ABSTRACT OF CAPSTONE

Melissa A. Adams

The Graduate School

Morehead State University

April 18, 2020

APP FOR ADULT MIGRANT PROGRAM

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Abstract of Capstone

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A capstone submitted in partial fulfillment of the
Requirements for the degree of Doctor of Education in the
College of Education
At Morehead State University

By

Melissa A. Adams

Stearns, Kentucky

Committee Chair: Daryl R. Privott, Associate Professor

Morehead, Kentucky

April 18, 2020

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APP FOR ADULT MIGRANT PROGRAM

Migrant adult education, as identified by Office of Migrant Education (OME), focuses on migrant and seasonal farm workers enrolling in High School Equivalency Program (HEP) to obtain their GED (General Education Diploma). The majority of the farm worker students in the United States that HEP serves, according to OME are of Hispanic (Latinx) backgrounds (Department of Education, 2017). This population has many barriers to education and the HEP federal grant helps these students to become successful in obtaining their GED diploma. This capstone project explored the benefits of incorporating technology into the migrant adult education program to assist students in overcoming some of their barriers to education, such as language, childcare, working long hours, poverty, helping to meet basic needs as identified by Maslow's Hierarchy of Needs, and low academic educational levels. If not addressed, the barriers and needs inhibit the migrant adult students from obtaining their GED. Creating an app to use across multiple technological devices and platforms can help to address the mentioned barriers and solutions to them.

KEYWORDS: Migrant adult education, HEP, GED, Hispanics, Latinx, technology, educational barriers, app

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APP FOR ADULT MIGRANT PROGRAM

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DEDICATION

I dedicate this work to my wonderful parents, Michael and Thelma Ross. Without them none of this would have been possible. They offered support and encouragement all along the way.

ACKNOWLEDGEMENTS

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Definition of Terms

Latinx is relating to or marked by Latin American heritage and is used as a gender-neutral alternative to Latino or Latina (Merriam-Webster, 2020).

HEP is a High School Equivalency Program federally funded from the Office of Migrant Education at Department of Education to educate and support migrant and seasonal farm workers in obtaining their GED or HSE (The National HEP CAMP Association, 2020).

OME is the Office of Migrant Education who provides educational services and support to migrant and seasonal farmworkers and is located in the Office of Elementary and Secondary Education at Department of Education (OME, 2020).

GED is the General Equivalency Diploma and is used for educational testing services designed to provide a high school equivalency (HSE) credential (Merriam-Webster, 2020).

ESL is English as a Second Language and refers to people who speak another language primarily and English is their second language (Proteacher, 2020).

ELL is English Language Learners and refers to any child who struggles with the basics of the English language (Proteacher, 2020).

Duolingo is a program to learn languages which is in a game based format but is based on a methodology to foster long-term retention and an international standard aligned curriculum (Duolingo, 2020).

Rosetta Stone is a program to learn languages and is dedicated to changing people's lives through the power of language and literacy education (Rosetta Stone, 2020).

Definition of Terms Continued

App is an application designed for a mobile device, such as a smartphone (Merriam-Webster, 2020).

Executive Summary

This capstone project explored the barriers to education for Hispanic and Latino (a) students enrolled in the migrant adult education or HEP (High School Equivalency Programs) and how incorporating technology may assist in addressing some of the educational barriers. For the purpose of this project the Hispanic and Latino (a) population will be referred to as Latinx (a gender neutral term as listed in the definition of terms). Migrant adult education, as identified by Office of Migrant Education (OME), focuses on migrant and seasonal farm workers enrolling in HEP to obtain their GED (General Education Diploma).

The HEP program assists the GED graduates in enrolling in post-secondary educational programs, receiving improved/upgraded employment, and/or entering the military. The majority of farm worker students in the United States that HEP serves are of Latinx backgrounds, according to OME (https://www2.ed.gov/programs/hep/index.html). OME programs are closely tied to politics for funding of the migrant adult education grant programs because Congress and the President must approve funding for these programs. OME programs are included in the appropriations bills funding with the Department of Education and in the reauthorization of higher education programs, which as of the writing of this paper in February 2020 is the Prosper Act (Hegji et al., 2018).

Congress and policy makers have made little progress as the Prosper Act is still ongoing and has not had any changes as of the 116th Session of the House Committee (NASFAA, 2019). Policymakers must break free of the false dichotomy

of America as either a nation of immigrants or a nation of law, and advance an immigration system that is fair, humane, and actually works (American Progress, 2019, p. 2). This research reviewed the benefits of incorporating technology into the migrant adult education program to assist students in overcoming some of the educational barriers. Creating the plans for an app for the migrant adult students to use addressed some of the educational barriers, such as language, childcare, poverty, and their working lifestyle.

The app would allow students to access their GED studies from a technological device they already own, such as a smartphone, and from the convenience of their home. Most farm workers work in remote and rural agricultural areas where mobile networks are often the only infrastructure available, which places a larger focus on the importance of mobile technologies (Winters, 2013). The HEP project will provide all of the necessary materials and will pay for the testing fees associated with the GED upon enrollment into the program then given access to the app.

Students will be able to privately message their instructors from the app to discuss their personal needs so instructors can refer them to the proper community agencies to help them. Most of all the app will assist students in improving their low academic levels. The app will have current GED lessons, instructional materials, resources, tutoring, messaging, and additional practice for students to improve their educational levels to ultimately prepare and pass the GED exam. Overall, the app's

plans are student centered and designed to assist the Latinx students in the HEP

project in the best way possible.

The Core of the Capstone

The core of the capstone is based on the HEP/GED Latinx adult students and

the need to help this population receive an education. To accomplish this, the barriers

to education for the Latinx students must be addressed. An app could be the solution

to delivering educational classes and materials while addressing some of the barriers

to education. An app is a software program which can run on any platform, such as a

web browser or offline via a computer, smartphone, tablet, or other electronic device

(Karch, 2019). This type of technology could assist in addressing some of the issues

seen in Latinx education.

An app can make it easier and more accommodating for Latinx to access their

educational lessons and to continue with their educational journey even when they are

unable to physically attend classes from educational barriers or from their migrant

lifestyle. Creating an app for GED mathematics bilingually was a beginning. The

app would be available in desktop, mobile, and web formats and available in various

platforms, such as Apple IOS and Android. Mathematics is a subject that students

typically need more assistance when studying for the GED exam due to math anxiety.

"Math anxiety – the fear and tension that interferes with some students' ability

to manipulate numbers or solve mathematical problems" (Barkley, 2010, p. 21).

Math anxiety is common among the HEP students and is the GED subject requiring

the most instruction (HEP/CAMP Director's Meeting, 2019). This study created the

planning documents for an app for Mathematics lessons for GED students in a HEP

program. This included type of app to create, platforms to utilize, informational and

educational content in the app, design, layout, functions, security, and cost of

development. A funding proposal to secure funding for development was included.

A pilot study is planned after development. The app will have bilingual access

(English and Spanish). The initial plans are to develop the app for the HEP/GED

students.

     The app will be interactive and engaging to address a students' math anxiety,

which this project will focus on. The mathematics app will accessed on computers

(Mac and PCs) and smart devices (tablets and smartphones) to assist students who

cannot physically attend class on a regular basis due to the lack of transportation,

child care, financial hardships (affording class materials and testing fees), migrant

lifestyle, and long working schedules. The app will offer study materials, online

books, testing, tutorials, virtual meetings with instructors, informational links, and

instructional materials in English and Spanish.

     As of April 2020, there were no bilingual GED apps (as being proposed) to

assist this population. HEP/CAMP Association members recognized the barriers to

education and see the need for more technological programs, such as an app, to assist

students in studying for and obtaining their GED credential. Other HEP directors

stated an app would be a great mobile learning tool to use with the migrant students

they serve in their programs (HEP/CAMP Conference, 2019). The app would be able

to go with the student as they travel with their migrant lifestyle and could continue

learning remotely.

Who the Capstone Impacts

In Kentucky, the GED 2014 implemented changes which impacted people

desiring to obtain a GED credential. The GED 2014 made many changes, such as

technology usage requirement, higher testing fees, and higher educational levels

needed to pass (Test Prep Toolkit, 2019). The students GED testing across the United

States since the GED 2014 implementation drastically declined as shown in the table

below (Gerwertz, 2018).

Table 1

Year	2013	2014	2015	2016	2017
# of Students	816,213	172,556	244,569	302,693	300,540

Changes in the GED 2014 made it more difficult for students to pass the pre-

GED exams in Kentucky (GED Ready Test) with a score of 145 or above. This

resulted in less students testing annually as the country's trends show in table 1. In

Kentucky, this GED Ready Test is required to be passed in order to schedule the

Official GED exam, which costs $120 for all four GED subjects (PassGED, 2020).

Due to the decline in students testing in Kentucky, Governor Andy Beshear

announced on January 7, 2020 that Kentucky will start waiving testing fees for people

wanting to obtain a GED diploma (Associated Press, 2020). This is intended to assist hundreds of thousands of Kentuckians to improve their career opportunities because more than 335,000 adults lack a high school or GED diploma (Associated Press, 2020).

In addition to the students in Kentucky, Latinx migrant population has many barriers to education. In HEP programs, a majority of the students are from Latinx backgrounds, including the HEP program housed at Somerset Community College in Somerset, Kentucky (the only HEP program in Kentucky) (The HEP/CAMP Association, 2020). In 1965 the Elementary and Secondary Education Act approved funding designated for the children of migrant farmworkers, who have educational disruptions and live in poverty (Bumps in the Road, 2012).

