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Education Support for Foster Care Youth: The Impact of Federal Spending on Employment Outcomes

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A dissertation submitted in the partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

by

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Abstract

EDUCATION SUPPORT FOR FOSTER CARE YOUTH: THE IMPACT OF FEDERAL SPENDING ON EMPLOYMENT OUTCOMES

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This study examined the extent to which supportive services funded through the federal John H. Chafee Foster Care Independence Program (CFCP) are associated with academic success and employment in foster care youth. Studies suggest that this group experiences poorer employment outcomes (Gypen, Vanderfaeillie, De Maeyer, Belenger, & Van Holen, 2017; Okpych & Courtney, 2014), earns less money annually (Gypen et al., 2017; Okpych & Courtney, 2014; Pecora, 2012) and experiences higher rates of homelessness (Stewart, Kum, Barth, & Duncan, 2014) and mental health and substance use disorders (Gypen et al., 2017; Okpych & Courtney, 2014; Stewart et al., 2014). While rates vary in existing literature, between 40% to 97% of youth with foster care experience do not graduate from high school (Gypen et al.,

2017), and fewer than 10% who enter into an undergraduate program graduate (Kinarsky, 2017). Youth in foster care have low rates of both graduation and employment, which increases their demand on the economy. Despite a 29.4-billion-dollar annual budget for foster care services, individuals with a foster care history struggle after they transition out of care.

The CFCP is intended to help states improve education efforts with foster care youth by providing specific supports to help them earn a GED or High School Diploma, and to obtain employment. These supportive services include academic support, post-secondary education support, career preparation, education level, special education, and employment programming or vocational training. This study used 2011-2015 data in the National Youth in Transition Database (NYTD) Services File and Outcomes File to examine associations between the services listed above, GED/graduation, and employment, through three regression analyses. The study found a positive correlation between education level and education outcomes indicating that the more grades a foster care youth completed, the more likely they were to earn an academic credential. The study also revealed three small correlations between employment skills, foster care status, and highest education certification and employment status. These findings indicate that foster care youth were more likely to be employed if they possessed employment skills and had signed themselves out of foster care.

Chapter 1: Introduction and Purpose

Approximately 1% of all children in the United States will have a foster care experience prior to their 18th birthday (Turney & Wildeman, 2016). Children in foster care experience several challenges: adjusting to new living situations and family environments (often multiple times); adjusting to new school environments, frequently during the middle of a school year; feeling stigmatized; and more. Often these experiences are on top of traumatic family histories which preceded their entry into foster care. Disruptions often result in worsened academic and employment outcomes compared to peers (Gypen et al., 2017; Okpych & Courtney, 2014; Turney & Wildeman, 2017). To address the challenges faced by youth in foster care, the Social Security Act's Title IV-E John H. Chafee Foster Care Program (CFCP) for Successful Transition to Adulthood funds educational and vocational training services to support foster care youth in achieving better educational outcomes and increasing their likelihood of successfully entering the job market (Child Welfare Information Gateway, 2019). Efficiently and effectively utilizing federal money intended to support foster care youth to complete secondary and post-secondary education in order to gain employment is critical to helping this disadvantaged population become self-sufficient and sustaining.

Past studies have shown that interventions to improve graduation and employment rates have varying levels of success (Hambrick, Oppenheim-Weller, N'zi, & Taussig, 2016). Researchers have described a lack of scientific rigor in the study of existing programming and an ongoing need for more research on determining who could benefit from what (Hambrick et al., 2016). Generalization from existing studies is limited by the diversity of characteristics of youth in foster care. The experience of supportive academic and vocational programming is likely

different for foster care youth in a place like New York City than it would be for foster care youth in rural Oklahoma. A middle-class, healthy, Anglo-Saxon youth may have a vastly different experience than a working-class, disabled, minority youth. These differences likely impact the settings they reside in, resources they have access to, and supports available to them.

Large group differences in the characteristics of foster care children are one of the reasons that Federal programs like CFCP exist. They allow for states to provide for the needs specific to their foster care youth. States receive block grant funds intended to support and provide for programming to support these youth. Despite the amount of money ($29.4 billion annually) being directed towards supporting this population, foster care youth continue to experience poor educational, employment, housing, mental health and substance use outcomes, compared to the general population (Gypen et al., 2017). They remain at a disadvantage after leaving the foster care system and entering adulthood, with worse academic and employment outcomes over the lifespan (Gypen et al., 2017; Okpych & Courtney, 2014).

Researchers continue to develop and investigate programs to improve educational and employment outcomes among foster care youth. A missing piece to this field of study is the impact that copious spending of taxpayer dollars is having on achieving the intended academic and employment outcomes. If current programs positively impact graduation rates and employment outcomes, research focus could work on shifting to smaller scale applicability. This could look like replication studies to see how existing interventions translate across the country. On the other hand, if improvements are not noticeable, that may suggest a possible need to change current approaches, and alert lawmakers of the potential need to develop alternatives to federal programs like CFCP.

Currently, specific information about the impact of federal dollars on foster care youth outcomes is unknown. This study examined the effect of federal funding on academic and vocational outcomes for foster care youth. Information delivered from this study was meant to improve decision making surrounding programing for this population and inform researchers and policy makers about what may need to be improved. The intention was to take a broad look at whether there is evidence that funding for academic and vocational services for youth in foster care improved outcomes. Purposefully getting a bird's eye view of the current landscape supported future researchers working towards a more effective and efficient approach to supporting these youth.

Theoretical Framework

The current study combined two theoretical frameworks, Ecological Systems Theory (Bronfenbrenner, 1977; Bronfenbrenner & Evans, 2000; Rosa & Tudge, 2013) and Human Capital Theory (Becker, 1964; Rosen, 1975; Saraçoğlu & Karaoğlan, 2017). The study examined both human elements of development and economic facets of government spending. When a child comes into foster care, they experience significant disruption on an individual, environmental, familial and social level. While this disruption is taking place, money is being inserted in the form of supportive services to provide this child with the experience of foster care. The impact of funding for foster care is felt not only by each individual child but also by the larger systems that encompass that child. This includes school systems, state tax bases and federal policy. To capture the developmental and economic impact of both the person and the system, the economic Human Capital Theory has been laid on top of Ecological Systems Theory's Bioecological Model of human development.

In the late 1970's, Urie Bronfenbrenner began publishing ideas on how impactful an individual environment is on development when accounting for past and current societal contexts and cultures. His theory became known as Ecological Systems Theory which is commonly referred to today as PPCT or Person, Process, Context and Time (PPCT). PPCT captures Bronfenbrenner's idea that a person develops within an environmental context that includes social structures, change throughout life, historical period, and individual development (Bronfenbrenner & Evans, 2000). To capture these interactions, Bronfenbrenner created the Bioecological Model of Human development, which nests the individual at the center of micro, meso, exo, macro, and chrono systems. Someone directly interacts with their microsystems, or immediate environment. A microsystem is where an individual has consistent contact with a place while in a specific role over a certain time period. It is often composed of someone's home, school, or immediate family. For example, a youth in foster care may be a "troublemaker" while in an unwanted foster placement but a positive role model in school because they get to see a favorite sibling while there. The relationships that different microsystems have with each other compose the mesosystem which serves as the reciprocal relationship between a developing person's microsystem and the formal and informal structures in that person's life. These structures, like a school district or town of residence, are referred to as the exosystem, and the reciprocal relationship that comprises the mesosystem is called proximal process. Beyond the exosystem lies the macrosystem representing societal blueprints or laws, systems, and structures (Bronfenbrenner, 1977). Lastly, the chronosystem completes the Bioecological model by representing time, experiences and events that happen over the course of one's lifetime. In the context of a youth in foster care with the above described microsystems, this youth would be impacted through proximal process between the exosystem and mesosystem

when their current school system determined that it was no longer in his best interest to attend an institution in their district because of the location of his foster home. The school system in this example represents the exosystem, and the mesosystem's proximal process is the decision to move him to a school in the district of his unwanted foster home placement. On a macrosystem level, placing this foster care youth in a different school was based on new legislation limiting state spending on school transportation for youth in foster care who required private transport to attend a school in a district different from the one their foster home was located. Transferring schools represents one of the experiences accumulated within this individual's chronosystem.

Ecological Systems Theory is used as a foundation to represent a youth in foster care in relation to their environment. Human Capital Theory is integrated into this foundation by describing the impact of federal funding on the foster care population, and how the federal dollars overlay with an individual's development, ultimately changing one's environmental systems.

Human Capital Theory can be defined as an economic theory that states individuals accumulate human capital over a lifetime. In this theory, human capital is the equivalent of how much someone fiscally contributes and takes from the economy over a lifetime. The more human capital that someone has, the more they contribute to society and the less they take. Human capital can be created through investment in education. Education increases skill, which leads to increased productivity, making someone a more active participant in a country's economic landscape. Purposefully or not, by specifically targeting education and employment, the government appears to be seeking a return on the investment made in the foster care system. In the context of the Bioecological Model, the Federal Government inserts financial resources on a macrosystem level which funds educational and vocational programming in the exosystem.

Foster care youth are impacted by these programs through proximal process on a microsystem level. Over time, they either gain employment or not, ultimately circling back to define the amount of possible human capital contribution to society.

