers to three questions: (1) What do reviews tell us about research into teacher education in Singapore, the UK and USA? (2) What do reviews of research into teacher education tell us about interpretations of Transformative Teacher Education? (3) Why should researchers consider critical realism (CR) and realist social theory (RST) as frameworks to examine Transformative Teacher Education? Critical realism (CR) and Realist Social theory (RST) assert that problematic states of affairs existing in a site, may be ameliorated by first identifying and explaining the social structures responsible for generating those conditions. This paper on realist research methodology uses a scenario to demonstrate how CR and RST may be applied in a manner that addresses some of the shortcomings identified in reviews of research into teacher education. The identification of structures, mechanisms and conditions will enable researchers, teacher educators and teachers to understand the larger political, social and cultural contexts within which their pedagogies and practices are embedded and constrained or facilitated.*

### INTRODUCTION

The practice of teacher education is situated within, and responds to, multiple layers of embedded and interdependent institutional, socio-cultural and historical contexts, and how these are organised and mobilised in a site of interest. Internationally, teacher preparation institutions have been working towards transforming teacher education to cater to the demands arising from the global shift towards an information society, and a knowledge-based economy. This ongoing transition has been accompanied by mass migration, growing inequalities resulting from uneven developments within and across countries, and the pressure for educational landscapes to foster learning environments that can better prepare students for what has been anticipated to be 21<sup>st</sup> century societal and workplace priorities.

Teachers are often viewed as being key figures in enacting and enabling this transition, and institutions of higher education, as well as teacher educators, hold diverse views about what

should be encompassed within the role of a teacher, and what content ought to be prioritised in teacher education (Keiser, 2005; 2016). To date, apart from imbibing disciplinary knowledge, newer priorities have tended to include training teachers to negotiate a more complex, diverse and multicultural classroom, and developing their digital competencies.

Despite the shifting priorities taking place in teacher education highlighted, within the field of educational research, research into teacher education has been reported to be given less priority and to be less developed than other kinds of educational research in reviews conducted in Singapore (Low, Hui, Taylor & Ng, 2012), in the United Kingdom (Menter et al. 2010), and the United States of America (Cochran-Smith, 2005).

The purpose of this paper therefore, is threefold. It aims to understand what reviews into teacher education research tell us about the field, and to explore possible variations in the interpretations and views of what ‘transformative’ means in the term ‘Transformative Teacher education’. The paper then goes on to suggest that a social realist approach to investigating transformative teacher education can contribute to the identified needs and development of teacher education research. The paper briefly responds to the following exploratory research questions:

- (1) What do reviews tell us about research into teacher education in Singapore, the UK and USA?
- (2) What do reviews of research into teacher education tell us about interpretations of Transformative Teacher Education?
- (3) Why should researchers consider critical realism (CR) and realist social theory (RST) as frameworks to examine Transformative Teacher Education research and Teacher Education research in general?

The sections that follow address each question in turn. A scenario is introduced to highlight how CR and RST may be used to guide inquiry into Transformative Teacher Education and Teacher Education, in general.

### **(1) What do reviews tell us about research into teacher education in Singapore, the United Kingdom (UK) and the United States of America (USA)?**

While teachers are being seen as key figures in bringing about transformations, priorities in educational research have tended to remain focused on matters related to schooling rather than on teacher education. Reviews of teacher education research conducted in Singapore (Low, Hui, Taylor & Ng, 2012), in the United Kingdom (Menter et al. 2010), and the United States of America (Cochran-Smith, 2005) have suggested that the field is underdeveloped and requires greater attention, funding and support.



### *Singapore*

In reviewing research conducted from 1968 to 1988, Ho (1992) noted the following patterns of evidence in teacher education research in Singapore. Firstly, the research done over the 2 decades reviewed yielded only 45 documents which included dissertations. This is indicative of the low level of research activity in this area at that time. Ho (1992) highlighted that most of the studies adopted quantitative methods and comprised surveys and evaluations. The studies tended to adopt a social psychological perspective – where surveys that were designed to measure attitudes and personality were used. The evaluations undertaken measured views about the institutional programmes in place. These made up 60% of the studies reviewed. The review of research also noted the absence of an overarching framework that could connect the different individual and team projects that had been conducted, and that could provide an overview of the state of teacher education in Singapore at that time.

In a review of research related to teacher training and education in Singapore conducted between 1989-1999, Deng and Gopinathan (2001) noted that while educational research trends in the West were including more qualitative orientations—and paradigms for inquiry were being drawn from the disciplines of sociology, anthropology, history, philosophy and linguistics (Deng and Gopinathan, 2001, p. 90)—the pre-dominance of the scientific psychological paradigm continued and was observed in the syntheses of educational research. The reviewers recommended the need to move away from one dominant paradigm to allow alternative paradigms to coexist. The authors also noted that the scope of evidence from research output continued to be constrained in that ‘many important issues pertaining to the contexts of teacher education have remained unexamined by research. For instance, research on social, political and economic factors related to teacher education is lacking’ (Deng & Gopinathan, 2001, p. 87-90).