Jasis & Marriott (2010) stated poverty, continually moving for seasonal work, and limited English speaking and writing skills are significant issues disrupting the education of the Latinx students. Agricultural jobs are changing and farmworkers need additional education in obtaining other employment. According to Gallardo & Brady (2015), labor-enhancing technologies are used to increase the productivity of farm work and are anticipated to replace many farmworkers. This increased the need for education of this population of students.

These students face many barriers keeping them from obtaining their education. In the United States, Latinx educational achievement is problematic and schools need to address the achievement gaps for minority students (Arredondo & Castillo, 2011). Overcrowded public schools may not have the extra time to devote to

minority students who are lacking educational support, inequities in schools, and require additional educational accommodations (Golden, 2017). Also, the adult migrant farmworker students have an increasing need to obtain a GED to be able to receive employment outside of agricultural work. Employers in the United States are requiring a high school diploma/GED or post-secondary education to obtain employment, which increases the salary of the employees (Cooper, 2013).

An educational app can assist in addressing some of the barriers to education for the Latinx population. The educational barriers addressed in this study are language, basic needs as result of poverty, transportation, childcare, working long hours, and the migrant lifestyle. After an open discussion with HEP directors from across the United States, these are the educational barriers frequently seen while serving the Latinx students in the HEP programs (HEP/CAMP Director's Meeting, 2019). Mobile technologies are being used more frequently to address challenges in serving people in the public.

Mobile technologies, such as smartphone applications (apps), are being used to improve health interventions for the public with tailored interventions at a low cost (Grady et al., 2018). In addition, Munteanu et al. completed a study on how mobile devices and learning can help to address the major barriers for adult learners, which they identify as lack of financial resources, child care, transportation, and work. This study detailed how mobile technology, such as an app, can assist adult students persist in their educational studies.

Language for this population is a barrier to education because English is not their native language. In 2007, some Latinx children and families have language barriers and difficulty obtaining an education (Zalaquett, McHatton, & Gingras, 2007). In 2020, Latinx students in the United States are showing far different educational outcomes than others, face inequitable opportunities which have lifelong impacts, and have a larger gaps in test scores, especially in Math (University of Minnesota, 2020). ESL students are the fastest growing educational population and without an ESL class students struggle to learn English, have difficulty in education, and are separated from their classmates (DaSilva Iddings, Combs, & Moll, 2012).

The entire family benefits from ESL classes. The children need to learn English to attend public school, which can be intimidating. One example is a Latinx child scared to converse with their teacher because they lacked English speaking skills (Herrera-Pazmino, 2011). This same struggle has been seen in migrant adult education classrooms as well; however, ESL adult students are able to complete their GED in Spanish or English. Spanish speakers are able to enroll in GED and ESL classes simultaneously. According to Carlock (2016), adult English as a second language (ESL) educators are challenged to teach students beyond basic skills to more advanced lessons that prepares them for citizenship and real-world problems.

Latinx students are able to obtain their GED, learn English, and study for the citizenship exam simultaneously. Educating students in their native language and the development of technology skills provide leverage for advancement (Rivera, 2014). The proposed app addressed the language barrier by providing the information

bilingually in Spanish and English (languages GED exam is available in). Latinx

students would be able to prepare, train, tutor, learn, and test for the GED in their

language. ESL assistance and training would be included in the app. The majority of

mobile technologies research focused on ESL and immigrant students struggling with

English were intensive users in the study by Munteanu et al. (2013).

Migrant adult education Latinx students are unique students from various

backgrounds. They have specific needs to address for the students to pursue their

academic endeavors and future careers. Every student has needs as addressed by

Maslow's Hierarchy of Needs: self-actualization, self-esteem, love and belonging,

safety and security, and physiological needs (Burleson & Thoron, 2017). Latinx

students need help with basic needs due to living in poverty. According to the U.S.

Census Bureau (2013), the Hispanic (Latinx) population ranged from 16.2% to 26.3%

poverty levels based on their origins.

To be successful in school the Latinx students must have their educational,

social, and emotional needs met (Roberts & Guerra, 2017). Rivera (2014) noted

intervention technological programs can be designed to assist low-income Spanish-

speaking parents in learning and using technology for family advancement. The app

will address the students' basic needs by having links to outside resources, such as

housing, heating assistance, and healthcare information.

The app addressed the poverty barriers by eliminating the costs of attending

GED classes in person, such as supplies, gas, food, and testing fees. Mobile

technologies can provide access to educational content for marginalized learners and

to help low income households to have access to educational materials (Winters, 2013). The study conducted by Munteanu et al. (2013), focused on the use of educational mobile technology (an app ALEX) to assist low-income and low literacy adults. This study found the low-income and low literacy adult students accepting of using the educational technology, noted it is useful, and has a great usability in improving their education while away from traditional classes.

Transportation is a common barrier to education as well. With the lack of funds, it is difficult to afford transportation. The majority of this population lives in poverty and struggles financially (U.S. Census Bureau, 2013). Migrant students (especially those who are children of farmworkers) have a 45-60 percent dropout rate (Nittle, 2019). Child Trends (2017) indicated of the dropouts in the United States that 69.8% are children of native-born parents, 30.2% are children of foreign-born parents, and 16.8% are foreign born children. This impacts the finances of the families because they are only able to obtain lower paying jobs due to dropping out of school.

The financial hardships this causes emphasized the need for family to earn more money for living expenses (Doone, 2003). This showed the need for obtaining a GED credential to help obtain improved jobs and salaries for this population as most employers require a minimum of a GED credential currently. The majority of the Latinx migrant population of the HEP students are farmworkers and earn a low income. According to the U.S. Census Bureau (2013), the Hispanic (Latinx) population ranged from 16.2% to 26.3% poverty levels based on their origins. Living

in poverty creates barriers to education, such as transportation. They struggle

financially to travel to the educational classes and paying for materials and fees.

     In an open discussion with HEP directors from the United States, they noted

HEP students are sharing a vehicle with their families and unable to attend class

regularly due to other family members needing the vehicle for work (HEP/CAMP

Director's Meeting, 2019). When students are unable to find transportation to attend

classes, they are missing the educational lessons from their instructors. The farms

where HEP students are employed are often in rural and remote areas, which makes

transportation to face-to-face classes more difficult. These agricultural areas have

mobile networks available that are often the only infrastructure available, which

places a larger focus on the importance of mobile technologies (Winters, 2013). The

app would assist them in continuing their GED studies and accessing recordings to

the instructor lectures. This would eliminate the need for transportation to class.

     Childcare is a need for this population too. Many adult Latinx students have

young children. This makes it difficult for them to attend GED classes without

childcare. They are unable to attend classes if they cannot find childcare or unable to

afford childcare. The HEP program provides childcare to those students in dire need

but funds are limited (https://hepcampassociation.org/membership/). The creation of

a mobile app will address the issues of childcare. Upon discussion with other HEP

directors, this barrier to education is often seen in the HEP programs and could be

resolved by offering mobile classes (HEP/CAMP Conference, 2019). Mobile

technologies helped to address girls/women missing out on education due to having household chores and childcare (Winters, 2013).

The app can address childcare barriers by providing online lessons for students so they can stay home with their families without falling behind in their educational studies. This would help the students financially who cannot afford childcare. This was noted in by Munteanu et al. in their study conducted in 2013. A student noted previously she had difficulty completing homework due to her full-time job and childcare issues; however, she used the mobile app (ALEX) and was finally able to complete her homework on her time schedule.

Latinx students are subjected to the migrant lifestyle consisting of working long hours on farms. This lifestyle often consists of the family moving for work throughout the year. Agricultural farm workers frequently move across state lines (Lumbreras & Rupley, 2019). Along with the frequent family moves, comes educational disruption where students are enrolled in lower track classes and educational advancement is hindered (Lumbreras & Rupley, 2019). This creates an educational crisis for the Latinx students.

An app would allow these students to persist in their educational journey; even though, they are moving throughout the year. The app can assist students who are work long hours (migrant students work long hours on the farms) by providing instructional materials and lessons online which they can access at their convenience. This would allow the student to be able to continue their educational studies while continuing to work their full-time jobs. The app would accommodate the students

who are unable to physically attend class while moving around the United States and/or working long hours on the farms. Mobile learning can provide access to educational content for marginalized learner, such as the migrant workers, and is an innovative use of mobile technology (Winters, 2013).

Overall, mobile learning can help to address the specific barriers to education mentioned above. Technology-infused education can assist Spanish speakers from underrepresented communities to achieve their educational goals (Rivera, 2014). Not only are the Spanish speaking students improving their own education but also the education of their family. Munteanu et al. presented a mobile app to use with adult students to improve their language and basic educational skills (similar population as the HEP students) and found the students were accepting to a mobile app to use with their learning (2013). They found a mobile app to be a viable form of technology to use in educational delivery to students who needed additional help in incorporating education into their daily life. An app is one type of technology to use with the Spanish speaking students to have their educational lessons in their native language and to assist them in advancing in their education.