Study Purpose

The purpose of this study was to determine if economic resources or services engagement predicted academic and employment outcomes for youth transitioning out of foster care. Ecological Systems Theory and Human Capital Theory provided a framework for this question. This study did not test either theory. Taking a broader look at the impact money has on the experience of foster care gave a new perspective from which to either spark change or promote further study into existing programs.

Research Questions

In order to look at the efficacy of CFCP, this study asked the following research questions:

RQ1: After controlling for sex, race and foster care status, does academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training predict achievement of a GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education?

RQ2: After controlling for sex, race, foster care status and employment related skills, does academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training predict unemployment, part-time employment or full-time employment?

RQ3: Does receiving academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training impact achieving part-time employment or full-time employment independent from achievement of a GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education Degree after controlling for sex, race, foster care status and employment related skills?

The study design was a non-experimental retrospective study that used a cross-sectional design. It looked at a cross-section of data from the National Youth in Transition Database (NYTD). NYTD was used because it is the database used to collect CFCP data. This is a public access database available upon request through U.S. Department of Health and Human Services Administration for Children and Families Office of Planning, Research and Evaluation.

Study Significance

The integration of the developmental and economic impact of federal funding to evaluate outcomes for individuals in the foster care system is unique to this study. As the landscape currently stands, individual programs are not being examined for positive education and employment outcomes in populations different from the study sample. The broader U.S foster care system has not been examined to see if the money being spent is achieving the benefits legislators intended. By looking at the nature of the outcomes of the foster care population on a national scale, the study suggested that additional support and expansion of current research efforts is needed.

The study only included a cross-section of responses from youth who completed the NYTD survey at all three time points (2011, 2013, 2015). All participants were 17, 19 and 21 respectively at the time of each response. A sample composed of cases that completed the

outcomes survey at all three time points was a straightforward way to see if someone did or did not complete an education and/or gain employment at any time from 2011-2015. The proposed research questions looked to see whether an individual received a service (yes/no) and, if so, what outcome they experienced. It was not the intent of this study to look at the timing of service receipt in relation to the education and employment outcomes.

Definition of Terms

Below are important terms to help guide the rest of this dissertation:

Foster Care Youth: any individual under the age of 21 who received services through the U.S foster care system.

CFCP: John H. Chafee Foster Care Program for Successful Transition to Adulthood.

NYTD: National Youth in Transition Database.

Ecological Systems Theory: Bronfenbrenner's developmental theory holding that people experience different environments at different times throughout the lifespan. These people, places, contexts and time periods influence human development.

Bioecological Model of Development: Model of gene-environment interactions over the course of human development.

PPCT: Person, Process, Context Time

Human Capital Theory: Economic theory supporting the idea that human capital or human value is gained through skill creation and accumulation.

Organization of the Study

The remainder of this paper was divided into chapters, a bibliography, and appendices in the following order. Chapter 2 provided a review of the literature as well as the theoretical scaffolding used to frame the research questions. Chapter 3 outlined the intended methodology proposed to answer the research questions. Chapter 4 contained an overview of the findings after statistical analysis, and Chapter 5 was composed of the summaries and conclusions that can be drawn from the study findings. The dissertation concludes with the bibliography and appendix.

Chapter Two: Review of the Literature

Foster Care Overview

Engagement in foster care correlates with low rates of employment, low high school graduation rates, homelessness, mental illness and substance use disorders (Blake, Tung, Langley, & Waterman, 2018; Brady & Gilligan, 2018; Dworsky, Napolitano, & Courtney, 2013; Gypen et al., 2017; Klein, Damiani-Taraba, Koster, Campbell, & Scholz, 2015). A child in foster care is an individual who, for various reasons, is in the custody of a state department of social services. Foster care is considered to be residence in a relative or non-relative foster home, group home, emergency shelter, residential treatment center or pre-adoptive home (Gypen, et al., 2017; Pecora, 2012). As of September 30, 2018, the last day of the federal fiscal year (FY), 437,283 youth were in in United States Foster Care system. During FY ’18 a total of 262,956 youth entered foster care and 250,103 exited care. The total number of youth who received foster care services was 687,345 (U.S Department of Health and Human Services Children’s Bureau, 2019). The FY’18 Adoption and Foster Care Analysis and Reporting System (AFCARS) report is the most up to date source of foster care data at this time. All AFCARS data is reported by each state on a biannual basis to the Children’s Bureau within the U.S Department of Health and Human Services Administration for Children and Families.

On an annual basis, 1% of American children will be in the foster care system. Over their childhood, between 5-6% of American children will have an experience in foster care. Ten percent of all African American children and 15% of all Native American children will experience a foster care episode (Turney & Wildeman, 2016). The percentages above indicate a

racial disproportionality since, within these minorities, the likelihood of experiencing a foster care episode looks to be higher than the general population. Data suggest that identifying as a member of one of these groups increases a child's risk of coming into foster care**.** The Title IV-E Foster Care Program within the Social Security Act allows for the Children's Bureau to support states in providing "board and care" payments for youth found eligible under the former Aid to Families with Dependent Children program, who no longer live with their family of origin.

At the time of their entrance into care, each youth is assigned a Foster Care Social Worker who is given the authority of a legal guardian. Along with this authority comes the responsibility for finding appropriate living arrangements for the youth, ensuring necessary school enrollment, and ensuring that the youth consistently receives care in the most family-like environment possible. Often youth are placed in the home of a non-relative who has enrolled themselves as a foster parent and is compensated for their involvement. A youth may also be placed in a group home or residential treatment center setting. Group homes are modeled after a communal living style where several different youths in foster care live in a house-like environment and are monitored by program staff. In a residential treatment center, youth are in a locked facility and undergo mental health treatment. Foster care is intended to be temporary. It is the goal of a department of social services to return the youth to their family of origin or facilitate an adoption.

Children in foster care have a variety of negative outcomes associated with their experiences prior to and during foster care, which contribute to disparities in education and employment for foster care youth when compared to others in similar socioeconomic backgrounds. Foster care youth are one of the most socially and economically excluded groups

(Brady & Gilligan, 2018). Youth come into foster care when their safety in their current environment cannot be assured due to instability and/or maltreatment (Gypen et al., 2017). Approximately 55% are part of an ethnic minority group like African American, Hispanic American, or Native American (Gypen et al., 2017). Many come from low income families with little social support and limited resources (Gypen et al., 2017; Lindquist & Santavirta, 2014). With a societal cost of $29.4 billion annually (Gypen et al., 2017) youth in the United States Foster Care system struggle with education, employment, housing, mental health, and substance use, as compared to the general population (Gypen et al., 2017). Thus, despite federal spending to support the needs of youth in foster care, challenges for health and well-being often persist.

Individuals with a foster care experience continue to struggle after they have left care. Similar to when they were in foster care, this group experiences poorer employment outcomes (Gypen et al., 2017; Okpych & Courtney, 2014), earns less money annually (Gypen et al., 2017; Okpych & Courtney, 2014; Pecora, 2012), experiences higher rates of homelessness (Gypen et al., 2017; Stewart et al., 2014), has more mental health concerns (Gypen et al., 2017; Okpych & Courtney, 2014; Stewart et al., 2014), and struggles with alcohol and other substance use disorders as compared to the general adult population (Gypen et al., 2017; Maliszewski & Brown, 2014). When matched to similar individuals with low socioeconomic backgrounds, former foster care youth still did worse academically, vocationally, and criminally, and experienced increased rates of substance use disorders and mental health (Gypen et al., 2017; Maliszewski & Brown, 2014; Stewart et al., 2014). Despite the efforts of researchers, practitioners, and legislators, attempts to support foster care youth during their time in care does not appear to impact the disadvantage this group faces going into adulthood.

Education and Employment

Education is very important to those at risk of social exclusion, such as individuals with foster care experience (Brady & Gilligan, 2018). Youth that exit foster care often experience a delay in their progression through education as compared to similar aged peers (Brady & Gilligan, 2018; Driscoll, 2013; Jackson & Cameron, 2012; Montserrat, Casas, & Malo, 2013; Rimehaug, Undheim, & Ingul, 2018), and achieve lower levels of education (Brady & Gilligan, 2018; Courtney & Dworsky, 2006; Vinnerljung & Sallnäs, 2008). It is estimated that between 40% and 97% of youth with foster care experience do not graduate from high school (Gypen et al., 2017). The current literature varies on the exact percentage due to different studies collecting graduation data at different times (Gypen et al., 2017; Harris, Jackson, O'Brien, & Pecora, 2010; Jones, 2010.; Naccarato, Brophy, & Courtney, 2010; Pecora, Williams, Kessler, Hiripi, O'Brien, Emerson, & Torres, 2006; Villegas, Rosenthal, O'Brien, & Pecora, 2014).

Poor educational outcomes for any youth with foster care experience come from a combination of factors. Foster care students often experience gaps in knowledge due to time lapses between school placements as they transfer to different foster care settings. These lapses can also affect academic credit accumulation, as can issues with credit transfers between different schools. Foster care students change public schools an average of 3.46 times per 4 years of high school (Clemens, Lalonde, & Sheesley, 2016). As the number of school placement changes increases, the rates of achieving a high school diploma decrease. Similarly, increased school placement changes also increased the rate of either dropping out or achieving a GED.