In 2003 educational research gained a firmer footing with the establishment of the Centre for Research in Pedagogy and Practice (CRPP) and an educational research funding of about 100 million dollars, from the Ministry of Education in Singapore, for the period between 2003-2013 (Gopinathan & Hung, 2010). By 2004, the centre expanded considerably and was deemed one of the largest educational and social science research centers in East Asia (Luke & Hogan, 2006). Despite this expansion in educational research activity, in their review of teacher education research from 1999 to 2010, Low and colleagues (2012) suggested that research into teacher education has still not established a strong foothold in Singapore. While some changes in practice were indicated in the methods adopted, where both qualitative, quantitative and mixed methods were used in research practice, the reviewers nevertheless noted that the small-scale, individual studies done did not dialogue with each other, and could not provide the holistic understanding of the landscape of teacher education in Singapore that is needed to inform policy and initial teacher preparation programmes.

Interestingly, between 2008 and 2009, Singapore’s only accredited initial teacher education institution undertook a Programme Review and Enhancement (PRE) to improve both the structure and substance of the existing teacher preparation programmes. Acknowledging that



Singapore's successful education system is in part due to a strong tripartite relationship existing between the Ministry of Education, the teacher preparation institute, and Singapore schools, the PRE culminated in a final document mapping out a 'Model of Teacher Education for the 21<sup>st</sup> Century (TE<sup>21</sup>)'. The document was said to be based on 'extensive literature review, understanding of existing and emerging trends, local profile, changing landscape in policies and initiatives, and research data' (National Institute of Education, Singapore, 2009, p. 22) but it is not clear the extent to which the available local research on teacher education was used to inform the model.

### ***UK***

In the UK, Menter and colleagues (2010) reviewed 446 research articles on teacher education reported between 2000 and 2008. Their review noted that most of the research reported then were under-theorized and emphasized on reflection. The research focus was primarily practice-based, and the methods and scope of research were mainly qualitative and small scale, respectively. The reviewers concluded then that teacher education was under-developed with no strong theoretical and methodological tradition evident. They also suggested that researchers of teacher education in the UK, at that time, formed a fragmented and incoherent community.

### ***USA***

In the 2000s, two reviews of teacher education research have been undertaken by Cochran-Smith and Zeichner (2005) and Cochran-Smith and Villegas (2015) in the USA. In the 2005 review, the reviewers observed that teacher education research in USA emerged in the last 50 years and was fairly new. Preliminary theoretical and empirical work were not prevalent then and longitudinal studies were uncommon. Of interest were the aspects of research identified as needing improvements. Cochran-Smith and Zeichner (2005) recommended that teacher education research would benefit from a more concerted effort and a research agenda where critical links can be made about how different teacher education programmes may be affecting pre-service teachers' learning, independent of the characteristics they enter with. Research on how what they learn in preparation programmes is used in schools and classrooms, and how this impacts on their students' learning are also needed.

In the most recent review of 1500 empirical research papers on teacher education, reported between 2000 and 2012, Cochran-Smith and Villegas (2015) identified three dominant research themes evident in present-day research into teacher education. These themes include 'teacher preparation accountability, effectiveness, and policies; ... teacher preparation for the knowledge society; and ... preparing teachers for equity and diversity' (Cochran-Smith & Villegas, 2015, p. 11). The studies reviewed were predominantly from America but included several with an international focus. While the review noted the use of diverse methodological approaches, it did not provide an overview identifying the methodologies or the frequency of their use.

### *Summary*

The reviews of teacher education research across the three countries seem to be in agreement with Cochran-Smith and Zeichner's (2005) earlier recommendations which suggested that in order for research into teacher education to move forward, there is a need for a rich portfolio of theory-driven studies, and research into multiple sites that would allow for comparisons to be made regarding the impact of differing contexts and conditions. Additionally, there needs to be a development of databases with evidence that would enable links to be made and many kinds of cross-institutional analyses to take place.

### **(2) What do reviews of research into teacher education tell us about interpretations of Transformative Teacher Education?**

While the reviews provide an overview of the state of teacher education research in general, the themes highlighted in the most recent review (Cochran-Smith & Villegas, 2015) of global trends in research into teacher preparation, are indicative that the term 'transformative teacher education' is likely to be taking on a different emphasis and focus, or a different meaning, in different educational contexts. Some examples of these are also evident in the literature where the transformative element in teacher education may relate to improving functionality, to promoting the teachers' digital competence and proficiency, and where transformative implies training teachers to be activists to promote social and political change and create more equitable conditions in their classrooms and beyond.