Why This Capstone and Related Strategies was Selected

The GED test was officially created in 1942 which measured English language arts, social studies, mathematics, and science. There were three more versions of the GED exam, 1978, 1988, and 2002, series which kept the original content from the 1942 exam with increased levels of proficiency of the assessments (GED Testing Service, 2018). These exams were available in English, Spanish, and

French. In 2014, the GED changed drastically and created many challenges for adult education. The GED 2014 exam was completely redesigned from paper-based test to computer-based test which included a new scoring system and a higher level of content rigor in English language arts, social studies, mathematics, and science (GED Testing Service, 2018). The GED 2014 is currently offered in English and Spanish solely.

In the late 1950s and early 1960s, it was a difficult time in education for the Latinx population because advancement in education was challenging for them (Arciniega, 2012). In the late 1960s, 1970s, and 1980s, changes were made in the acceptance of the education of the Latinx population which resulted in more Latinx people as students, teachers, and department heads and included more acceptance than the previous decade (Arciniega, 2012). Since 1971, GED attainment continually increased due to minorities and those from economically disadvantaged backgrounds enrolling into adult educational programs (Maralani, 2011).

Since the 1990s, there has been an abundance of advocacy for Latinx education and career advancements (Arciniega, 2012). Increased attention has been focused on the education of the Latinx population due to Latinx immigration to the United States. The United States Department of Education awards federal grants to assist migrant students in obtaining their GED, enrolling in post-secondary education, and addressing specific needs of the Latinx population (U.S. Department, 2012). The Office of Migrant Education in the Department of Education oversees these grant funds and the programs awarded.

High School Equivalency Programs

The HEP program provides academic assistance to migrant adult education students. Lukes (2014) identified students served in the migrant adult education programs as students who are shutouts (students eligible to enter public high schools but are not encouraged to attend) or holdouts (students who are migrants that move for work then return later to school). Migrant adult education students begin their educational journey by enrolling in an adult education program since most of these students were dropouts from the public school system (P-12). The HEP program offers GED classes in English and Spanish that assists Latinx students in obtaining a GED in their native language. Migrant adult students need extra assistance in choosing a program they are eligible for (if students are not United States Citizens, they cannot apply for state licensure, such as cosmetology or nursing).

HEP programs assist in bridging the gaps between barriers and access to education for migrant adult students. HEP programs continually search for ways to assist migrant adult students in being successful in obtaining their GED. Javier Gonzalez, a former migrant student, former HEP director, and current Chief Operating Officer for East Coast Migrant Head Start Project stated HEP programs provide a needed service that addresses a critical need and is important in rural areas where access to resources for non-English speakers are limited (J. Gonzalez, personal communication, November 5, 2017). HEP is able to assist with some of the barriers to education. Migrant programs help migrant families to focus on their children, while HEP focuses on the adults. By collaborating, the two programs are able to

assist migrant families in being successful by addressing some of the educational barriers.

OME focuses on improvements in the migrant adult education programs to provide the Latinx population educational opportunities. The program's goal is to assist students in obtaining GED credentials and to move forward with their education and/or career (https://www2.ed.gov/programs/hep.index.html). The HEP program provides limited financial assistance to help address the barriers when needed. The HEP program strives to assist students in meeting their educational goals of obtaining a GED credential.

Learning Theories and Motivation for Adult Learners

Andragogy educational philosophy was an educational approach created by Malcolm Knowles to be adult-centered since adult learners have different needs than children which was based on the humanistic learning theory (Elias & Merriam, 2005, p. 13). Knowles recognized barriers to education for adults and differences in learning as compared to children. Knowles identified five assumptions of adult learners in andragogy. These are self-concept, past learning experience, readiness to learn, practical reasons to learn, and driven by internal motivation (Elias & Merriam, 2005, pp. 133-134). According to Mohring, Knowles referred to andragogy as pedagogy with the added concepts for adults and was to be used as an alternative to pedagogy (1990). Adult learners do have different learning needs than the traditional P-12 age groups. Latinx adult learners require more attention in education due to barriers of education and special needs as mentioned previously.

Active Learning is using interactive approaches to education and training to engage students in their work and to acquire more knowledge (Zoller & Harrison, 2007). Active learning is a prominent adult learning theory and can be achieved by addressing three main adult learning styles. The three main learning styles are visual, auditory, and kinesthetic (Meyers, 2016). The app will incorporating all three of these learning styles. Learning content will contain visual aspects, such as videos, charts, graphs, and diagrams; audible aspects will contain lectures, videos, podcasts, and discussions; and kinesthetic aspects will include projects to complete math problems and using math problems in real world settings. "Adult learners are different from children because they have life experiences they draw from and make decisions on what's important and how to apply information" (Meyers, 2016).

Mobile learning has transformed education. The prevalence of mobile technology and its educational affordance has changed education. Behaviorism, constructivism, situate learning, and collaborative learning are learning theories recognized in using mobile technology (Bai, 2019). These learning theories are used in mobile learning and used in the app development. The use of the app for educational and mobile technology is beneficial to adults for learning on the go in their busy lives. Mobile learning, such as an app, can have a major impact on the ability for the adults to expand their knowledge and education, especially for the Latinx migrants who are moving for work and/or working long hours.

Impact of the Capstone

Technology is the application of knowledge in a specific subject (Merriam-Webster, 2018). Technology in adult education can be used in various ways, such as online programs, YouTube videos, Google hangout, Internet, applications for tablets, applications for phones, laptops, and Chromebooks. Since changes of the GED exam in 2014, there is a greater need for new methods of instruction and assistance for the students. The greatest challenge is GED 2014 changing to a computer-based exam. This results in students needing to be familiar with computers and online programs.

The proposed app will assist in aiding students in improving their technological skills. Students will also be familiarized with types of technology and formats used on the GED exam. Since changes of the GED to a computer-based format, there has been a decline in GED diploma attainments. According to OME (2018), GED diploma attainments were 74.5% in 2013, 66.6% in 2014, and after the GED changed in 2014 it dropped to 48% in 2015. According to Education Weekly (2018), GED attainment rose to 80% in 2016 and 79% in 2017 nationally. This was attributed to students becoming more accustomed to the new GED test.

These passing rate percentages increased due to performance levels and cutting passing level scores for the GED 2014 exam in 2016 (GED Testing Service, 2020). These changes lowered the minimum passing score to 145, instead of the previous 150 requirement. Also, the performance level of exam questions were lowered in difficulty. Additionally, due to the decline in students testing in Kentucky, Governor Andy Beshear announced on January 7, 2020 that Kentucky will start

waiving testing fees for people wanting to obtain a GED diploma (Associated Press, 2020). Lower costs along with lower scoring levels will give more possibilities to Latinx in Kentucky striving to obtain their GED credential.

The GED 2014 changing to a computer-based format in 2014 created a greater need for technology usage in adult education classrooms, including HEP classrooms, to prepare adult students for testing on a computer. In addition, there is a larger focus on STEM (science, technology, engineering, and mathematics) studies and careers in Latinx population (Violino, 2011). With these fields being encouraged for Latinx students to focus on, there is a need for more technological applications in their educational studies.

Technology can help educators in HEP programs to assist students in learning English. Some higher education institutions are increasing access to education for Latinx population by incorporating technology. Some institutions are using programs, such as Rosetta Stone or Duolingo, to assist students in improving their ESL skills. Also, there are applications available for tablets and phones to assist students. One example was the Mobile Assisted Language Learning (MALL) application which was accessible to students on a tablet, promotes mobility, individuality for learning, and flexible with students' busy schedules (Ahmad, Sudweeks, & Armarego, 2015).

The most obvious advantage of using programs like MALL was the mobility of the program and availability on mobile technology, such as cell phones (Educational Research Techniques, 2020). Availability on cell phones is also a cost-

efficient advantage because most cell phones are cheaper to purchase than a computer

(Educational Research Techniques, 2020). Another example of an ESL program is

the English sharing reading with Spanish bridging vocabulary functions in e-book

format which was applicable to children and adults to help improve the English

reading skills (Leacox & Jackson, 2014). Other examples of apps ESL students are

using to help improve their English skills are Busuu, SpeakingPal English Tutor,

Voxy, MyWordBook, and Conversation English (Pesce, 2020).

El Paso Community College improved access to education for Latinx students

by creating educational classes with professors understanding the population, various

learning options, and utilizing technology ("EPCC Serving," 2016). Technology has

various usages and can assist in the instruction of Latinx students. Integrating

technology into adult learning is becoming more of a necessity in current educational

environments because students need to be prepared for employment and careers

available, which most require some knowledge of using various types of technology,

as mentioned by LINCS (2016).

Four ways to integrate technology into adult learning are through curriculum,

as a delivery mechanism, as a complement to instruction, and as an instructional tool

(Ginsburg, 2020). Online instruction utilizing these technology integration methods

into GED and ESL classes would be an option for HEP programs to increase

participation when students are unable to physically attend class. The HEP program

at Somerset Community College sampled a variety of programs to assist GED and

ESL students who cannot attend class every day, such as Brain Honey

(https://alphaprogram.agilixbuzz.com/) and Aztec Software

(http://www.aztecsoftware.com/). These programs are web based GED study

programs but are not offered for mobile technology (as of the writing of this paper).

The goal is to utilize available technology for students to access study materials and

lessons at home when they are unable to attend class physically. Since this

population works long hours on farms, they are limited on the amount of time spent in

the classroom. Finding online instructional programs for adult educators to utilize

would assist migrant adult students in studying and completing homework at their

home. This could be a great benefit for the students.