These youth have experiences prior to coming into foster care, during their experience of foster care, and after leaving foster care, that impact their success rate as well (Brady & Gilligan, 2018). Common predictors of negative academic outcomes include parental alcohol misuse prior to coming into foster care, a low level of interest and encouragement in academics during the

foster care experience and a lack of positive relationship with care-givers after leaving care (Brady & Gilligan, 2018; Mallon, 2007). Age when entering and leaving care, the length of time a youth is in foster care, and number of placement changes while in foster care are other examples of impactful in-care factors that contribute to academic achievement (Brady & Gilligan, 2018; Pecora et al., 2006; Vinnerljung & Sallnäs, 2008). There are also individual factors of the foster youth that influence education achievement. Many youth in foster care lack basic life skills like literacy, which may negatively impact their motivation and determination (Brady & Gilligan, 2018; Jackson & Cameron, 2012; Linares, Martinez-Martin, & Castellanos, 2013; Rimehaug et al., 2018).

Foster care youth report that programs fail to address the structural barriers to their academic success and attainment (Evans, Hallett, Rees, & Roberts, 2016). One study found that issues stemmed from placement instability, inadequate resources, and lack of time and skills among care givers (Evans et al., 2016). When interviewed, youth suggested that better communication between schools and child welfare systems would greatly benefit graduation rates (Clemens, Helm, Myers, Thomas, & Tis, 2017). Communication between school placements is particularly important for youth either starting high school or entering their last year. Researchers determined that stability in housing and school placement during the ninth and twelfth grades was critical to obtain a high school diploma (Clemens et al., 2016).

The support and encouragement from a significant caring adult can positively influence education outcomes including achievement and attendance (Brady & Gilligan, 2018). There are identified associations between caregiver's views of education and education aspirations and a foster care youth's education achievements (Brady & Gilligan, 2018; O'Higgins, Sebba, & Gardner, 2017; Tessier, O'Higgins, & Flynn, 2018). Researchers suggest that in some cases

foster care youth are encouraged to achieve lower academic milestones such as seeking a General Education Diploma (GED) rather than a high school diploma (Brady & Gilligan, 2018; Mannay, Evans, Staples, Hallett, Roberts, Rees, & Anderws, 2017). In their 2017 study, Manney et al. (2017) found that despite the lack of support, foster care students in the study rejected the idea of failure and pushed themselves scholastically. This finding highlights how individual and structural factors influence one another within a developmental context (Mannay et al., 2017). Stability, such as housing, food, and having other basic needs met, has been shown to help foster care youth do better in school (Berridge, 2017; Brady & Gilligan, 2018).

Among former foster care youth, employment rates and annual income vary by education level. Large disparities exist in employment or income across levels of education completed. However, these disparities lessen and equalize as the level of education increases. For example, the income gap between two- and four-year degrees reduced substantially. Okpych and Courtney (2014) found a large gap between foster care youth who completed a high school diploma and those with some high school education. They found a similarly large gap between those with some college and those who completed a two- or four-year degree. Both a two and four year degree were associated with a 15 plus percentage jump in both rate of employment and annual earnings in thousands (Okpych & Courtney, 2014). When compared to peers with similar histories and socio-economic backgrounds who did not have a foster care experience, foster care youth earned half as much and had a 20% lower employment rate (48.7% vs. 68%) (Okpych & Courtney, 2014).

Former foster youth who complete a college degree earn 50% more than those with a high school diploma (Gypen et al., 2017; Okpych & Courtney, 2014; Pecora, 2012). However, for those youth who do pursue higher education, less than 10% who enter into an undergraduate

program graduate (Kinarsky, 2017). In a recent study conducted in Texas, researchers found that only 1.5% of former foster care youth who attended an undergraduate program graduated with a bachelor's degree and 2% received an associate's degree despite their eligibility for and use of education waivers (Watt, Faulkner, Bustillos, & Madden, 2018). In a study following former foster care youth in Minnesota, California and North Carolina until age 30, researchers discovered that, when compared to peers from similar socio-economic and risk backgrounds, former foster care youth experienced lower rates of employment, financial earnings, and job stability until age 24 (Stewart et al., 2014). Data also showed that former foster care youth made less than half the monthly income when compared with peers across the country at age 24. At age 30, former foster care youth still made approximately $165 less per month as compared to their low-socioeconomic peers (Stewart et al., 2014).

Homelessness

One of the populations at the greatest risk of becoming homeless is the 25,000-30,000 youth who age out of foster care at age 18 (Administration for Children and Families, 2009; Dworsky et al., 2013). Over the past few decades it has become the norm for young people in the United States to achieve self-sufficiency after the age of 21 (Arnett, 2000; Settersten, 2010; Wight, Chau, Aratani, Wile Schwarz, 2010) with the average age of independence at 26 (Krinsky, 2010). In 2009, 53% of youth ages 18-24 were living at home, compared to 47% in 1970 (Wight et al., 2010). Responsibility associated with adulthood is now acquired while gaining an education and/or the work experience needed for economic independence (Berlin., Furstenburg, Waters, 2010). This gradual transition is the result of financial support from a nuclear family. While their peers continue to receive such support, youth aging out foster care are left to provide for basic needs without that assistance (Brown & Wilderson, 2010; Osgood,

Foster, & Courtney, 2010). In 2010, approximately 29,500 youth aged out of care in this manner (Administration for Children and Families, 2011).

At this abrupt transition, when youth have little to no financial or emotional support, securing housing can be a significant challenge (Brown & Wilderson, 2010; Wade & Dixon, 2006). The portion of this population that become homeless share many of the same characteristics of other homeless youth and adults. These characteristics include high rates of mental health disorders, high risk of sexual and physical victimization, and difficulty accessing health care (Fowler, Toro, & Miles, 2011; White, Gallegos, O'Brien, Weisberg, Pecora, 2011). In 2003, it was estimated that 37% of youth aging out of foster care experienced one or more of these adverse outcomes (Reilly, 2003). The federal Fostering Connections to Success and Increasing Adoptions Act of 2008 allowed youth to voluntarily extend the time frame of support offered by foster care through the age of 21, to assist with this transition.

Between 1990 and 2011, 11% to 36% of transition age youth who exited foster care became homeless (Dworsky & Courtney, 2010; Fowler et al., 2011; White et al., 2011). In a survey conducted by the University of North Carolina Chapel Hill in 2009, researchers found that only 4% of this population's non-foster care peers experienced an episode of homelessness between ages 18-26 (Harris, 2009). Being homeless can be defined as "sleeping in a place where people were not meant to sleep, or sleeping in a homeless shelter, or not having a regular residence in which to sleep." This includes couch surfing defined as "moving from one temporary housing arrangement provided by friends, family or strangers to another" (Dworsky & Courtney, 2010, p. 3).

Since 1999, there have been attempts by the federal government to aid this population in securing stable housing. The Foster Care Independence Act of 1999 authorized states to spend

30% of their Chafee Independent Living program funds on housing and follow up support. In 2000, youth aging out of foster care became eligible for the Department of Housing and Urban Development's Family Unification Program (FUP) which provides rental assistance for up to 18 months, as well as being granted priority access to Housing Choice Vouchers for section 8 housing (Dworsky & Courtney, 2010). Despite this assistance, there was not a reduction in risk of homelessness for this population by age 23-24. Almost 30% reported having an episode of homelessness after leaving foster care (Courtney, Lee, Rapp, 2010). Although foster care programming has targeted financial factors intended to support safe and stable housing, homelessness persists among youth in transition. The high rate of homelessness among youth transitioning out of foster care is an example showing that, federal spending, while well-intended, may be missing the mark to truly improve outcomes.

Mental Health Disorders

The foster care population has a higher rate of mental health disorders than the general public (Klein et al., 2015; Linares et al., 2013; Rimehaug et al., 2018; Turney & Wildeman, 2016). The maltreatment experienced by youth prior to foster care has shown to be a risk factor for behavioral health disorders, issues with language, cognitive deficits, and anxiety disorders (Klein et al., 2015; Linares et al., 2013; Rimehaug et al., 2018). This population is disadvantaged because of the reasons that often bring a child into foster care including maltreatment, parental alcohol and drug abuse, poverty, and neglect. Factors like these are considered to be risk factors for mental illness because of their connection to increased rates of depression, anxiety, attention deficit disorder, attention deficit hyperactivity disorder, behavioral disorders, and conduct disorders (Turney & Wildeman, 2016; Zill & Bramlett, 2014). A significant difference in mental health outcomes has been found for foster care youth, as

compared to any other family situation (Turney & Wildeman, 2016; Zlotnick, Tam, & Soman, 2012).

Abuse and neglect, two common reasons for coming into foster care, have been associated with psychiatric and substance use disorders (Pacheco, Irigaray, Werlang, Nunes, & Argimon, 2014; Rimehaug et al., 2018). According to the 2008 Canadian Incidence Study of Reported Abuse and Neglect, it was found that 11% of the 85,440 substantiated Child Protective Services (CPS) complaints involved a child later diagnosed with Attention Deficit Hyperactivity Disorder (Klein et al., 2015). This study found that 46% of youth who experienced maltreatment developed developmental and/or behavioral disorders (Klein et al., 2015). A potential link was highlighted between physical abuse and a disproportional occurrence of externalizing behaviors and sexual abuse was disproportionately linked to Post Traumatic Stress Disorder (PTSD) along with other internalized disorders like anxiety or depression (Blake et al., 2018; Klein et al., 2015).