#### *Improving functionality*

Some interpretations of the term 'transformative' in teacher education, directly contrast the word with functional approaches where the primary aim of training programmes is said to be to prepare 'individuals to stand in front of children in classrooms and impart acceptable knowledge' (Miller & Ramos, 1999, p. 3). Others have suggested that a functional approach refers to focusing teacher preparation on helping individuals develop an 'understanding of disciplinary frameworks' (Whitcomb, Borko & Liston, 2008, p. 3). In teacher education, Darling-Hammond (2010, p. 36, see also National Institute of Education, Singapore, 2009) has described how transformative teacher education can lead to improvements in functionality stating, 'Many schools of education undertook successful transformations—using the standards to redesign their programs; creating stronger clinical practice; strengthening coursework around critical areas like student learning and development, assessment, subject matter pedagogy, and teaching of English language learners and special needs students; and connecting this coursework directly to practice in much more extensive practicum settings'. This interpretation of transforming exemplifies a focus on improving functionality where the existing roles and practices of teachers are honed and strengthened through improving teacher preparation programmes and practicum.

### *Promoting teachers' digital competencies*

Some policymakers and researchers have argued that the information society and knowledge-based economies of the 21<sup>st</sup> century require the incorporation of digital skills within teacher preparation programmes and school curriculum. Focusing on this orientation, transformative teacher education requires developing the professional digital competencies of teachers in training and providing them with the necessary skills to guide students in information literate practices that enables students to use, evaluate and create digital information in socially responsible ways (Lund & Eriksen, 2016; National Institute of Education, Singapore, 2009). This interpretation of transformation exemplifies a focus on adding digital competencies and digital literacies as part of the requisite repertoire of skills that those in teacher preparation programmes need to acquire to function proficiently in their teaching roles in schools.

### *Creating more equitable conditions*

Transformative teacher education has perhaps been most strongly associated with the idea of training teachers in strategies that can lead to both political and social transformations (Reed & Black, 2006; cf. Whitcomb et al., 2008). Drawing on the work of Paulo Friere and other critical thinkers, Reed and Black (2006, p. 34) urges the reimagination of the teacher's role so that it resembles that which 'respond[s] to oppression differently—not reinforcing it or turning a blind eye—but teachers who challenge all forms of exploitive oppression'. Those who align with this view of transformative teacher education support the training of teachers as activists who can counter the negative and reproductive aspects of education, and who can challenge the unequal access and opportunities to education available to certain groups and individuals (Cochran-Smith, Barnatt, Lahann, Shakman & Terrell, 2009). This interpretation of transformation tends to redefine the role and goals of a teacher.

### *Summary*

While the idea of transformative teacher education may be interpreted variously, it is likely that the three dimensions of improving functionality, fostering professional digital competence, and developing teachers' capacities in creating more equitable conditions are included, in general, in teacher preparation programmes but with different emphases based on prevailing institutional and political agendas.

### **(3) Why should researchers consider critical realism (CR) and realist social theory (RST) as frameworks to examine Transformative Teacher Education research and Teacher Education research in general?**

This section highlights how aspects of CR and RST might be applied in investigating a scenario, in a manner that is responsive to the recommendations of reviews into teacher education research and different interpretations of transformative teacher education. The reviews have recommended the need for studies (a) to be theory-driven, (b) to enable links to be made within and across sites, and (c) for research to be undertaken in a range of sites that could provide

evidence on the impact of differing contexts and conditions on teacher education. RST also enables explanations about why different contexts focus on different trajectories of ‘transformative’ developments in teacher education.

### ***CR and RST are Theory-driven***

CR and RST are useful frameworks to consider in teacher education research in general because they are theory-driven. Theories have important functions in research. Danermark, Ekstrom, Jakobsen and Karlsson (2002, p. 1) emphasize that ‘theory should guide research and not be subordinate to specific methodological rules of how research should be conducted’. CR in the context of this paper refers to Bhaskar’s philosophical meta-theory on what constitutes physical and social reality, the admissible concepts to include, and how we might go about knowing reality. Archer’s (1995) book on ‘Realist social theory: The morphogenetic approach’, (henceforth, RST) is one of a number of realist social theories that deploys the admissible concepts identified, and provides a theoretical/ explanatory framework that suggests how researchers can go about investigating and explaining the social world, as well as the interactions which contribute to the transformation or reproduction of social structures.

The CR meta-theory and RST’s theoretical framework provide systematic guidance for field practice and the development of lower-level theories about the context. Lower-level theories link realist concepts and ideas to the concrete context under investigation, to provide more insights about a phenomenon. CR proposes that there will always be competing lower-level theories (Danermark et al., 2002) but they may be confirmed within ‘the historico-cultural community in which debates about competing claims are staged’ (Bhaskar in Al-Amoudi and Willmott 2011, p. 30) and what is empirically observable.

### ***CR’s Theory of Reality and Concept of Laminated Systems enable links to be made within and across sites***

CR proposes that reality comprises three domains—the empirical, the actual and the real. Natural and social phenomenon and events are said to be made up of structures and mechanisms which will trigger under certain conditions but not others. Mechanisms in reality operate as a laminated system which ‘pinpoints the meshing of explanatory mechanisms at several different levels of reality ...’ (Bhaskar, 2010, p. ix). CR’s concept of a laminated system is useful to enable links to be made using studies undertaken in a context and in cross-institutional studies analyses of teacher education research.