> Understanding links between continuing education participation and worker
>
> outcomes for both immigrant and US-born workers contributes to the very
>
> limited academic literature on migrant education programs and is important
>
> for establishing benefits and costs for strategic planning exercises pertaining
>
> to future workforce investments related to those in the farm economy (Pena,
>
> 2015, p. 752).

ESL classes can be improved by incorporating computer-based instruction

into the app. More research on incorporating computer based instruction and the use

of the Internet is necessary. In addition, Gonzalves (2017) found a need for more

assessments in language-skill areas to determine the students' gain in language

acquisition. The utilization of technology in ESL classes needs more observations

and research. Lipp (2017) found the research on ESL students' reading skills and

self-efficacy narrow. More research on ESL classes and more materials would be

beneficial to participants of the HEP programs. Komiyama & McMorris (2017)

suggested ESL teachers exploring different teaching strategies to provide various

reading lessons on a variety of topics to intrigue students to read more. Teachers are

in touch with migrant adult students and are able to learn what their interests are in

order to offer suggestions on reading lessons to encourage more reading in English.

Continually learning can assist migrant farmworkers in obtaining new careers

and being prepared for future jobs. Online mobile programs have the potential to

assist students in their lifelong learning. HEP students can benefit from mobile

learning with GED classes and ESL classes by preparing for future careers outside of

farm work.

Limitations of the Study

The main limitation of the study will be the sample size. The study was

limited to 50 Latinx HEP students who were enrolled at the Somerset Community

College Project BEAM HEP program. Also, the HEP students are migrant students

who constantly move for work and were not available during the study. There were

15 HEP Latinx students who were available and present to complete the surveys for

this study. This created a survey sample limitation.

There could be a lack of data due to the students not being familiar with

online educational programs; however, their input from apps they previously used

will be considered.   With the study only being applied to a small population with a

specific situation, the results have low generalizability. However, a future study is

planned to perform on the HEP Latinx students to examine the impact of technology and educational app usage in the HEP classroom.

The surveys conducted were developed and conducted by the researcher; therefore, the validity and reliability of the survey questions are untested. The surveys were created based on the HEP program and students served within the program and were reviewed by fellow migrant education experts. The student surveys were created with HEP specific content questions and were distributed to current HEP Latinx students at Somerset Community College.

Fifteen students were available to be surveyed. Each student received the survey during HEP classes and were able to submit the surveys back anonymously (to ensure Family Educational Rights and Privacy Act (FERPA)). Each student was given the survey in the HEP classroom and did not submit their name with the survey to create internal consistency and reliability. The faculty and staff surveys were created based on HEP instruction and delivery of instruction. They were distributed among the HEP faculty and staff at Somerset Community College during a monthly HEP meeting.

These were not submitted anonymously since they are faculty and staff.   The survey questions for both surveys were HEP content specific to create validity. The surveys were collected by the researcher and the results were recorded in an Excel spreadsheet. These results were reviewed and analyzed to determine the approaches to take in designing the app to be specific for the HEP students.   Both surveys' face validity was established by experts and were content specific to the study and of the

HEP program. Lastly, the surveys were designed based on the HEP program at

Somerset Community College; therefore, generalizability of the content is specific to

HEP students, faculty, and staff at SCC.

Challenges of the Study

Time constraints were a challenge of the study. The time constraints were

challenging because students attended HEP classes by semesters and were only

available in 12 week increments. The study was challenging with the HEP students

having a migratory status and possibly moving at any moment for work in another

state.

Adult educational programs needed to implement technology into classrooms

to prepare students for future careers using computer skills. However, the challenge

with the incorporation of technology into adult education classrooms was the need for

technological support and training for adult education educators and staff. Teachers

needed to be trained on how to use new technology in the classroom to be able to use

them effectively (Kelly, 2019).

Most schools purchase technology when it is a good deal but unfortunately

this leaves the teachers untrained on how to incorporate technology in the classroom

and how to use with students (Kelly, 2019). Kelly also found the school systems

leave teachers input out of the purchasing process which leads to purchases of

technology that are not feasible (2019). Along with teachers input, students must be

taken into consideration during this process of change too. One must take into

consideration teacher and student bias on platforms for software to operate on with

the technology, such as Apple, Android, or Microsoft (Davis, 2016). Students were

surveyed using a comparison between face-to-face classes and online classes.

The survey results determined students enjoyed the flexibility and

convenience of the online classes; however, they felt it was not sufficient for more

difficult classes and found communication was limited as compared to the face-to-

face classes (Lu & Cavazos Vela, 2015). Another study of a different group of

students demonstrated the students' love of online classes. This study used

quantitative data collection to determine students' test scores improved with online

classes as compared to the face-to-face classes (Renfro-Michel, O'Halloran, &

Delaney, 2010).

The biggest challenges found with incorporating technology in migrant adult

education programs were access to computers and the Internet. Several studies

determined only 60% of families own computers and have Internet access and those

who are considered minority and in poverty do not own a computer (Stern, 2006).

Rivera (2014) found one of the many challenges facing Latinx in the United States is

a lack of familiarity with technology and a lack of access to computers and Internet at

home.

Desired Outcomes

Desired outcomes were to find solutions for barriers to education for migrant

students, such as language, childcare, working long hours, poverty, basic needs, and

low academic educational levels. Technology offered assistance in addressing some

of the educational barriers of students. While there were issues to incorporating

technology into GED classrooms, they were manageable. The main issues were access to computers, Internet, and Wi-Fi. According to Inverso, Korbin, & Hashmi (2017), there are multiple experiences with technology use in the classrooms, ESL programs, home, and work that can create tremendous opportunities and challenges of using technology with adults.

There has been little research conducted on benefits of incorporating technology into migrant adult education or HEP programs that addressed needs and barriers of education for this Latinx population. This study focused on investigating improvements to migrant adult education (HEP programs). The desired improvements are student focused. The migrant adult education HEP programs want to see all of their students succeed in their academic endeavors. By finding solutions to barriers of education, students are able to be more successful. An app (application) can have the potential to address several barriers to education for the Latinx adult population because it can be made available on multiple technological devices.

Ninety six percent of people in the United States own a cellphone of some type and ownership of smartphones are up 81%, three-quarters own a desktop or laptop, half own tablets or e-readers (Pew Research Center, 2019). The ownership of cellphones/smartphones increased chances of students using an app to access their information for education because a technological device is more readily available. With students already owning a smartphone, they would not need to make an additional purchase to be able to use the mobile app.

Capstone Project

App for Migrant Adult Students

To better assist and accommodate migrant adult students, an app compatible on multiple devices (computers, smartphones, and/or tablets) and platforms (Apple, Android, and/or Microsoft platforms) would be created to provide educational materials, support, tutoring, and teaching. Apps are a great way to enhance education because students are able to receive individualized learning, engage students, maximize time, improve technological skills, effective communication, and provide video-oriented learning (Mobile App Daily, 2020).

Seventy-seven percent of students say adaptive technology helped them to improve their grades, according to Mobile App Daily (2020). This app was intended to address several of the barriers the migrant adult students are faced with, including language, childcare, working long hours, financial due to poverty (costs of class materials, testing supplies, and transportation), basic needs, and low academic educational levels. The app would allow students to access their GED studies from a technological device they already own, such as a smartphone, and from the convenience of their home.

The HEP project will provide all of the necessary materials and will pay for testing fees associated with GED upon enrollment into the program and given access to the app. Students will be able to privately message their instructors from the app to discuss their personal needs so instructors can refer them to the proper community agencies to help them. Most of all the app will assist students in improving their low

academic levels. The app will have current GED lessons, instructional materials,

resources, tutoring, messaging, and additional practice for students to improve their

educational levels to ultimately prepare and pass the GED exam. Overall, the app's

plans are student centered and designed to assist Latinx students in the HEP project

the best way possible.

The app will initially contain GED Mathematics. GED Reading/Language

Arts, GED Social Studies, GED Science, and ESL materials will be included in future

revisions of the app. STEM related materials and assignments can be incorporated

into each subject. Students enrolled to use the app will have an individualized

learning plan and will receive a well-articulated curriculum to meet all their

educational goals in obtaining their GED credential.

Plan Development and Details

The App for HEP students will be named "Mobile BEAM." This name was

chosen because the HEP program at Somerset Community College (SCC) is named

"Project BEAM." BEAM is an acronym for Bringing Education and Achievement to

Migrants, which is the mission statement and purpose of the program's existence.

The catch phrase for the app will be "A gateway to your success." This is meant to

bring encouragement to students using the app. The app will be available in English

and Spanish initially because the GED in Kentucky is only available in English and

Spanish.

This was the largest need for the Project BEAM program since the HEP

program offers GED instruction in English and Spanish to participants of the

program. The app is originally being created based on HEP and GED needs;

however, the app could be adapted in the future to better accommodate more students

nationally and potentially internationally.

Methodology

The app was designed based on survey results of students, faculty, and staff of

the HEP program at SCC by using a mixed methods research. Since the app was

created for this population, their ideas were taken into consideration to improve the

usage of the app. Fifteen faculty/staff of Project BEAM and fifteen students of

Project BEAM were surveyed on topics for the app, their opinions on the usage of an

app for educational purposes, and any comments/suggestions they have (copies of the

surveys are included in Appendix 1 and 2).