Foster care youth are approximately two to three times more likely than other youth to be prescribed a psychiatric medication (Klein et al., 2015; Linares et al., 2013). While some of this may be due to over-diagnosing and subsequently over-prescribing medication for this population, a youth in foster care is more likely to meet criteria for a mental health diagnosis than a similar non-foster care peer. It was reported that 41% of this group are on three or more medications at one time (Klein et al., 2015). The number of foster care youth with a mental health diagnosis and psychotropic medication prescriptions increases with different levels or intensities of care. These levels include therapeutic foster care placements, group home placements and residential treatment centers. Compared to the general population, foster care youth utilize in-patient mental health services 15-20% more (Linares et al., 2013). In Canada, 69-72% of foster care

youth in either a group home or residential treatment center between the ages of five and 15 were prescribed a psychotropic medication (Klein et al., 2015). Regardless of placement, a Texas Study found that 41% of foster care youth were taking one or more antidepressant, attention deficit medication or antipsychotic and 50% were prescribed an antipsychotic which has known negative metabolic side effects (Linares et al., 2013; Zito, Safer, Sai, Gardner, Thomas, Coombes, & Mendez-Lewis, 2008). The high utilization of mental health treatment facilities and psychotropic medication by foster care youth may indicate a rising cost in Medicaid expenditures. Medicaid is the health insurance provided to all youth in foster care and is paid for by the public. Not addressing the economic footprint that mental health has on foster care youth may result in a continued rise in taxes to pay for this type of public assistance.

Substance Use Disorders

Increased rates of mental health diagnosis are often seen with co-occurring substance use and abuse. The risk factors that create a predisposition for mental health disorders also put children in foster care at an increased risk for substance use disorders. Internalized behaviors like anxiety or depression have been shown to impact mental health as well as incidence of substance abuse. Physical abuse, a common reason for a youth coming into foster care, can be a predictor of internalized behaviors as well as substance abuse (Blake et al., 2018; Yampolskaya, Chuang, & Walker, 2019). In a study using a sample of females in foster care, 31% had used drugs and or alcohol in the past year, with the average age of onset being 11 years old (Gabrielli, Jackson, & Brown, 2016). Research indicates that there is a connection between the severity of maltreatment and the severity of drug and/or alcohol use (Blake et al., 2018; Gabrielli et al., 2016). The worse the situation that landed someone in foster care, the more likely they are to use

drugs or alcohol. The risk of substance misuse is increased if a youth is older at the time of entry to foster care and placed in group home or residential treatment center (Gabrielli et al., 2016).

Researchers and policy makers have been and continue to develop interventions and programs to best serve this population. Funding for this research and subsequent interventions comes from a variety of sources, but largely comes through the federal block grants given to states to provide for foster care youth. There is variation in funding between what types of programs are created and funded. Early intervention programs, school readiness programs, foster parent training, and supportive programs based in secondary education settings are common categories of interventions available to foster care youth across the country (Fisher, Burraston, & Pears, 2005; Graham, Pears, Kim, Bruce, & Fisher, 2018; Lynch, Dickerson, Pears, & Fisher, 2017; Unrau, Dawson, Hamilton, & Bennett, 2017).

There is a need for further research about interventions for foster care youth that is rigorously tested in community settings (Hambrick et al., 2016). Available programming often has not been evaluated for effectiveness with its specific foster care population it is being used on. For example, an individual in foster care residing in a large urban area may need different types of supports and interventions than someone who is in foster care in a more rural area.

Foster Care Legislation

It is a function of each state to provide for child welfare services. How this responsibility is carried out varies by each state's legislative and administrative systems. As a result, funding is provided by the Federal Government to states for supportive programing in the form of grants which states qualify if they comply with Federal regulations.

Foster care grant funding began with the passage of the Child Abuse Prevention and Treatment Act (CAPTA) in 1974. CAPTA established state demonstration grants to create programming preventing and treating child maltreatment (Child Welfare Information Gateway, 2019). That marked the beginning of federal attention focused on supporting and promoting success in foster care youth on a state level. Since these federal grants are applied within states, changes in federal legislation require states to make alterations to their programs. Through the Children's Bureau, housed in the U.S Department of Health and Human Services (HHS), the largest federally funded programs that support foster care youth are a part of Title IV-B and Title IV-E of the Social Security Act. HHS manages the following major programs: Title IV-B Welfare Services, Title IV-B Promoting Safe and Stable Families programs, Title IV-E Foster Care program, Title IV-E Adoption Assistance Program, and the Title IV-E John H. Chafee Foster Care Program for Successful Transition to Adulthood (Child Welfare Information Gateway, 2019).

A major purpose of the different pieces of legislation that make up Title IV-B and Title IV-E is to provide for and support youth while they are in foster care. This has been demonstrated over the years through many different acts and programs. Through Title IV, the Social Security Act offers grants to states in order to assist with providing aid and support to needy families with children and for child welfare services. The purpose of Title IV is to allow states flexibility in providing supportive services to this population. Specifically, Part E of title IV allows funding given to states to be used for foster care and transitional independent living programs. Within Title IV, Part E in Section 477 lies the John H. Chafee Foster Care Independence Program established under the Foster Care Independence Act (FCIA).

In 1999, the Chafee program was tasked with several objectives. Its intent was to provide support to youth in foster care to prepare for adult life through educational and vocational avenues. These intentions can be found in Table 1.

Table 1

Purpose and Intentions of the Chafee Foster Care Independence Program

John H. Chafee Foster Care Independence Program-42 U.S.C. 677
"To identify children who are likely to remain in foster care until 18 years of age and to… 1. Help these children make the transition to self-sufficiency by providing services such as assistance in obtaining a high school diploma, career exploration, vocational training, job placement and retention, training in daily living skills, training in budgeting and financial management skills, substance abuse prevention, and preventive health activities (including smoking avoidance, nutrition education, and pregnancy prevention). 2. To help these children receive the education, training, and services necessary to obtain employment. 3. To help these children prepare for and enter postsecondary training and education institutions. 4. To provide personal and emotional support to children aging out of foster care, through mentors and the promotion of interactions with dedicated adults. 5. To provide financial, housing, counseling, employment, education, and other appropriate support and services to former foster care recipients between 18 and 21 years of age to complement their own efforts to achieve self-sufficiency and to assure that program participants recognize and accept their personal responsibility for preparing for and then making the transition from adolescence to adulthood. 6. To make available vouchers for education and training, including postsecondary training and education, to youths who have aged out of foster care.

In 2018, under the Family First Prevention Services Act P.L 115-123, it was renamed The Chafee Foster Care Program (CFCP) for Successful Transition to Adulthood. This section can be found under United States Code 677 (42 U.S.C. 677). Under the CFCP, youth are eligible for education and training vouchers (ETV) to include post-secondary education for up to five years as long as they were in foster care at or after age 14 or if they aged out of care at an age different than 18, as long as they were not yet 21.

Through the CFCP, states can use their allotments in any manner that is reasonably calculated to accomplish the purpose of this section. States are given money from the federal government to create their own interventions to account for the needs of the specific state. This level of flexibility allows each state to set up different programs to meet their needs. In order to receive the funding allotments, states are required to collect outcome data and measure the performance of their programs. These outcome measures must collect data on educational attainment, receipt of a high school diploma, employment, avoidance of financial dependency, homelessness, nonmarital childbirth, incarceration, and high-risk behaviors. They also must track the number and characteristics of children receiving services, the type and quantity of the services being provided, state performance on outcome measures collected in the National Youth in Transition Database (NYTD) and, lastly, they must develop and implement a plan to collect the required information. All this information is submitted by each state to the Committee on Ways and Means of the House of Representatives and Committee on Finance of the Senate within 12 months after the date of enactment.

In 2008, the Fostering Connections to Success and Increasing Adoptions Act (FCSIA) revised Title IV B&E by adding that the staff of a state agency or other appropriate representative of the child must provide that child with assistance in developing a transition plan for life after age 18. This plan is required to address issues of "housing, health insurance, education, local opportunities for mentors and continuing support services, and work force supports and employment services" (Congress, 2008, p. 3,959).

In Section 204 of FCSIA, states are required to create plans for education stability for youth while they are in foster care. This plan must include the "appropriateness of the current educational setting and the proximity to the school in which the child is enrolled at the time of

placement and assurance that the state agency has coordinated with appropriate local educational agencies to ensure that the child remains in the school in which the child is enrolled at the time of placement, or if remaining in such school is not in the best interests of the child, assurances by the State agency and the local educational agencies to provide immediate and appropriate enrollment in a new school, with all the educational records of the child provided to the school and reasonable travel for the child" (Congress, 2008, p. 3,960).