In mapping out research into disability for example, Bhaskar and Danermark (2006, p. 288) have suggested that disability be viewed as a laminated system comprising ‘physical, biological, physiological or medical/clinical, psychological, psycho-social, socio-material, socio-cultural and normative’ mechanisms, which are layered, and which may operate simultaneously to generate how disability is understood and socially experienced. The concept of a laminated system can be similarly applied to teacher education research to overcome certain tendencies

observed by the research reviews conducted. For example, if the tendency in the United Kingdom has been that teacher education research has focused on practice-based themes using reflective explanations (which identifies individual psychological mechanisms operating to influence or justify the teachers' choice of actions), then the concept of a laminated system provides a mapping of other possible mechanisms to investigate that may be operating at different levels and which may be influential. Similarly, if teacher education research in Singapore has been constrained and lacking in explanations about the social, political and economic factors (Deng & Gopinathan, 2001) that have a bearing on the shape of teacher education in Singapore, then the concept of a laminated system can encourage researchers to explore and investigate the manner in which the political, social and institutional level mechanisms are influential.

CR's concept of a laminated system may also be used for cross-institutional analysis and comparisons. For example, the public schooling system may be considered a laminated system with different organizational and social structures than those existing in the private schooling system in a context. The similarities and differences in the way their mechanisms operate and affect teachers, (because of their different organizational structures), may be compared and contrasted to explain what outcomes they produce and why. Archer's (2013) work on the 'Social Origins of Educational Systems' provides an example of comparative analysis, from a realist perspective, taking place across sites.

A description of a scenario follows and the application of CR's theory of reality and concept of laminated systems, using the scenario, is demonstrated.

### *A Scenario*

To transform teacher education and keep pace with the global demands of the 21<sup>st</sup> century knowledge and information society, an initial teacher education institution has introduced transformations into its programmes to improve the functionality of teachers, and develop teachers' competencies in incorporating the use of information communication technology (ICT) in their classroom teaching. These transformations began about a decade ago, and have led to the strengthening of course content relating to functionality. Pre-service teachers now encounter content that provides them with updated understandings and some practice in designing and delivering disciplinary-related content to students using a variety of teaching strategies. These strategies include traditional instruction, co-operative learning activities, differentiated learning activities and other methods. Additionally, learning how to incorporate the use of ICT was and has been prioritized in the initial teacher education programme. As such courses that provide pre-service teachers with opportunities to gain theoretical knowledge and exposure to research that provides information about how educational activities can draw on the affordances of ICT, have been included in the training programme. Different models on how to design lessons are also provided and pre-service teachers are given time, within the course, to design, implement and conduct their planned lessons on their course-mates. Tutors of these courses have been

heartened by the positive course feedback they get on the courses.

Despite making transformations to the initial teacher preparation programme, research reports indicate that the predominant teaching strategy used in mainstream schools is traditional instruction. While ICT has been introduced to mainstream schools' classrooms, it is being used mainly as an overhead projector.

### ***Application of CR's Theory of Reality and Concept of Laminated Systems on the Scenario***

In the above scenario, the domain of the empirical refers to what research has observed and experienced empirically, indicating that traditional instruction dominates, and not much substantial transformations have occurred in mainstream schooling in the context. If we rely primarily on horizontal causal explanations, the identified cause may develop explanations about the relevance or effectiveness of the teacher education programmes that these teachers went through in their pre-service training. Alternatively, they may lead to explanations about the personal effectiveness of the teacher. These however, are not the only kinds of explanations that exist or that are available to researchers to develop.

The domain of the actual relates to events (and non-events) generated by structures and mechanisms which may or may not be observed. For example, teachers may be incorporating a variety of teaching strategies and optimal usage of ICT, but they may be doing so at the time when researchers were not investigating the context. Alternatively, schools may be organizing such experiences for students but these are not conducted within the school classroom premises on which researchers and educational research tend to focus (see De Souza, 2018).

In the above scenario the domain of the real comprises political, social, institutional and schooling-related social structures, their associated mechanisms, and the relationships between them. These social structures and mechanisms may or may not be visible, but the human activities engaged within them, play a part in explaining the observed outcome.

Given the above mapping of the scenario to the domains of reality identified earlier, investigating the scenario would begin with the formulation of a research question that would guide the generation of a theory about the events outlined in the scenario. There are several events or absence of events, in the scenario, that may be investigated and explained:

***(Event A)*** Why does this context of transformative teacher education focus primarily on improving functionality and digital competencies but appears to underplay the social justice dimension? (this would possibly generate explanations about the prevailing political and institutional contexts)

***(Event B)*** Why do pre-service teachers do well in their courses and teaching practice, but research findings indicate that teaching strategies in the classroom have not shifted significantly, and ICT is not being incorporated in an optimal manner in the classrooms?