Faculty and Staff surveys consisted of asking their opinions and usage of

YouTube tutorials, instructional videos, live instructional videos, community chats,

their preferred language (English or Spanish), and suggestions they may have on

additions to an app for their specific instructional and/or educational needs. The

Project BEAM faculty/staff were asked what types of testing they prefer (multi-

choice, fill-in-the-blank, or extended response). They were asked the types of tutorials

used with students currently. The preference of types of communication within an

app, what contact information would be available in the app, and what hours would

they be available to respond to students. They were asked if they prefer a tool to

track the students' access to the app, what reports of the time and effort of students

are needed, preference on instant graders for assignments, and any additional
suggestions they had.

The faculty/staff survey results determined 100% of the faculty and staff
currently use and are familiar with computers, Internet, and cell phones. Fifty three
percent of the participants use apps on cell phones and tablets on a regular basis;
however, only 40% of them had used educational apps in the classroom. 100% of the
faculty and staff uses computers and the Internet with the HEP students. They stated
they have utilized YouTube, educational videos, and Khan Academy
(https://www.khanacademy.org/) with students. Each of these will be accessible from
the app.

Fifty percent of faculty and staff wanted to see more online GED classes to
accommodate their migrant students; however, 100% of them are willing to learn how
to utilize mobile learning for GED and ESL classes. One hundred percent of faculty
and staff wanted to see a login tracker, hour tracker, instant graders, exams,
dictionary access, completion gauge, dashboard for students, calculator, assignment
reminder, calendar, and a community chat per their survey results as included in
Appendix 3.

The types of testing the faculty wanted to see incorporated into the app are
multiple choice and extended responses. Only 50% of faculty wanted to use essays,
60% wanted to have fill-in-the-blank questions, and 0% wanted matching exercises
on the exams. The faculty and staff commented they wanted the app to be user
friendly, bilingual, available on various devices, and engaging. They wanted

YouTube and other resources available for the students to access from the app. They

suggested feedback to be available to the student instantly after completing

assignments and exams. They suggested feedback to students would include

examples of how to solve the problem correctly and references to study guides.

Professional development would be required for all program faculty/staff to

attend prior to implementing the app in the Project BEAM classroom. This provides

access to training and tools needed to implement the app with their students. A

majority of faculty/staff are comfortable using technology in the classroom and the

remainder are willing to learn.

A group discussion was held at a Project BEAM office meeting with faculty

and staff. During this meeting, faculty of Project BEAM discussed the potentials of

having an educational app to use with students. They stated this would help with

migrant students who move from Kentucky to Georgia each year to work the peach

and pecan season. They also stated students who are not attending class regularly

said it is due to lack of childcare, transportation, and working long hours on the

farms. The faculty stated a mobile app could potentially alleviate these strains on the

student and address their barriers to education (Project BEAM, November 2019).

The Project BEAM students were asked what types of platforms they use

(computers, mobile devices, or tablets) and if they have access to Internet. Also, they

were asked if they would use the app when unable to attend class physically, what

makes an app easy for them to use, what types of tutorials are preferred, what types of

learning games (circle word, crosswords, or animated/interactive games), and would

they communicate with instructors via the app. All of this information was collected

to see if any additions needed to be made to the initial app design.

The students surveyed were comfortable with technology usage - 100% are

familiar with computer, Internet, and cellphone; 50% a tablet; and 80% use apps on

their cell phones. One hundred percent of the students surveyed owned a minimum of

one technological device to access apps from (60% a computer, 80% Internet, 50%

tablet, and 100% cell phone). Eighty percent of students identified they have access

to the Internet currently and are willing to use their device for educational purposes.

Fifty percent of students stated they like using learning games. Students suggested

having access to YouTube and instructional videos. The Latinx HEP students

commented they prefer an app that is easy to use, easy to access, fun to use, and

accessible from their home.

Overall, the surveys were promising for usage of an app at Project BEAM to

access their educational lessons and communicate with the instructors. Students

stated in the comments mobile learning would help them address their childcare

problems, transportation issues, mobility while they are moving (migrant lifestyle),

and with communicating in their native language. These comments were taken into

consideration in the app design (a compilation of the results of the surveys are

included in Appendix 4).

The Design

The app design is intended to make the app user-friendly and easy to navigate.

A tutorial of the app will be available upon the original creation of an account. This

tutorial will highlight the features of the app and have a step-by-step visual guide for students to utilize. This will assist the students of Project BEAM in becoming familiar and comfortable with the app and what it has to offer. A professional development workshop for faculty/staff will be created based on the functions of the app from a faculty/staff viewpoint and from the student viewpoint. This will help to prepare faculty/staff in being comfortable with using the app and with being qualified to assist the students.

The app will be available for usage on computers, tablets, and smart devices via the Internet and some functionality offline. The app will be designed on a Blackboard platform to ensure security. Students can search "Mobile BEAM" or a faculty/staff member of Project BEAM can provide a link to the app. In the beginning, only Project BEAM members will be able to access the app for the pilot program. The pilot program will be used to sample the quality of the app software. Also, it will assist in identifying any issues of functionality of the app. Improvements will be made to the app as seen fit by the Project BEAM director to ensure the app is fully functional and efficient.

After the pilot has been successful, (determined by having positive survey results from students, faculty, and staff, increase in student grade level, the app is time efficient, and data shows student progress from the data tracker built into the app) then the app will be implemented fully into the Project BEAM program. Next, the app will become available to other educational programs outside of Project BEAM. This app is intended to help GED students across the world ultimately.

The app usage will begin with STEP 1: Search the "Mobile BEAM" app in the app store on your device (available on computers, cell phones, and tablets. This is the plan when the app is fully developed. A prototype of the "Mobile BEAM" app to search for is shown in figure 1 and 2.

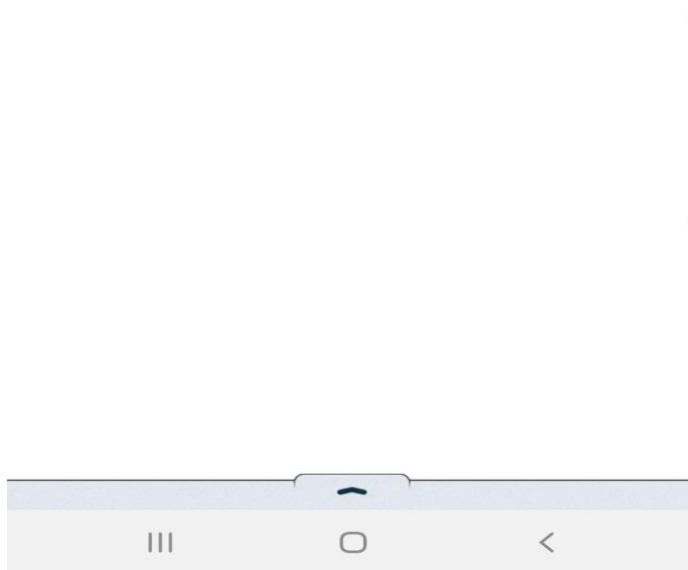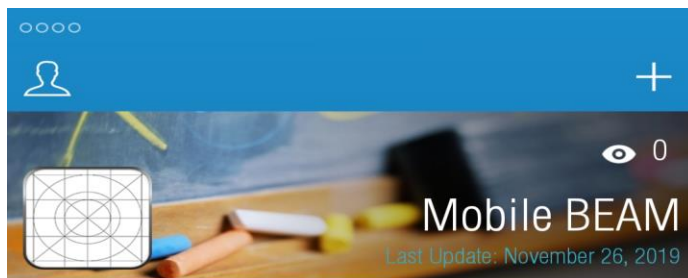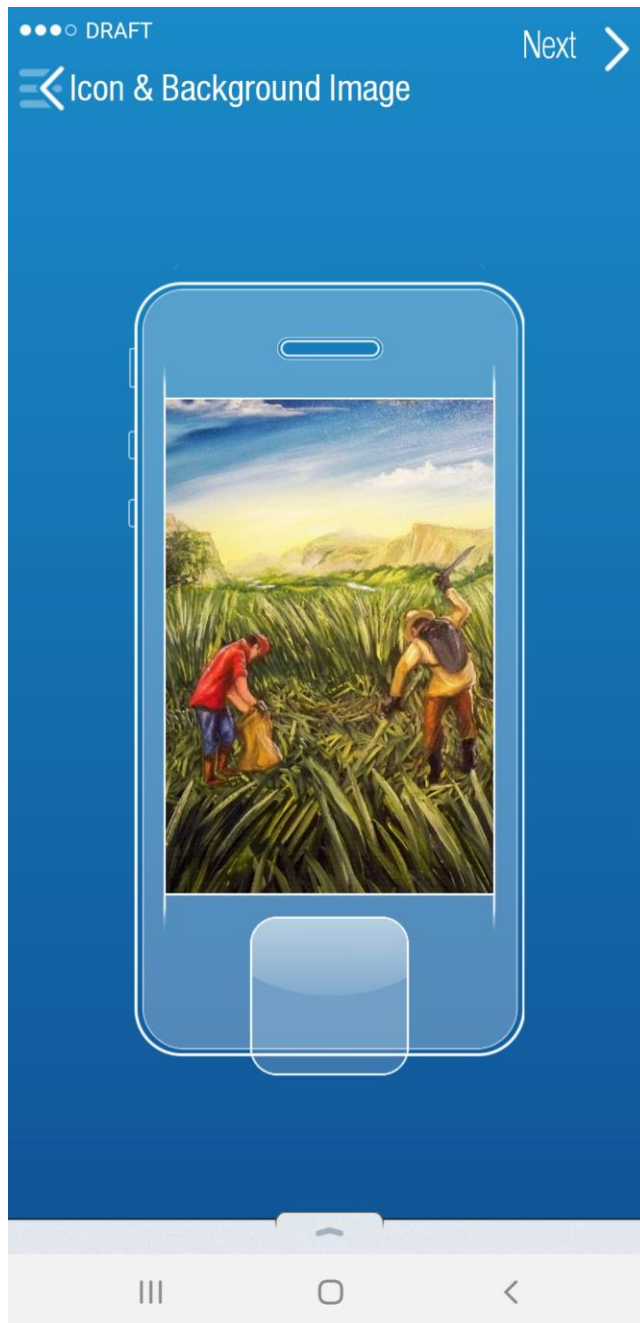*Figure 1. Mobile BEAM Home Screen/Search for Screen*

Figure 2. Mobile BEAM Home Screen

STEP 2: Register for the app to gain access and your login information.