In order to improve education outcomes of foster care youth beyond age 18, Part B of Title IV of the Social Security Act allows states to provide education funding through the ETVs for youth in foster care who are between the ages of 18-23. These youth are required to be enrolled in a postsecondary education program or vocational training program. They are also required to be making satisfactory progress towards completion of their chosen program to remain eligible for the voucher. Despite this financial assistance, foster care youth struggle with completing their educational goals or vocational programs. In response to the struggle that foster care youth continue to face with completing postsecondary education, the Office of Planning, Research and Evaluation (OPRE) within ACF offers grants to evaluate programs geared towards improving employment and economic outcomes for this population. An example of this is the Year Up program evaluated in 2018. Year Up was intended to provide young adults with six months of IT and financial training, combined with a professional internship. Findings indicated that participation in this program increased individual quarterly earnings by 53% or $1895 (Fein, Hamadyk, Associates, & Gardiner, 2018). Year Up is not alone in OPRE sponsored programing directed at assisting foster care youth improve their employability. In 2019, the Bridges to Pathways (Bridges) program sought to provide education, training and employment services to hard-to-reach at-risk young men connected with the criminal justice system. The program saw a

modest increase in access to education, training, and employment but did not have an impact on earning a high school diploma, GED, or vocational certificate. However, participants did see a reduction in arrest for felony crimes by 8 percentage points (Wasserman, Walter, Luczywek, Wagner, Redcross, 2019). The Year Up and Bridges programs are two examples of programs funded through taxpayer dollars to support foster care youth in increasing education and employability. The results of each program differ, as does their intent, but provide insight into how different parts of Title IV-E and the Chaffee program are being used to improve the education and employment outcomes of this population.

Through both the CFCP and FCSIA, title IV B & E of the Social Security Act require that states use allotted taxpayer dollars to provide supportive academic and vocational services to youth in foster care.

Theoretical Orientation: Ecological Systems Theory and Human Capital Theory

The theoretical framework for this study combined the economic aspects of foster care with the individual developmental environments that these youth experience. To do this, the Ecological Systems Theory of Development (Bronfenbrenner, 1977; Bronfenbrenner & Evans, 2000; Rosa & Tudge, 2013) has been used as a foundation for describing and accounting for the development of youth in foster care. Tenants of Human Capital Theory (Becker, 1964; Rosen, 1975; Saraçoğlu & Karaoğlan, 2017) are then inserted into the Ecological Systems Theory's Bioecological model in order to show where and how government funding is being used as an intervention.

Ecological Systems Theory: Bronfenbrenner and the Bioecological Model

Ecological Systems theory's bioecological model of human development offers a theoretical framework for the interactions between genetics and an individual's environment. It takes the argument of nature verses nurture a step further by looking at the impact of each on the other in society over time. Interactions are considered to be the main effect in ecological research (Bronfenbrenner, 1977). An individual's Ecological Environment has been defined as being "conceived topologically as a nested arrangement of structures, each contained within the next" (Bronfenbrenner, 1977, p. 514). In other words, an individual's immediate surroundings lay within the context and cultures that make up society. Ecological Systems theory gets its name from the word ecology that has the Greek root "oikos" meaning "home" (Bronfenbrenner, 1975). From this perspective, someone's ecology can be described as a function of the interactions between a developing person and the context that they live in throughout life. Oikos implies a steadiness between an individual and their environment, allowing stability over time. The denotation of oikos as a home-like setting emphasizes the importance of enduring contexts over the lifespan (Bronfenbrenner, 1975, p. 439).

Three Central Propositions of Ecological Systems Theory: Proposition One

Within Ecological Systems Theory, there are three central propositions. The first proposition states that human development happens through increasingly complex reciprocal relationships between a growing person and the people, objects and symbols in their external environment. To have a lasting impact on someone, these interactions and relationships need to happen on a regular basis over prolonged periods of time. This proposition brings forth the idea of proximal process.

Proximal process functions as the engine of development (Bronfenbrenner & Evans, 2000, p. 118). Bronfenbrenner defines it as "a transfer of energy between the developing human

being and the persons, objects, and symbols in the immediate environment. The transfer may be in either direction or both; that is, from the developing person to features of the environment, from features of the environment to the developing person, or in both directions separately or simultaneously" (Bronfenbrenner & Evans, 2000, p. 118). This means that, on any level of an individual's environment, there are reciprocal relationships and interactions constantly happening that link different parts of development together.

There are two types of developmental outcomes that stem from the proximal process: competence or dysfunction. Competence is demonstrated through learning and building on new skills or knowledge. This can take the form of learning the skill of self-regulation and then demonstrating it through controlling behavior. Competence can be shown in all areas of life. Bronfenbrenner cites examples of competence related to gaining intellect, increasing motivation, developing physical prowess, creating socioemotional flexibility and improving artistic ability (Bronfenbrenner & Evans, 2000, p. 118). Skills are demonstrated independently or interdependently with at least one other area of action.

On the other hand, dysfunction stemming from proximal process is the chronic appearance of challenges with managing and assimilating behavior throughout different settings and developmental domains. This is a struggle centered around being unable to consistently demonstrate behavioral or emotional management in different situations (Bronfenbrenner & Evans, 2000). When proximal process falls into dysfunction, challenges associated with one system impacting development can trickle down into other such systems.

Bronfenbrenner identified exposure as a corollary to proposition one and defined it as the "extent of contact maintained between the developing person and the proximal processes in which that person engages" (Bronfenbrenner & Evans, 2000, p. 118). Exposure to something

can vary by duration, frequency, interruption, timing and intensity. In other words, the impact on development that contact with something external has depends on the amount of time, how often it happened, if it happened predictably, when an interaction is most needed, and the strength of the exposure. For example, we would assume differential development effects for a baby who is left crying and hungry for hours daily and a baby who experienced this once.

Three Central Propositions of Ecological Systems Theory: Proposition Two

The second proposition of Ecological Systems Theory focuses on the form, power, content, and direction of the proximal process. Depending on these elements, the proximal process produces systematic developmental variations. Differences are affected by the characteristics of the person, environmental context where development is taking place to include social constructs, changes over the lifespan, historical period, and the disposition of the developmental conclusions – in sum, person, process, context and time (PPCT). Bronfenbrenner outlines proposition two in a formula that indicates a developmental outcome at a certain point in time as a joint function of a process, characteristics of a developing person, context in which the person lives and the length and frequency of the time interval during which a person has been exposed to the particular process and environmental setting.

Three Central Propositions of Ecological Systems Theory: Proposition Three

The last proposition in Ecological Systems Theory examines how development relies on forming attachments to others. In order to develop during any walk of life, individuals require increasingly complicated interactions with others allowing for the development of durable reciprocal attachment which, over time, leads to a commitment to the wellbeing of others over the lifespan (Bronfenbrenner & Evans, 2000). An example of this type of relationship is one

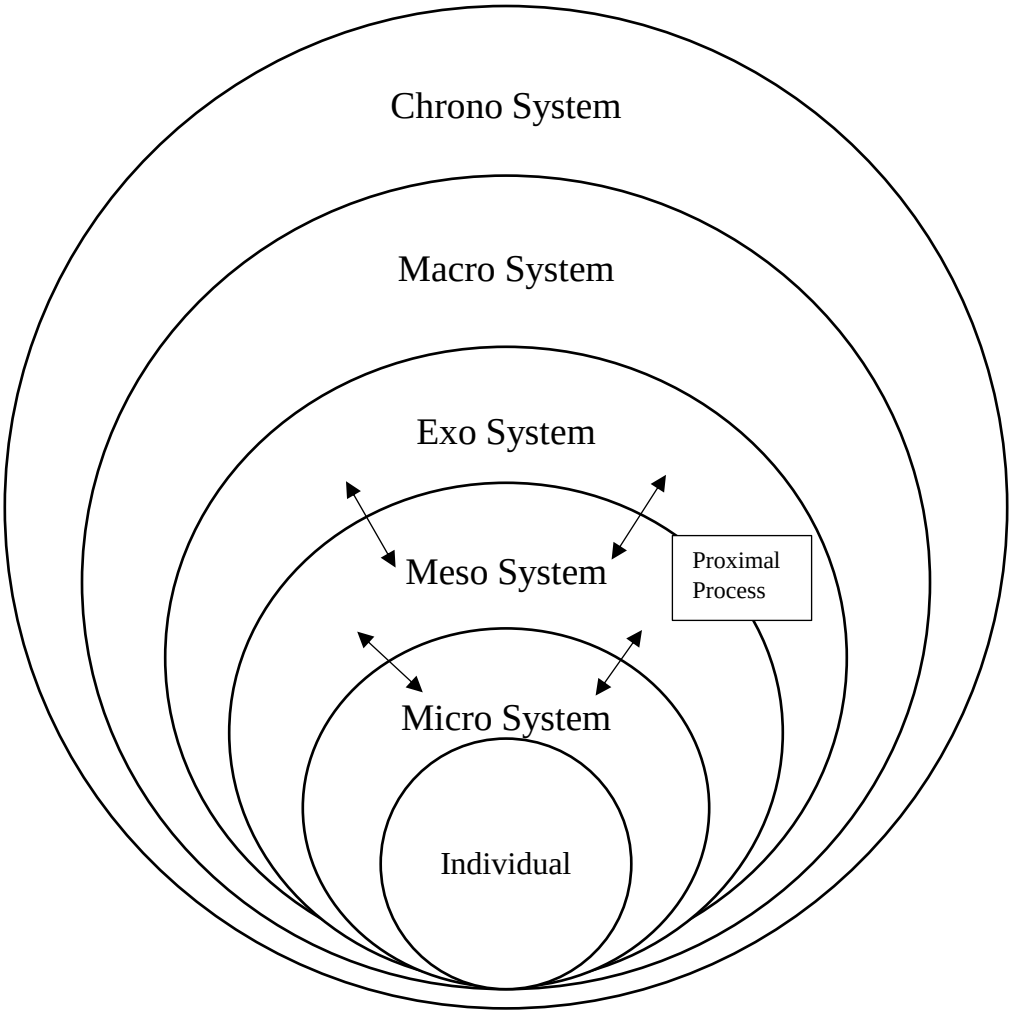
between a parent and a child. Regardless of a child's actions, that parent is going to love their child. The ideas in proposition three are highlighted by the differing rates of homelessness between foster care youth and their same age peers. A youth who ages out of foster care is more likely to experience an episode of homelessness (Harris et al., 2010). Unlike other youth their age, many foster care youth do not have a reciprocal caring relationship to rely on.