(this would possibly generate explanations about the initial teacher training institutional, programmatic, school, and individual trainee teacher contexts prevailing)

In critical realism, a scientific theory provides a description of the structures, mechanisms and conditions which causally generate the empirical event or phenomenon (Keat & Urry 1975). Events A and B may be conducted as separate studies that relate to a specific context whose findings may be synthesized to provide a connected understanding of the context in question. Focusing on Event A, the research questions to investigate an absence in this event may be phrased in the following way to focus on identifying and explaining structures, mechanisms and conditions:

(i) What are the social structures, mechanisms and conditions that need to exist that might explain why transformative teacher education in the context has focused primarily on improving functionality and digital competencies, but appears to underplay the social justice dimension?

***Using RST's theoretical/ explanatory framework to construct explanations about the context and conditions of teacher education in Event A***

RST (Archer, 1995) proposes that social structure, the facets of society, pre-exists the present-day individuals who occupy the different positions within it to engage in social activity. Social structure comprises the interplay between aspects of structure, agency and culture. The structural dimension of a social structure situates agents within frustrating or rewarding social and institutional conditions where interests and goals are pursued via physical, material and human resources. The cultural dimension, in comparison, relates to ideational influences and ideas (Archer, 1996) which may be consistent with or contradictory to prevailing, dominant ideas held by other groups or individuals in a context, thereby facilitating or hindering change.

Archer's (1995) RST or the morphogenetic approach deals with macro-level explanations of society. However, Archer (1996) has suggested that it is amenable to being adopted for smaller-scaled human interactions and activity. Following this suggestion, the term 'context' has sometimes been adopted to represent a micro-scaled version of society to which RST concepts are applied (e.g. De Souza, 2013). The next section provides an example of how RST may be applied.

***Application of RST on Event A of the Scenario***

In order to investigate the following research question,

(i) What are the social structures, mechanisms and conditions that need to exist that might explain why transformative teacher education in the context has focused primarily on improving functionality and digital competencies, but appears to underplay the social justice dimension?

The study might draw on historical accounts and documents, as well as interview subjects about their perceptions of social structure (Edwards, O'Mahoney & Vincent, 2014). A theory about



the social structures existing at the political and institutional levels will be generated in this section of the paper.

Investigating the structural dimension entails finding out about how governing bodies that provide resources are related to teacher preparation institutions and schools. This is needed to identify the mechanisms in place, and to generate explanations about political and institutional influences. Structural arrangements in the sphere of education are sometimes described as being loosely-, tightly- or collaboratively-coupled systems. Singapore, for example, has been identified as having a tightly-coupled educational system (Dimmock & Tan, 2013) where bureaucratic control may be easily exerted. The 'Model of Teacher Education for the 21<sup>st</sup> Century (TE21)' document, mentioned earlier, highlights that a strong tripartite relationship exists between the Ministry of Education in Singapore, the Initial Teacher Education Institution and Schools in Singapore. This relationship applies in the spheres of teacher preparation as well as educational research (National Institute of Education, Singapore, 2009, p. 41). It has been proposed that 'Such a tight and strong partnership is the envy of other nations, as it allows research to inform policy and policy, in turn to be translated seamlessly into schools' (Darling-Hammond in Foreword to National Institute of Education, Singapore, 2009). Having such a structural configuration implies that the Ministry of Education has the power to exert a great amount of influence and control over the education system, if that is desired.

Investigating the cultural dimension, relating to the ideational and ideologies, entails finding out what kinds of ideas dominate in a context. In Singapore, for example, Low (2014) has identified meritocracy as being a 'core principle of governance in Singapore' stating further that the principle 'is as close as anything gets to being a national ideology' (Low 2014, p. 48). In Singapore's version of meritocracy, the focus is on equalizing opportunities available to the population at large rather than on equalizing outcomes, with rewards being allocated based on individual merit and ability (Low, 2014). The drawback of this principle is the assumption that everyone starts off on an equal footing. Holding on to meritocracy as a principle of governance might explain why a context underplays the importance of including social justice dimensions when considering programmatic matter related to transformative initial teacher education.

Another prevailing dominant ideology, keeping in mind that the incumbent government in Singapore has consistently been voted to power since 1959 (Tan, 2012), is the pluralist orientation the government holds in managing cultural diversity in Singapore. Alviar-Martin and Ho (2011) note that Australia's teacher education programmes, for example, prepare pre-service teachers to teach in multicultural classrooms with students from diverse backgrounds. Singapore, in comparison, being pluralist rather than multiculturalist, prioritises the inclusion of national education and the promotion of national values, interests and practices in schools. Schools in Singapore have not been assigned the role of raising awareness about different cultural groups because cultural, group and religious identities are regarded as belonging to the private sphere (Alviar-Martin & Ho, 2011).