The login information will be assigned by a HEP instructor once the registration has

been processed. The registration for the "Mobile BEAM" app will ask for the

following information: first name, last name, phone number, email, HEP location,

primary language (English or Spanish), and submit information to HEP. As shown in

Figure 3. Once the student registers for the "Mobile BEAM" app, a notification will

be sent to HEP at the location chosen in the registration (Project BEAM currently has

eight locations in southern Kentucky). A staff or faculty member will verify student

information.

Figure 3. Mobile BEAM Sign in/Registration Screen Example

Next, the staff or faculty member will create the student login (this is done for security of the program and the student). This is a security measure to curb false profiles and inappropriate access to the app. An email will be sent to the student with their login information. Student now has access to login and begin using the "Mobile BEAM" app. Figure 4 shows the login/registration screen.

Figure 4. Mobile BEAM Sign in/Registration Screen
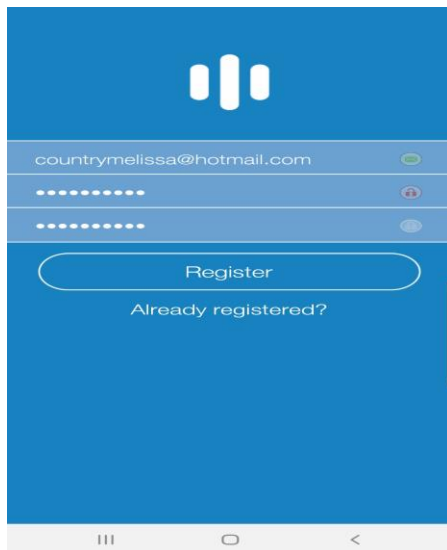
Prospective students can read about the Project BEAM program in the "*about us*" section of the app. The information contained in the about us section will be the HEP program at SCC called Project BEAM which is funded through a grant to Somerset Community College by the Office of Migrant Education, U.S. Department of Education. Instruction and other assistance is provided to aid adults in completing their GED and entering college. Project BEAM classes are open to anyone who themselves (or their spouse or parents) work in temporary or seasonal farm work at

the present time or have done so in the past two years. Qualified students can receive

payment for instructional time and assistance with GED testing fees. Project BEAM

also provides free books and study materials along with one-on-one tutoring for

students. Contact us: Melissa Adams, Director, 808 Monticello St., Somerset, KY

42501, 606-451-6872, Melissa.adams@kctcs.edu; or contact Alisha Johnson,

Administrative Assistant, 808 Monticello St., Somerset, KY 42501, 270-858-6505,

Alisha.Johnson@kctcs.edu. Thank you for your interest in Project BEAM. Figure 5

shows a sample of how the information screen will appear. It will depict more

information in the final version, such as contact information and locations available.

Figure 5. Mobile BEAM Information Screen
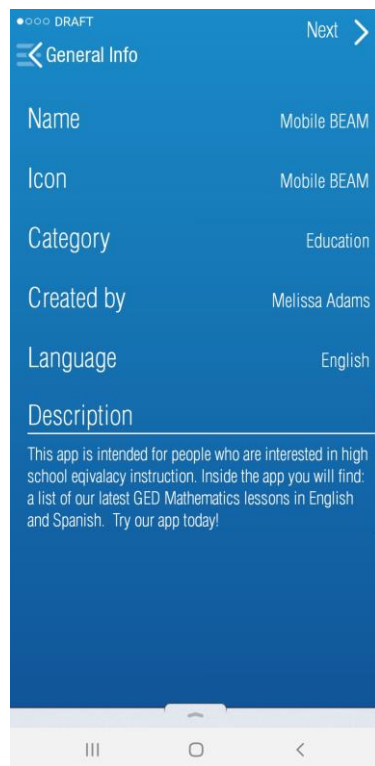
Once students have access, they will begin with their unique login specific to them. They will go to the downloaded app and see the welcome screen. The welcome screen will have the options "*to sign in", "requires to join/sign up", "about us" and *"contact us"* (as described above). The students will open the app on their device, select login and continue to sign in with their unique login. This will take them to the app content page. The app content page will be in the language (English or Spanish) they chose upon signing up for the app. The app will have the Project BEAM colors (blue and red with black writing) in the background. Figure 6 is a sample of how the Mobile BEAM Dashboard will be set up for the ease of student use. Figure 7 shows a screenshot of how it will look when students are enrolled in classes. Figure 8 shows how each class is broken down into lessons once the class unit is opened.

Figure 6. Mobile BEAM Dashboard Sample Screen

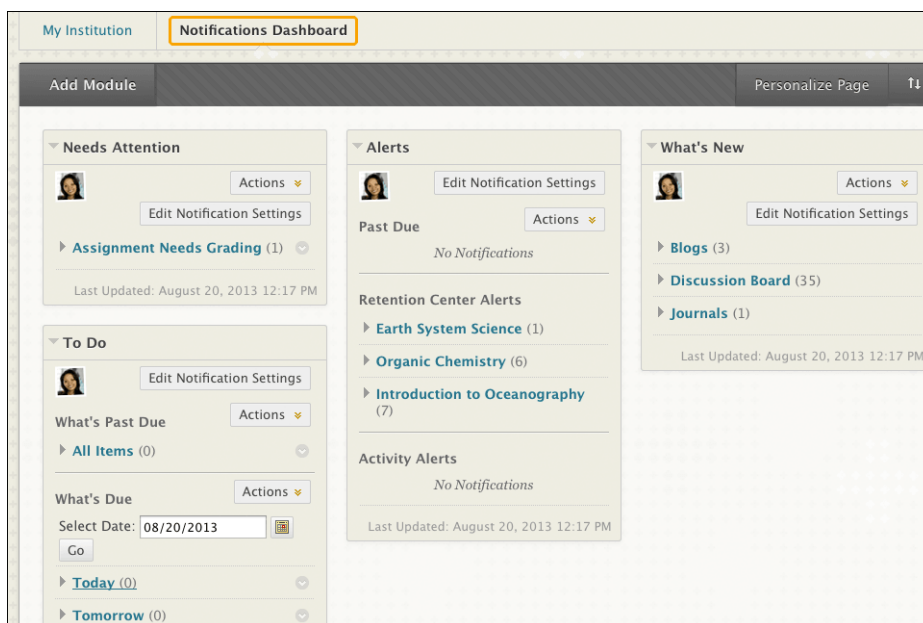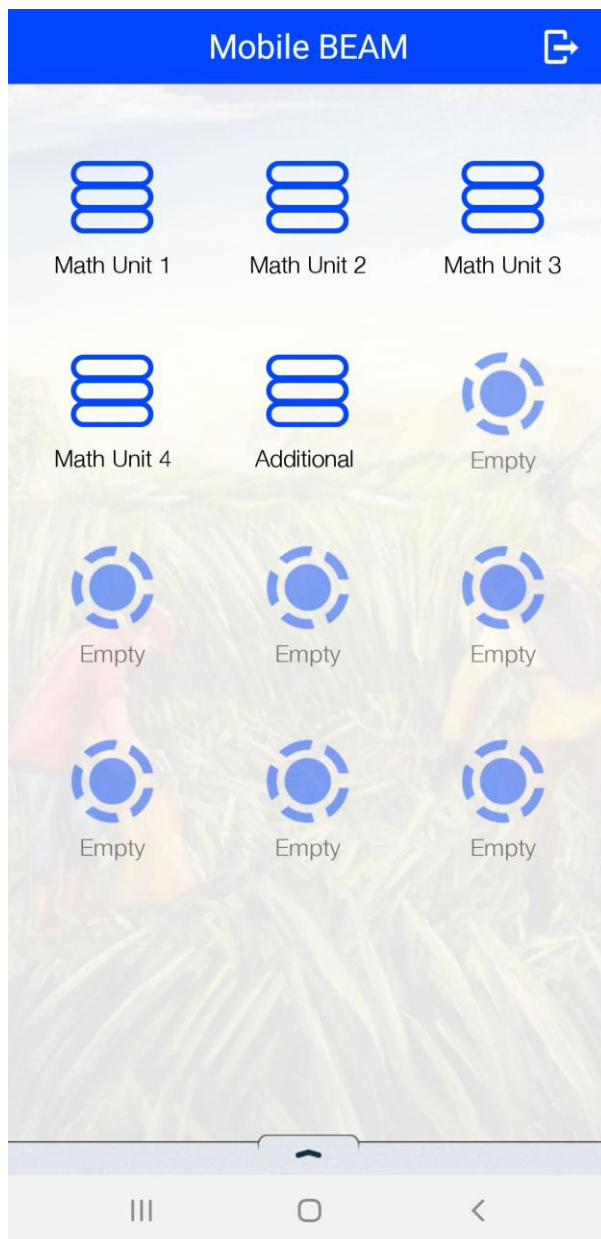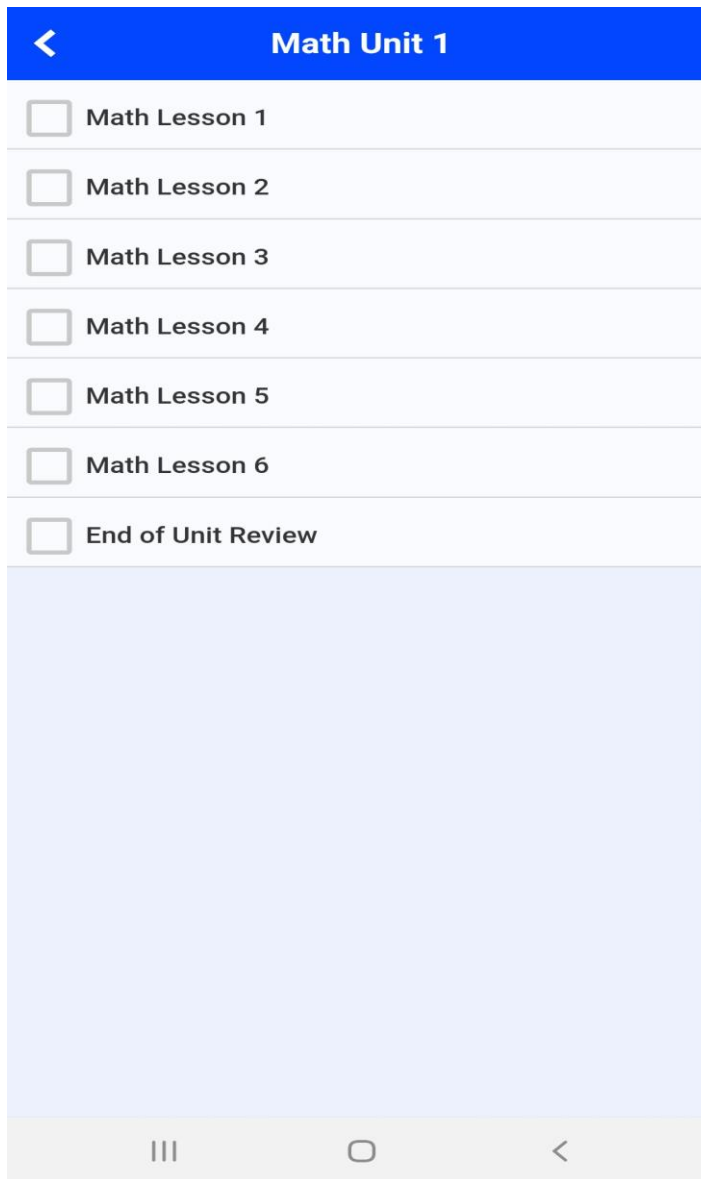*Figure 7. Mobile BEAM Class Enrollment Screen*