Ecological Systems Theory: The Bioecological Model

In the bioecological model, the ecological environment is composed of the microsystem, mesosystem, exosystem, macrosystem (Bronfenbrenner, 1977) and chronosystem (Rosa & Tudge, 2013). Figure 1 below depicts how each system relates to the others.

Figure 1

The Bioecological model of human development



The microsystem represents the relationships that a developing person has with their immediate environment. An individual's microsystem could include settings composed of elements characterized by place, time, physical features, activity, participation and role. A few examples of the microsystem are someone's home, school, immediate family, or work. This setting is characterized as a place with features that an individual directly interacts with through a specific role over a specific period. This could be as a child, parent, student or employee. For example, during a school day, a youth could be a student struggling to stay organized and keep

on task. At home, however, this same individual may be a primary caregiver for their siblings trying to prevent another foster care episode.

A system of microsystems makes the mesosystem. The mesosystem represents the reciprocal relationship between the setting in which a person develops, the person themselves, and that specific point in time (Bronfenbrenner, 1977, p. 515). The exosystem is an extension of the mesosystem. It is made up of formal and informal social structures that encompass the immediate setting of a developing person, but not the structures that comprise the person. In other words, the exosystem influences or determines an immediate environment. The exosystem is formed by structures like major societal institutions, a neighborhood, mass media, government agencies, the distribution of goods and services, communication and transportation, and informal social networks (Bronfenbrenner, 1977). It has been found that families living in similar situations, irrespective of race, are affected in comparable ways. For example, single parent families in similar settings and with similar income levels share similar struggles (Bronfenbrenner, 1975). The exosystem impacts the microsystem through the reciprocal relationship that both have with the mesosystem. This relationship is an example of proposition one's proximal process.

The larger culture in which someone lives in makes up the macrosystem. Culture can include socioeconomic status, ethnicity, school district, and poverty (Bronfenbrenner, 1977). The macrosystem does not directly impact an individual's life. Instead, it is made up of the larger systems, laws and structures that comprise the society. It serves as the blueprint for that society. An example is the public-school system. Each classroom is set up similarly with one teacher leading discussion and presenting material to a group of youth expected to absorb the information. While there may be some differences to the education system on an exosystem

level, generally, the system is the same across the United States. The macrosystem is particularly important when it comes to the place that a child and their caregiver inhabit within societal structures. Often, the location of where someone grows up and the resources that are available to their family determine how they are treated and how they interact with each other. Foster care youth are heavily influenced by their particular macrosystem. Someone's foster care experience is largely dictated by whether an area is rural or more urban, as this often dictates the resources available to support foster care youth.

The final element of the bioecological model is the chronosystem. The chronosystem includes the accumulation of experiences had over a lifetime such as life transitions, historical events, and environmental events. The chronosystem represents the Time element in Proposition two's formula (i.e., PPCT). Time is as important as environment for development. The chronosystem looks at the events and experiences over a lifespan. Events and experiences can be external like the birth of a sibling, parental divorce or changing school, or internal like going through puberty or a physical injury. Internal and external influences can be classified as normative or non-normative. There are life events that most people experience like starting school but there are others that a minority of individuals experience. Entrance and existence in foster care is a non-normative external experience that changes family, housing, and resources (Rosa & Tudge, 2013).

Human Capital Theory

Government intervention occurs at different points and places during the development of a youth in foster care. Programs and interventions are implemented on a macrosystem level with the intent of positively impacting all levels of a child's development. As discussed earlier, these interventions come in the form of monetary investments at different times and in different places

during development. By providing funding for supportive academic services to youth in foster care, investment is being made by the Federal Government to their macro system that is disseminated to states on an exosystem level, impacting the micro system through proximal process. This lens illuminates the purpose of Federal funding for supportive academic services in the public-school system. It is to directly impact a foster care youth's likelihood of completing their primary education. Education can be linked to increased employment, which allows for greater economic contribution.

By putting monetary value in education, the Federal Government is making an economic investment in the educational outcomes of this population. This highlights a presumed financial value in the education of foster care youth who, historically, struggle with employment as adults. Education has been found to have a causal effect on reducing unemployment (Li, 2006; Oreopoulos & Salvanes, 2011; Riddell & Song, 2011; Woessmann, 2016). In his 2016 study of the European Union, Woessman found that individuals with a lower education level were at a 17.9% risk of unemployment while those with higher levels of education were at a 5.9% risk of unemployment (Woessmann, 2016)

By looking at foster care youth through a developmental lens that takes environment and time into consideration, it is possible to see where government interventions take place and the systematic impact that they have. The Social Security Act through the Chafee program has emphasized the need for supporting foster care youth to reach normative educational goals in order to gain employment. In this way, there is an economic value being placed on their educational and vocational achievements. The idea that education is valuable to an economy is captured through Human Capital Theory. Human Capital Theory is an economic theory created in 1962 that purports that individuals have skills that they accumulate over their lifetime that

make that person more economically valuable to society (Becker, 1964). This is called human capital.

The purpose of the FCIA and the Chafee program is to promote self-sufficiency through education. This education may be academic or vocational, but the goal remains the same: to be able to support one's self without public assistance. Whether intended or not, it appears as if the federal government has set up supports for foster care youth in such a way that promotes education to build individual capital.

Self-sufficiency through education is a tenant of the economic Human Capital Theory. This theory proposed that education helps create human capital by decreasing the demands that an individual places on the economy and increasing the amount that an individual can contribute in their life time. Education also helps avoid social inequality and exclusion (Woessmann, 2016). Individual skill is gained by being educated. This increased skill increases productivity, delivering a high return on the investment in education by giving an individual the tools to be active in the economy instead of taking from it. Given that each year of education has been found to increase earning potential and reduce the risk of unemployment, investing in education may help society to avoid poverty, reduce social issues like lack of resources or opportunity and reduce inequality (Saraçoğlu & Karaoğlan, 2017; Woessmann, 2016). Education helps individuals find jobs reducing unemployment thus reducing poverty. Alternatively, a lack of investment in education can lead to ongoing government responsibility and compensation in the form of social welfare (Saraçoğlu & Karaoğlan, 2017).

With such a high risk of homelessness and poverty, foster care youth have the potential to become high volume consumers of welfare services. The legislation described above seeks to support this population through funding specific acts and programs with the aim of increasing

employment through education. By utilizing Human Capital theory in this way, Federal legislation comes close to putting a dollar amount on each youth in foster care.

Human Capital Theory can be considered an offshoot of Adam Smith's wage differentials that outlined net advantages and disadvantages of different forms of employment (Smith, 1776). Investing in human capital has become synonymous with increased education and vocational training. In this theory, the more educated someone is, the more they can contribute to an economy and the less they will take from it. The intent of government to provide for increasing education and training of youth in foster care falls in line with the tenants of Human Capital Theory.

Human Capital Creation through Education: Macro Economic Impact

Education helps create human capital by decreasing the demands that an individual places on the economy and by increasing the amount that an individual can contribute in their life time. It helps avoid social inequality and exclusion (Woessmann, 2016) and has the potential to decrease taxes used to support welfare, health care, criminal justice and incarceration (McMahon & Oketch, 2013). It has been estimated that an increase of 1% in high school graduation rates would reduce United States spending on criminal costs by $1.4 billion dollars per year (Lochner & Moretti, 2004). Short degrees, like an Associates degree or professional certification, are shown to help reduce homicide rates by 1.4% per year and reduce property crimes by 86.2% per per year (McMahon & McMahon, 1999). The positive economic outcomes of spending money on education appears to have a large return on investment. Increased education and training build skill on a micro level that has favorable repercussions on a macro-economic scale.

Individual skill is gained through education. Each year of education has been found to increase earning potential and reduce the risk of unemployment, thus investing in education may help society avoid poverty, reduce social issues like lack of resources or opportunity, and reduce inequality (Saraçoğlu & Karaoğlan, 2017; Woessmann, 2016).

Education helps individuals find jobs, which reduces unemployment, thus reducing poverty. An example of this can be found in a 2017 study suggesting that developing countries like Turkey that increase their human capital through education at young ages have the potential to catch up with more developed Nordic counterparts like Denmark, Finland, Iceland, Norway and Sweden. Part of this economic growth in Nordic countries could be attributed to the relationship that increased early childhood education has with payment of taxes as an adult and greater involvement in economic and social growth. Alternatively, a lack of investment in education can lead to government responsibility and compensation in the form of social welfare (Saraçoğlu & Karaoğlan, 2017).

Education increases individual societal value by decreasing the "obsolescence of human capital" with the onset of age (Rosen, 1975), allowing people to work their minds past the point of their body's natural capabilities. By extending the length of working life, individuals can contribute to an economy longer than they would rely on support from the economy. There appear to be larger societal returns on education than that which is experienced by the individual receiving education (Lochner & Moretti, 2004). These societal benefits of individual education are not necessarily observed by the person themselves as one may not be aware when their own capital dwindles over time. It also becomes less expensive to provide education when there is a larger work force created by increasing human capital through augmenting working life (McMahon & Oketch, 2013).