In response to the question posed in Event A, in relation to the scenario, the example from the Singapore context would suggest that social justice dimensions are not foregrounded in Singapore's initial teacher education programmes because the social structural conditions reflect a political ideology that prioritizes meritocracy and pluralism, and the structural configuration indicates a strong and close relationship existing between the government, teacher preparation institution and schools.

While this example has not conducted interviews and relies on secondary sources, a study into how this relationship influences the content that goes into teacher education could include interviews to investigate how these dominant ideologies have a role, if any, in influencing the kinds of courses teacher educators can offer, how teacher educators design programmes, and how pre-service teachers are trained, and how this affects how pre-service teachers address the diversity that is present in Singapore classrooms. Alvia-Martins and Ho (2011, p. 132) have noted, for example, that 'multicultural education is not systematically addressed in pre-service teacher education courses' in Singapore and has highlighted the need for there to be greater awareness about the larger political, social and cultural contexts within which teachers' pedagogies and practices are embedded and constrained. The adoption of critical realism and realist social theory as frameworks to investigate teacher education can contribute to explanations about these relationships.

## CONCLUSION

This brief paper on realist research methodology has suggested how the CR and RST frameworks address some of the shortcomings identified in reviews of research into teacher education. It has provided a short example on how the frameworks may be applied to a scenario and highlights how the frameworks can contribute to research into teacher education by their ability to identify the structures, mechanisms and conditions about how things came to be so in a context. This would enable researchers, teacher educators and teachers to understand the larger political, social and cultural contexts within which they operate, and provide them with more resources to reflect on and consider when making decisions about how they might exercise their agency in matters relating to teacher education, teaching and how we might transform them.

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## THE EFFECTS OF GLOBAL PRIVATIZATION INITIATIVES ON TEACHER EDUCATION

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In a recent book entitled, *The Privatization of Education: A Political Economy of Global Education Reform* (2016), Verger, Fontdevila, and Zancajo analyze current educational policy developments from an economic perspective. Citing "different rationales," the authors explore private sector involvement by examining six paths toward privatization that depend largely on political, economic, and social factors.

In the United States, privatization of public education has been an issue since discussion of vouchers in the 1970's. What appeared to be a US phenomenon, however, is much more of a multi-faceted approach to education on a global level.

In their book, *The Privatization of Education, A Political Economy of Global Education Reform*, Verger, Fontdevila, and Zancajo systematically analyze six paths to the privatization of education, each with its own impetus and effects. Those six paths are:

1. Education privatization as a state reform: Chile and the United Kingdom
2. Education privatization in social democratic welfare states: the Nordic countries
3. Educational privatization in the US: school choice reform
4. Privatization by default in low-income countries
5. Historical public-private partnerships in education
6. Privatization by way of catastrophe (p. 11)

Quoting Fitz & Beers, they define the complexities of privatization reform:

A process that occurs in many modes but in one form or another involves the transfer of public money or assets from the public domain to the private sector. It also includes the provision of services by private corporations, enterprises and institutions that were once provided by the public sector. Privatization also inevitably means a shift in the control of public resources, and changes in the structures through which public money is spent. (2002, p.139)

The forces that shape privatization policy vary by economic, political, and social issues in each of the six paths that the authors define. There is no monolithic privatization movement. However, it is truly a global phenomenon that may be a cause for concern for political and social change, particularly for democratic cultures that maintain belief in democratic ideals through public education.

What effects could the movement to privatize have for education and for teacher education, in particular?

The most obvious shift in thinking about education is the commercialization of education. Education may no longer be seen as a basic human right but rather as a commodity to be purchased. If education is a commodity, what happens to those individuals who are not able to

afford to purchase it? In low-income countries, entrepreneurial education networks offer education cheaply, but the quality of their curriculum may be questionable. What values will children learn and perhaps just as important, whose values will they learn? Are businesses more qualified to make curriculum and values decisions than educators who have professional credentials? Similar questions can also be posed for school administrators.

Since governments depend on schools for socialization of the young and for the homogenization of immigrants, the questions surrounding privatization and the perseverance of democratic cultures are very serious considerations.

Another serious effect of privatization may be the professional preparation of educators. As education becomes more of a market economy, the professional preparation of teachers and administrators may also become competitive or even non-existent. Educator preparation programs have already experienced a decline in enrollment in the U. S. the attractiveness of teaching as a profession has also experienced a decline. As enrollment and attractiveness decline, the opportunity to fill classrooms and administrative offices with inexperienced and/or unlicensed individuals increases since fewer professionals are available to fill these positions.

In the presentation, we reviewed the six paths toward privatization globally, identified the rationale for each path and analyzed how these changes might influence teacher education. For instance, privatization efforts in the United Kingdom have had a demoralizing effect on "teacher professionalism." (Duong, 2014). We provided examples of the influences for each of the six paths toward privatization. Research indicates that privatization efforts marginalize or restrict access to high quality education and may also segregate students by social status and race. We need to examine potential social justice issues using the six clusters identified in the literature.