Figure 8. Mobile BEAM Class Lesson Screen

Once the pilot program is completed, the app will be available to people

outside of Project BEAM with the registration process will be adapted to

accommodate them. When this is available, the potential users will click the join/sign

up and answer personal questions, such as full name, email, phone number, and

preferred language. This information will be verified via email to ensure it is not

fraudulent information. This is to maintain the integrity and security of the app.

Upon verification of identify and email, the new user will be given access to the app

with a unique login.

       After logging into the app with the unique login per user, the main educational

screen will be displayed. This screen will contain GED subjects available on the app:

initially only GED Mathematics will be available in this study. Each student will

have an individual learning plan based on their intake exam. This will allow the

student to only be required to complete the studies they did not pass in the original

intake exam. Also, there will be a resource page identifying additional resources for

the students, such as community resources, YouTube, employment tips, resume

workshops, preparing for interview techniques, and scholarship links for post-

secondary educational institutions.

       GED Mathematics will be set-up with the materials and links related to the

specific mathematics subject they are currently studying. These materials and links

will be created from the HEP instructional staff based on the GED exam and with

guidance from Steck-Vaughn Mathematics textbooks. Additional study information

will be linked to bilingual materials created by HEP staff, YouTube videos, Khan

Academy lessons, UNM YouTube Channel (a sister HEP project), HEPCAMP

resources, GED Testing Center, Math Drills, GED.com, and Test Prep Toolkit. There

will be lessons listed under four units with accommodating sub-lessons under each.

For example, a mathematic unit would be: unit one - addition, subtraction,

multiplication, and division; unit two - fractions and decimals; unit three - Algebra; and unit four - Geometry. At the end of each lesson, there will be an exam. Each of the exams will deliver real-time reports with explanations and feedback of the correct answers.

In addition, there will be links to tutorials demonstrating how to solve problems and how to achieve correct answers. Students will have the option to retake another version of the exam to master their skills and better prepare them for the GED exam. At the end of each unit, there will be an exam covering all of the information from all lessons inside the unit. As with the end of lesson exams, there will be real-time feedback. If not passed, the student will receive a plan of study to complete before retaking the end of unit exam again. Once all of the unit exams have been passed successfully, the student will be given a link to take the GED Ready exam at GED.com.

Upon passing the GED Ready exam, the student is ready to sign up for the official GED exam in their area. Instructors will assist in scheduling the official GED exam to ensure testing fees are paid for via the HEP project. There will be instructor led videos, YouTube videos, and additional subject based educational supplements available. Additionally, there will be a bank of accessible assessments and practice drills for the GED exam to give students extra preparation on their problem areas. An online calculator will be provided on the Mathematics and Science lessons. All lessons will contain fun learning games to quiz and help build the skills of the students.

English as a Second Language (ESL) will be set up with Beginner, Intermediate, Advanced, and Conversational lessons. This will assist Spanish speakers in improving their English speaking and writing skills. There will be multiple interactive lessons to help students practice their English skills. Similar to the other subjects, there will be end of lesson exams and end of unit exams. This will help the students to see their improvements. ESL is not a required subject; however, it is a great addition for the Spanish speakers to have access to as many of the migrant adult students struggle with learning English. This subject will assist the students in preparing for enrollment to post-secondary educational programs and for future jobs/careers. In addition, Science, Technology, Engineering, and Mathematics (STEM) related materials and assignments will be incorporated into lessons. A major focus on STEM has been seen in the past few years in education and the addition of STEM materials can benefit the students.

All of the lessons will have feedback for students. Most exams will provide instant feedback on results. The extended response questions will be sent to an instructor who will provide the feedback to the students upon grading in a timely manner. In addition, all of the lessons will contain a chat box for students to communicate with their instructors. Students will be able to go back and review any lesson they see fit. Students will have additional study materials, lessons, and practice exams accessible to them at their convenience. Instructors will be able to refer students back to accommodating lessons in the GED textbooks being used in the classroom to provide additional help for students. ESL can be used throughout the

lessons. At the end of each lesson, students will have the option to rate the mobile

app and to submit a survey on their thoughts on the app and its usefulness for

educational purposes. This information will be utilized to improve the app and to

ensure it is working efficiently for faculty, staff, and students of HEP. A sample

survey will be created similar to the one in figure 9.

Figure 9. Mobile BEAM Sample Survey Screen

This app is intended to accommodate migrant adult students who cannot

physically attend classes. This will assist the student in staying up to date on their

GED studies while working long hours. The app will be available 24/7 on various

devices and platforms to best accommodate students and the current technology they

own. It will be developed on a Blackboard platform to ensure the students'

information is kept secure. This was decided after the suggestion by a colleague,

Bruce Gover. Dr. Gover stated if the app was developed on a Blackboard platform,

the app and information would be protected by the Blackboard security (B. Gover,

personal communication, August 2, 2019). By using this platform, no additional

security will have to be purchased. The students' information will be secure and they

will be able to attend physical classes at their convenience without losing educational

gains while staying up to date with the app. This helps the students stay in contact

with their instructors easily, which helps the instructors know the progress the

students are making.

Conclusions

Finding solutions to the barriers of education is the most important to assist

the Project BEAM students. Incorporating technology into the GED/HEP classroom

is one way to address some of the barriers, such as financial, transportation, and

childcare. Desired result is to improve the HEP instruction for the participating

students and to assist them in meeting their goals of obtaining a GED credential with

an all-inclusive and well-articulated GED curriculum. With this, students are able to

accelerate at their own pace and to work independently on their personal and

individualized learning plan.

Future Actions

The future actions of this project is to develop a prototype to use in the pilot

program. This pilot program will be used with current Project BEAM faculty/staff

and students. The pilot program will assist in working out any issues (bugs) found in

the app and to implement any needed improvements. Suggestions from the

faculty/staff and students will be taken into consideration as well. The app is

intended to better assist the migrant students who cannot attend regular Project

BEAM classes.