Human Capital Creation Through Education: Micro Economic Impact

By increasing the amount that an individual can be active in an economy, that individual is able to accumulate personal capital. The greater the number of individuals with high levels of personal capital, the greater the impact to a country's economy. On an individual level, increased education has been shown to significantly reduce criminality (Lochner & Moretti, 2004), create more efficient consumers, positively contribute to personal health, and potentially increase individual happiness. However, children from different socioeconomic backgrounds receive unequal education opportunities and those who start out at a disadvantage often stay at a disadvantage (Saraçoğlu & Karaoğlan, 2017).

Individuals with higher levels of education have a higher return on assets, are more efficient consumers and are associated with higher rates of savings at higher income levels (Solmon, 1975). Interest, profits, and retirement often depend on education (McMahon & Oketch, 2013). Being able to earn more money has been associated with a better diet, health care, and having a safer job (McMahon & Oketch, 2013).

Higher education has a positive impact on health even after just one year (Grossman, 2006; Grossman & Grossman, 1972). Short degrees and bachelor's degrees have the potential to increase the life span (Grossman & Grossman, 1972; McMahon, 2009) by decreasing the risk for cancer, heart disease and lung disease brought on by smoking (Grossman, 2006) Just one more year of higher education significantly impacts better health at a rate of .187 units of better health per additional year of education on a scale of 1-10 translating into 3.1% better health for those with short degrees and 5.6% better health for those with bachelor's degrees (McMahon & Oketch, 2013) There is an improvement in a child's health if their mother has a bachelor's degree (Currie & Stabile, 2003). Short degrees decrease birth rate by .29 while bachelor's

degrees decrease birth rate by .54 (Michael & Willis, 1976). Individuals with Master or Doctoral level degrees have even fewer children, who are healthier and better educated (Grossman, 2006).

On an individual basis, increased education is assumed to be a large contributor to the degree that someone can contribute to society and has been linked with increasing economic well-being on an individual and societal level. In order to maximize economic potential, a population needs to be provided with the opportunity to increase their human capital.

Human Capital Theory and the Bioecological Model

If Title IV-B, IV-E and the Chafee program can be viewed through the human capital assumption that increasing education increases individuals' ability to contribute to society, so the expected benefit is to both the micro and macro economy. Title IV-B and Title IV-E of the Social Security Act work on the exosystem by providing supportive funding for education and vocational services. The insertion of support on the macrosystem of a foster care youth is felt on the microsystem through the exosystem by way of proximal process through the mesosystem. In other words, when a foster care youth receives education or employment support, it influences their micro economic world and their macro-economic impact.

Implications

The lens of Ecological Systems Theory combined with Human Capital Theory gave a unique look at how human development is impacted by economic decisions. CFCP was designed to increase rates of education and employment for a historically disadvantaged population (Gypen et al., 2017; Okpych & Courtney, 2014). If the insertion of funding on an individual's macro system was found to contribute to a positive outcome in either of these areas, policy makers could justify changes to the program based off the most up to date evidenced

based interventions. Researchers would then be able to fill in literature gaps related to replicability challenges (Fein et al., 2018; Wasserman et al., 2019). They would also be given justification to focus on services and interventions directly related to the education and employment services outlined by CFCP. On a practical level, being given resources and evidenced based tools could give direct service professionals the opportunity to witness and cultivate positive gains in individual education and employment for foster care youth.

Chapter Three: Methodology

The goal of this study was to examine supportive education services funded through the Chafee Foster Care Independence Program (CFCP) in order to determine whether they were associated with graduation and employment outcomes of youth in foster care. To accomplish this, regression analysis tested the hypothesized associations between the different academic supports provided in secondary education programs nationwide, and high school graduation, GED completion, completion of higher education and post-secondary employment.

This study asked the following three research questions:

Table 2

Research Question
RQ1: After controlling for sex, race and foster care status, does academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training predict achievement of a GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education?
RQ2: After controlling for sex, race, foster care status and employment related skills, does academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training predict unemployment, part-time employment or full-time employment?
RQ3: Does receiving academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training impact achieving part-time employment or full-time employment independent from achievement of a GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education Degree after controlling for sex, race, foster care status and employment related skills?

Research Design

The method for this study was a non-experimental cross-sectional design. Data collected from National Youth in Transition Database (NYTD) Services File and NYTD Outcomes File from 2011-2015 was used to examine the research questions. This was the most recent published NYTD dataset at the time of analysis. All data sets were compiled from Local Departments of

Social Services (LDSS) and compiled by each state's Department of Social Services. This data were then sent by each state to the Federal Government's Office of Administration for Children and Families' Children's Bureau under the U.S Department of Health and Human Services.

To accomplish the objective of the study, a hierarchical multiple regression was used to identify the current relationship between academic support, career preparation, employment programing and vocational programing received in secondary education and high school graduation, GED completion, and post-secondary employment in youth aging out of the foster care for all research questions. This method was selected because it allowed for the testing of the hypothesized associations between each support service and either academic achievement (RQ1) or employment (RQ2 and RQ3). This determined if the data conformed sufficiently to an underlying model that could predict either positive outcome.

Population and Sample

This study intended to look at the graduation and employment outcomes of youth transitioning out of foster care between the ages of 17-21 who received supportive academic services through the CFCP from 2011 to 2015. Data for each youth was captured in NYTD. It was outside of the scope of this study to look at differences in the foster care population prior to age 17. The purpose of this study was to examine the impact of supportive services funded by the CFCP. NYTD collects data on all CFCP programs and outcomes but does not contain data on foster care youth prior to age 17. It was possible to connect NYTD to the Adoption and Foster Care Analysis and Reporting System (AFCARS) which contained case level information on all foster care youth prior to age 17. Connecting NYTD to AFCARS to examine differences prior to age 17 has potential to be a future study in this line of research.

NYTD had two separate files: Services and Outcomes. The NYTD Service file consisted of all foster care youth who received independent living services from Chafee funds. This was a cross sectional data set that captured what services were received and who received them. The NYTD Outcomes file collected data on foster care youth 17-21 at three separate time points (17,19,21). Approximately 5% of those in the NYTD Services File were in the NYTD Outcomes File.

Data collection for the NYTD Outcomes File began in the 2011 Federal Fiscal Year and was collected every following three years. All youth 17 years or older beginning in that fiscal year and who were in foster care within 45 days of their birthday were eligible for the Outcomes Survey. This same survey was used at both the 19 and 21 follow-ups. Table 3 below outlines the longitudinal data collection captured in the NYTD Outcomes File.

Table 3

NYTD Outcomes File Longitudinal Data Collection

Baseline (17 years old)	**Wave 2 (19 years old)**	**Wave 3 (21 years old)**
-conducted in 2011 -in baseline population -in foster care the day of the survey -participated in the survey -completed the survey within 45 days of their 17th birthday at least one of their answers to question 37-38 is valid (not "declined" or "not applicable" or a missing value)	-conducted in 2013 -completed follow-up survey during the 6-month reporting period containing their 19th birthday	-conducted in 2015 -completed follow-up survey during the 6-month reporting period containing their 19th birthday

Variables

In order to address the proposed research questions, education and employment variables were chosen as independent and dependent variables. RQ1 used all the services collected in the NYTD Services file that relate to education and vocational training as independent variables and degree completion, found in the NYTD Outcomes file, as the dependent variables. RQ2 also used education services captured in the NYTD Services file as independent variables but, unlike RQ1, used employment status as the dependent variable. Employment status was also found in the NYTD Outcomes file. RQ3 mirrored RQ2 in both the selected independent and dependent variables. However, in RQ3, degree completion (GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education Degree) was treated as a co-variate. This allowed for the analysis of any impact that the services had on employment independent of academic status. The employment dependent variable in RQ2 and RQ3 was used as a measure of intensity at the end of data collection. Looking at employment in this way enabled researchers to see how prepared foster care youth are at age 21, when they were no longer eligible for support. Unemployment was coded as a 0, part-time employment as a .5 and full-time employment as a 1. The intensity was calculated based on the total at the end of the six years. Similarly, the highest education certification variable, the dependent variable in RQ1 and co-variate in RQ3, was treated as an intensity measure. Each level of education was given a value (GED/High School Diploma=1, Associates Degree=2, Bachelors Degree=3, Higher Education Degree=4) and the last value was examined.

The literature suggested that age of entry into foster care (Baker, Schneiderman, & Licandro, 2017; Brady & Gilligan, 2018; Pecora, Kessler, et al., 2006; Vinnerljung & Sallnäs, 2008), mental health diagnosis (Baker et al., 2017; Gypen, Vanderfaeillie, Maeyer, et al., 2017; Klein et al., 2015; Rimehaug et al., 2018), number of placement changes while in foster care

(Brady & Gilligan, 2018; Clemens et al., 2017, 2016), foster care placement type (group home, foster home or residential psychiatric treatment center; (Baker et al., 2017; Gabrielli et al., 2016; Klein et al., 2015) and geographic location (Hambrick et al., 2016) could have a negative impact on education and employment outcomes for foster care youth. Age of entry into foster care, mental health diagnosis, number of placement changes and type of foster care placement were not collected in either the NYTD Services or Outcomes files. Due to the lack of available data, these variables were not used as co-variates. Geographic location data were collected in the NYTD datasets as it related to which state a data point was collected in. However, the literature supported differences in foster care outcomes on a more localized level within states (Hambrick et al., 2016) not on a national level between states. The NYTD datasets do not contain within state information. While examining education and employment differences between states was outside of the scope of this study, it remains a potential avenue for future research and would be a unique contribution to the study of foster care outcomes. All the potential variables above were not chosen as co-variates because they were not collected by NYTD. The potential impact that they could have on study results is unknown and were a limitation to this study.