More research into the global effects of privatization needs to be accomplished in order to understand its true impact on democracies worldwide. Discussions about the nature of the curriculum and the role of education in a democracy must be a part of this research agenda since we are essentially handing the education of future generations to business entrepreneurs whose main goal is to make money. The proposed Research Development Group, Politics and Policy in Teacher Education, would focus on thoughtful, research-based reflection on global issues of this sort. Ultimately, the questions is: Is that really what we want?

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# APPROACHES TO LEARNING:

## PERCEPTIONS OF CHINESE INTERNATIONAL UNDERGRADUATES AND THEIR LECTURERS IN AUSTRALIAN UNIVERSITIES—A LITERATURE REVIEW

**Abstract:** This paper provides a review of the existing academic literature on Chinese international students and their lecturers regarding their approaches to learning in Australian universities. A content analysis was employed to review articles of literature with an aim to offer a conceptualization of the problem and recent developments within the context of research on approaches to learning concerning students from China.

This theoretical study will interrogate the research questions: "What makes Chinese international students' approaches to learning in Australian universities?" and "In what ways do Chinese international students and their lecturers negotiate and adapt their approaches to learning in Australian universities?"

### Background of This Study

With an increasing number of students from China choosing to study in Australia, a growing topic of interest is their approaches to learning in Australian universities. Cheng et al. (2014) reports that the largest cohort of international students in Australia higher education (HE) numbering 48 thousand in 2013 (ADCT, 2013). However, research has revealed that only 10% of Chinese students do not leave in Australian education system (Ryan & Hogg, 2013). Chinese students' academic performance in "Western contexts" (Hogg, 1996; Chao & Bai, 2009) in Australian classrooms with a reliance on memorization (Loren, 2013) rather than deep approaches to learning (Hogg, 1996; Mounsbelle, Australia's institutional teaching and learning continues to be criticized by a range of voices that could potentially affect Chinese students' learning.

### Literature Review

This review conceptualizes important concepts associated with the research topic as shown in the diagram.



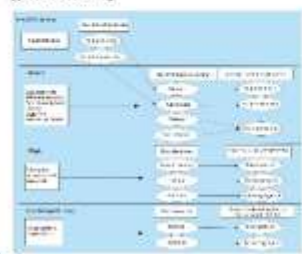
### Model Approaches to Learning Conceptualization

A deep learning approach (DLA) is associated with learners' intention to understand the learning material and relate it to their experiences, while a surface approach (SA) is linked with learners' goal to reproduce the information for examinations (Hogg, 1997).

Table 1. The developmental differences between deep learning and surface learning

Developmental Stage	Surface Learning (SL)	Deep Learning (DL)
Psychological	regulator (Ryan & Higgins, 2000; Ryan & Higgins, 2007)	autonomous (Ryan & Higgins, 2000; Ryan & Higgins, 2007)
Process of learning	mechanistic (Ryan & Higgins, 2000; Ryan & Higgins, 2007)	holistic (Ryan & Higgins, 2000; Ryan & Higgins, 2007)
Modeling	intention to reproduce information (Ryan & Higgins, 2000; Ryan & Higgins, 2007)	intention to understand information (Ryan & Higgins, 2000; Ryan & Higgins, 2007)
Outcome	regulator-oriented (Ryan & Higgins, 2000; Ryan & Higgins, 2007)	autonomous-oriented (Ryan & Higgins, 2000; Ryan & Higgins, 2007)

Graph 1. Primary influences applied to motivate students' approaches to learning



Adapted from Choi & Marshall (2009, p. 11)

There are two broad categories of models in the study of students' learning process as shown in Diagram 2.



### Chinese International Students' Learning in Australia: Deep or Surface Learning?

The phenomenon of "Chinese Paradox" has been well documented in the academic literature (Hogg, 1994; Wilson & Hogg, 1996). Students from China, as the one kind, have been considered as positive and diligent in learning situations, who are reluctant to complete low level of cognitive examination despite enrolling in higher learning (Wu, 2012), and generally at higher critical thinking (e.g., Clark & Lewis, 2008). On the other hand, they are found to be reluctant in incorporating their own learning in comparison to studies of their nations. For example, in memorization and rote study, they occasionally receive Western education to pursue a life of happy hours as the "Chinese Paradox". Here, they could not help questioning how Chinese students could be so successful when they adopt approaches to learning that are considered as inferior by Western scholars.

A binary research method is often applied to investigate the studying behavior of overseas Chinese university students in Australia, where Chinese and Australian learning approaches are portrayed as "exclusive and dichotomous" (Chao, 2008, p. 10), and considered as distinct, heterogeneous and unchangeable (Ryan & Lewis, 2007), as shown in the table below.