After the pilot program, the remaining GED subjects will be developed and

added to the app. Then the app will be ready to pitch to outside funders. Private

funders will be sought to assist in the financial burden of implementing the program.

In addition, grants will be sought to assist in the financial funding for the app. After

funding is attained, the app will be ready for production and use across the United

States for all GED programs.

The future of the app is to make it an educational app available around the

world and produced in various languages. The app will allow adaptation for all

educational levels, including elementary, middle grades, high school, and adults.

This ultimately could become a great educational tool to utilize across the world.

Funding

The app will be created to use on a Blackboard platform, which will include

security protection for the students' information with built in Blackboard security.

The development of the app is estimated to cost $46,000 to $51,000. This was

estimated from the APP Estimation from the APP Solution website. Figure 10 shows

the breakdown of the estimated costs from the quote from the APP Solution website.

Figure 11 shows a quote of maintenance fees for the app once it is created.

Figure 10. Mobile BEAM Cost Estimation

DESIGN FEATURES	COST		DEVELOPMENT COSTS	COST
DESIGN	$9,250.00		DATA BASE ARCHITECTURE AND APPLICATION SETUP	$1,600.00
LOGIN/EMAIL	$1,554.00		MANAGEMENT	$5,560.00
MANAGING TOOL	$2,310.00		QA & BUGFIX	$6,672.00
IN-APP COMMUNICATION	$7,455.00		TECHNICAL DOCUMENTATION	$3,336.00
PLANNING TOOLS	$2,730.00			
PHOTO, VIDEO, AND AUDIO	$5,670.00			
ANALYTICS DATA	$2,520.00			
TOTALS	$31,489.00		TOTALS	$17,168.00
GRAND TOTAL	$48,657.00			

Figure 11. Mobile BEAM APP Maintenance Fees
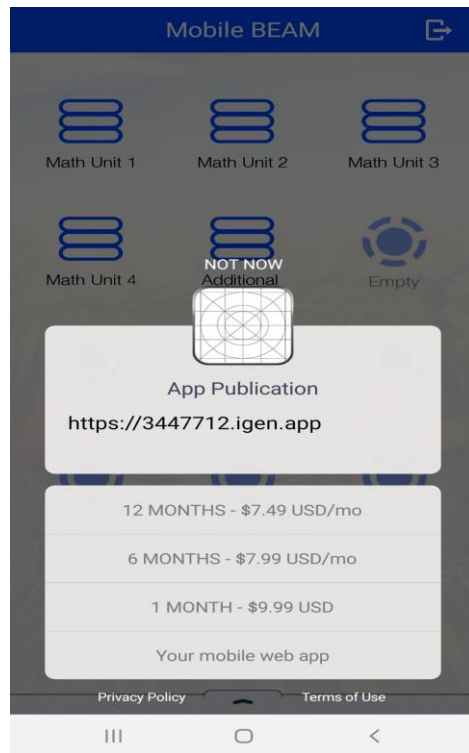
The estimated cost of the development and monthly maintenance of the app is a total of $48,776.88. This will be the estimate used in pitching to external funders and for writing a grant to Mobile Learning Fund (ProLiteracy, 2019). The Mobile Learning Fund is a simple grant fund in association with ProLiteracy to fund programs in assisting in the education of immigrants and migrants. Since this app is designed to be used in the education of migrant and seasonal farmworkers, the grant fund would be applicable and can be applied for. The Mobile Learning Fund has a simple grant application asking the following information:

- Contact information
- Name of organization or literacy program

- Contact person

- Title

- Email

- State

- How many students does your program serve annually?

- Projected number of students

- New students served

- Is your organization a current ProLiteracy organizational member?

- Proposal Narrative: Organization background, financial need, students served, impact of materials, public relations and awareness activities, Mobile Learning Fund materials being requested, applicant agreement.

This is a simple grant form to improve educational opportunities for immigrants and migrants with technology. This grant will be applied to attempt to secure the funds to develop the Mobile BEAM app to use with the migrant and seasonal farmworkers in the HEP program at Somerset Community College.

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Appendices

Appendix 1. Survey of Faculty and Staff

FACULTY:			
	Type	YES	NO
What types of technology do you use?	Computer		
	Internet		
	Tablets		
	Cell phones		
	Apps on phones		
		YES	NO
Do you want all GED subjects available online?			
		YES	NO
Do you use any of these devices in the GED classroom?	Computer		
	Internet		
	Tablets		
	Cell Phones		
		YES	NO

Would you be willing to use these devices for education/GED classes?			
		YES	NO
Do you enjoy learning games?			
		YES	NO
What types of math tutorials would you like to be included in the app?	Videos		
	Step by Step Tutorials		
	Teacher Videos		
		YES	NO
Do you want access to ESL online embedded in the app for students to access outside of GED class materials?			
What types of feedback would you like produced for the students?	Generated feedback		

	TYPE	YES	NO
	Descriptive feedback		
	Detailed feedback		
	TYPE	YES	NO
What types of testing are needed?	Multiple Choice		
	Fill in the blank		
	Extended response		
	Matching information		
	Essays		
	TYPE	YES	NO
Do you want these options?	Login tracker		
	Hour tracker		
	Instant Graders		
	Exams		
	Practice exams		
	Dictionary		
	Completion gauge		

	Dashboard for students		
	Calculator		
	Assignment Reminder		
	Assignment Calendar		
	Community chat		

Appendix 2. Survey of Students

STUDENTS:			
	Type	YES	NO
What types of technology do you use?	Computer		
	Internet		
	Tablets		
	Cell phones		
	Apps on phones		
		YES	NO
Do you have access to Internet?			
		YES	NO
Do you have access to any of these devices?	Computer		
	Internet		
	Tablets		
	Cell Phones		
		YES	NO
Would you be willing to use these devices for education/GED classes?			

		YES	NO
Do you enjoy learning games?			
		YES	NO
What types of math tutorials would you like?	Step-by-step		
	Videos		
Any suggestions you have for an educational app?			

Appendix 3. Results of Faculty and Staff Surveys

FACULTY:			
	Type	YES	NO
What types of technology do you use?	Computer	15	0
	Internet	15	0
	Tablets	8	7
	Cell phones	15	0
	Apps on phones	8	7
		YES	NO
Do you want all GED subjects available online?		10	5
		YES	NO
Do you use any of these devices in the GED classroom?	Computer	15	0
	Internet	15	0
	Tablets	6	9
	Cell Phones	6	9
		YES	NO

Would you be willing to use these devices for education/GED classes?		15	0
		YES	NO
Would you enjoy learning games?		10	5
		YES	NO
What types of tutorial would you like?	YouTube, Class videos, Kahn Academy		
What makes an app or technology easier to use for you?	Easy to login to, easy access, universal for		
	all devices, bilingual (English & Spanish),		
	fun to use, engaging, intriguing		
		YES	NO
Do you want access to ESL online?		15	0

What types of feedback would you like produced for the students?	why the answer is wrong, the correct answer,		
	where to find the lesson in the textbook,		
	how to correct the problem		
		YES	NO
Do you believe YouTube tutorials would be helpful?		15	0
	TYPE	YES	NO
What types of testing are needed?	Multiple Choice	15	0
	Fill in the blank	9	6
	Extended response	15	0
	Matching information	0	15
	Essays	5	10
	TYPE	YES	NO
Do you want these options?	Login tracker	15	0

	Hour tracker	15	0
	Instant Graders	15	0
	Exams	15	0
	Practice exams	15	0
	Dictionary	15	0
	Completion gauge	15	0
	Dashboard for students	15	0
	Calculator	15	0
	Assignment Reminder	15	0
	Assignment Calendar	15	0
	Community chat	15	0
COMMENTS:	Prefer the app to be user friendly, bilingual, available on various devices, and engaging. Request YouTube and other resources available for the students to access from the app.		

	Suggested feedback to be available to the student instantly after completing assignments and exams. Suggested feedback to students would include examples of how to solve the problem correctly and references to study guides.

Appendix 4. Results of Student Surveys

STUDENTS:			
	Type	YES	NO
What types of technology do you use?	Computer	15	0
	Internet	15	0
	Tablets	10	5
	Cell phones	15	0
	Apps on phones	12	3
		YES	NO
Do you have access to Internet?		12	3
		YES	NO
Do you own any of these devices?	Computer	9	6
	Internet	12	3
	Tablets	10	5
	Cell Phones	15	0
		YES	NO
Would you be willing to use these devices for education/GED classes?		12	3

		YES	NO
Would you enjoy learning games?		10	5
		YES	NO
What types of tutorial would you like?	YouTube, instructor videos		
What makes an app or technology easier to use for you?	Easy to open, easy to login, fun to use, able		
	to access class materials from home		
COMMENTS:	Prefer to have access to YouTube and instructional videos. Prefer an app that is easy to use, easy to access, fun to use, and accessible from their home. An app would help them address their childcare problems, transportation issues, mobility while they are moving (migrant lifestyle), and with communicating in their native language.		

VITA

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<u>EDUCATION</u>

May, 1997   Associate of Applied Science
                   Somerset Community College
                   Somerset, Kentucky

May, 2009   Bachelor of Arts
                   Midway College
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                   Midway College
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                   Morehead State University
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                   Morehead State University
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January 2015 -   Director of High School Equivalency Program & Grant Writer
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January 2013 -   Grant Review Contractor
Present   U.S. Department of Education
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