Table 2. A comparison of learning differences between Chinese and Australian Undergraduates

Chinese undergraduate	Australian undergraduate
Surface learning (Ryan & Higgins, 2000)	Deep learning
Regulator-oriented	Autonomous-oriented (Ryan & Higgins, 2000)
Deep learning (Choi & Marshall, 2009)	Surface learning (Ryan & Higgins, 2000)
Autonomous-oriented (Choi & Marshall, 2009)	Regulator-oriented (Ryan & Higgins, 2000)
Deep learning (Choi & Marshall, 2009)	Surface learning (Choi & Marshall, 2009)
Autonomous-oriented (Choi & Marshall, 2009)	Regulator-oriented (Choi & Marshall, 2009)

These dichotomies have been criticized as "unrealistic" for the omission of the complexity and diversity of phenomena of overseas studies and between the two educational systems (Ryan & Lewis, 2007). Considerable evidence shows that Chinese students' learning approaches are not perceived as "uniformly dichotomous", and they gradually combine with Australian learning approaches (Clark et al., 2011). The students' positive growth that some Chinese students struggle in Australian HE are because they lack appropriate academic skills but because they hold very different beliefs, values, and expectations about learning and learning styles (Wu, 2012).

### Internationalized Teaching in Australia: Adopted or Adapted?

Some literature reviewed shows an "admitted but equal" reality that the outcomes on the outcomes of Chinese learning approaches, including mixed success stories in international students (Clark & Glavin, 2006, p.16). For example, the and Cottrell's (2011) "cultural change" proposal, as a critical pedagogical approach, celebrating difference and diversity as Hogg's (2003, p.1) "reflexive" and "critical" observation" and critical awareness of linguistic positions. Hogg (2003) is of the view that rather than attempting to assimilate "different" models into the host culture, or having lecturers accommodate perceived cultural differences, an inclusive learning model is needed that focuses on the alternative between students. The "inclusive" approach, as proposed and by Choi and Marshall (2009), suggests that, while international students undoubtedly have special needs with respect to the provision for language and social support, it is unnecessary to further differentiate them (see Hogg (2003)), internationalized curriculum does not mean curriculum adapted to the needs of international students. Instead, the "flexibility" of people and ideas in the system then emerged to be a "problem" to be solved through the "adaptation" of teaching practices to suit international students, but rather it means to provide learning (Ryan & Lewis, 2007).

### Gaps in Literature

Previous study was mostly done through the eyes of observing, being either student or educationalist. There is a paucity of research on Chinese international students' approaches to learning from the perspective of "learning/teaching unit" (the Chinese international students themselves and their lecturers). Besides, a review of the literature has indicated one of the reasons why Chinese students' learning experiences were occasionally inadequately understood by western scholars was "partly attributed to the methodology of existing research". Existing literature has indicated their limits in adopting conceptual approaches in the previous studies to analyze how Chinese students' previous experiences and current international and national teacher educators' their approaches to learning, and were without any off intention of a narrow range of research methods to study Chinese students' learning experiences at one point in time (Choi & Cottrell, 2011), by which their experiences were frequently "standardized, abstracting, and/or agency and change over time" (Hogg, 2010, p. 7).

To address these issues, this study will be based on Hogg's (1996) Preceptor-Process-Product framework to investigate Chinese international undergraduates' approaches to learning, as perceived by both themselves and their Australian lecturers, as a dynamic learning process. A mixed method approach will be employed, incorporating quantitative and qualitative research methods in this research. A two-way semi-structured interview will be conducted to obtain data from the lecturers' perception of the two main sources of learning and teaching, i.e., Chinese international students and their lecturers, who undergo the complex learning process.

This study will seek to establish a framework that is locally built upon Hogg's (1996, 2003) model of student learning and modified into Culturally Negotiated Co-construction of Learning and Teaching Model in Australian universities, as shown in Graph 2, with an aim to extend and enhance the knowledge of the diversity and dynamics of international students' learning and teaching, particularly the varied features of students from China.

### Methodology

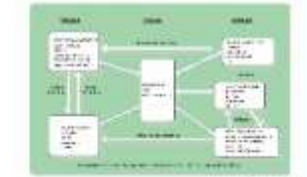
Utilizing a mixed method approach, this doctoral research will adopt a Co-constructor Integrated design integrated with a concurrent embedded strategy to collect this learning-related and lecturers' perceptions. The overall process for this mixed method research is illustrated by the following Graph.

Graph 2. Concurrent integrated mixed method



This study will seek to establish a framework that is locally built upon Hogg's (1996, 2003) model of student learning and modified into Culturally Negotiated Co-construction of Learning and Teaching Model in Australian universities, as shown in Graph 2, with an aim to extend and enhance the knowledge of the diversity and dynamics of international students' learning and teaching, particularly the varied features of students from China.

Graph 3. A framework of Culturally Negotiated Co-construction of Learning and Teaching Model



Ultimately, the aim of the study is to develop a viable framework or set of guidelines to assist Chinese students and lecturers who interact them to gain the most from their educational experience.

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(See more references in the handbook)