All co-variates were chosen based off current foster care literature and their presence in NYTD. Current literature indicated that there were differences in foster care outcomes between males and females (O'Higgins et al., 2017; Romano, Moorman, Bonneville, Newton, & Flynn, 2019; Shelton, Mackie, van den Bree, Taylor, & Evans, 2012; Tessier et al., 2018). Males in foster care appeared more likely to experience worse education and employment outcomes than their female counterparts (O'Higgins et al., 2017; Romano et al., 2019; Tessier et al., 2018). To control for this affect, gender (male or not male) was used as a co-variate in all three research questions. Race was also a co-variate in all three research questions as membership in certain

racial categories has been shown to increase the risk of negative foster care outcomes (Greeson, Garcia, Kim, Thompson, & Courtney, 2015; Gypen et al., 2017; Harris et al., 2010; Holmes & Zajacova, 2014; Romano et al., 2019; Turney & Wildeman, 2016). Race was broken down into four categories: African American, White and Hispanic/Latino and Other. The categories were chosen based off of federal reporting that indicated the higher prevalence of African American, White and Hispanic or Latino individuals in foster care (U.S Department of Health and Human Services Children's Bureau, 2019).

The effect of foster care status was co-varied in all research questions. Remaining in foster care provided continued support until age 21. The literature showed that continued support in this manner may have had a positive impact in graduation and employment (Ahmann, 2017; Greeson et al., 2015; Putnam-Hornstein, Hammond, Eastman, McCroskey, & Webster, 2016; Sebba & Luke, 2019). This support included utilization of the services being used as independent variables. The quantity of foster care was calculated in the last wave of data collection to see if there was a difference in employment and or degree completion.

The effect of employment related skills was co-varied in the last two research questions. It was taken as an intensity measure: either a youth reported having these skills (Yes=1) or they did not (No=0). While there was not a body of research pointing at an increased relationship between employment related skills and employment in foster care youth, possessing employment skills separate from formal education did appear to increase the likelihood of employment (Akinola & Dunkley, 2019; Lloyd & Waghorn, 2010).

In the NYTD Services and NYTD Outcomes files, there were other potential variables that may have had mediating influences on education and employment outcomes for foster care youth. Examination of these was out of the scope of this study. The variables described above

and summarized in Table 4 below were chosen because of their relationship to the education system.

Table 4

Study variables and their relationship to the proposed research questions

Research Question	**Variable**
RQ1: After controlling for sex, race and foster care status, does academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training predict achievement of a GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education?	IV 1: Academic Support IV 2: Post-Secondary Education Support IV 3: Career Preparation IV 4: Education Level IV 5: Special Education IV 6: Employment/Vocational Training DV: GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education CV: Sex, Race, Foster Care Status
RQ2: After controlling for sex, race, foster care status and employment related skills, does academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training predict unemployment, part-time employment or full-time employment?	IV 1: Academic Support IV 2: Post-Secondary Education Support IV 3: Career Preparation IV 4: Education Level IV 5: Special Education IV 6: Employment/Vocational Training DV: Unemployment, Part-Time Employment or Full-Time Employment CV: Sex, Race, Foster Care Status, Employment Related Skills
RQ3: Does receiving academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training impact achieving part-time employment or full-time employment independent from achievement of a GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education Degree after controlling for sex, race, foster care status and employment related skills?	IV 1: Academic Support IV 2: Post-Secondary Education Support IV 3: Career Preparation IV 4: Education Level IV 5: Special Education IV 6: Employment/Vocational Training DV: Unemployment, Part-Time Employment or Full-Time Employment CV: GED/High School Diploma, Associates Degree, Bachelors Degree or Higher Education Degree; Sex, Race, Foster Care Status, Employment Related Skills

Table 5 provides definitions for each variable in the proposed research questions. These variables can be found in the code books for the NYTD Services and Outcomes files.

Table 5

Variable Definitions

Academic Support
Services designed to help a youth complete high school or obtain a General Equivalency Degree (GED). Such services include the following: • Academic counseling • preparation for a GED, including assistance in applying for or studying for a GED exam • tutoring • help with homework • study skills training • literacy training • help accessing educational resources. Academic support does not include a youth's general attendance in high school
Post Second Education Support
Services designed to help a youth enter or complete a post-secondary education and include the following: • Classes for test preparation, such as the Scholastic Aptitude Test (SAT) • counseling about college • information about financial aid and scholarships • help completing college or loan applications • tutoring while in college
Career Preparation
Services focus on developing a youth's ability to find, apply for, and retain appropriate employment. Career preparation includes the following types of instruction and support services: • Vocational and career assessment, including career exploration and planning, guidance in setting and assessing vocational and career interests and skills, and help in matching interests and abilities with vocational goals • job seeking and job placement support, including identifying potential employers, writing resumes, completing job applications, developing interview skills, job shadowing, receiving job referrals, using career resource libraries, understanding employee benefits coverage, and securing work permits • retention support, including job coaching • learning how to work with employers and other employees • understanding workplace values such as timeliness and appearance • understanding authority and customer relationships
Employment Program or Vocational Training
Employment programs and vocational training are designed to build a youth's skills for a specific trade, vocation, or career through classes or on-site training. Employment programs include a youth's participation in an apprenticeship, internship, or summer employment program and do not include summer or after-school jobs secured by the youth alone. Vocational training includes a youth's participation in vocational or trade programs and the receipt of training in occupational classes for such skills as cosmetology, auto mechanics, building trades, nursing, computer science, and other current or emerging employment sectors. "Yes" means the youth attended an employment program or received vocational training during the reporting period that was paid for or provided by the State agency.
Education Level
The highest education level completed by the youth. For example, for a youth currently in 11th grade, "10th grade" is the highest education level completed. 0 less than 6th grade 6 6th grade 7 7th grade 8 8th grade 9 9th grade

10 10th grade
11 11th grade
12 12th grade
13 Post secondary
14 College
77 Blank

Special Education

The term "special education," means specifically designed instruction, at no cost to parents, to meet the unique needs of a child with a disability.
0 no 1 yes 77 Blank

Highest Education Certification Received

A youth has received an education certificate if the youth has a high school diploma or general equivalency degree (GED), vocational certificate, vocational license, associate's degree (e.g., A.A.), bachelor's degree (e.g., B.A. or B.S.), or a higher degree as of the date of the outcome data collection.
Indicate the highest degree that the youth has received. The valid responses options for this data element are described below:
• High school diploma/GED
• A vocational certificate is a document stating that a person has received education or training that qualifies him for a particular job, e.g. auto mechanics or cosmetology.
• A vocational license is a document that indicates that the State or Local government recognizes an individual as a qualified professional in a particular trade or business.
• An Associates degree is generally a two-year degree from a community college.
• A bachelor's degree is a four-year degree from a college or university.
• A higher degree indicates a graduate degree, such as a Master's Degree or a Jurist Doctor (J.D.).
• "None of the above" means that the youth has not received any of the above educational certifications.
• "Declined" means the youth did not answer the question.

Current Full-Time Employment

A youth is employed full-time if employed at least 35 hours per week, in one or multiple jobs, as of the date of the outcome data collection.
"Yes" means the youth is employed fulltime.
"Declined" means the youth did not answer this question.
"Blank" means the youth did not participate in the survey.

Current Part-Time Employment

A youth is employed part-time if employed between one and 34 hours per week, in one or multiple jobs, as of the date of the outcome data collection.
"Yes" means the youth is employed part-time.
"Declined" means the youth did not answer this question.
"Blank" means the youth did not participate in the survey.

Sex

The youth's gender
1 male 2 female

Race

In general, a youth's race is determined by the youth or the youth's parents.

African American

A Black or African American youth has origins in any of the black racial groups of Africa.
0 no 1 yes 77 Unknown

White

A White youth has origins in any of the original peoples of Europe, the Middle East, or North Africa.
0 no 1 yes 77 Unknown

Hispanic or Latino Ethnicity

A youth is of Hispanic or Latino ethnicity if the youth is a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race 0 no 1 yes 77 Unknown
Other
American Indian or Alaskan Native Asian Native Hawaiian or Other Pacific Islander
Foster Care Status at Outcomes Collection
The youth is in foster care if the youth is under the placement and care responsibility of the State Title IV–B/IV–E agency in accordance with the definition of foster care in 45 CFR 1355.20. "Yes" means the youth is in foster care on the date of outcome data collection. 0 no 1 yes 77 blank
Employment Related Skills
A youth has obtained employment-related skills if the youth completed an apprenticeship, internship, or other on the-job training, either paid or unpaid, in the past year. The experience must help the youth acquire employment related skills, such as specific trade skills such as carpentry or auto mechanics, or office skills such as word processing or use of office equipment. "Yes" means the youth has obtained employment-related skills. "Declined" means the youth did not answer this question. 0 no 1 yes 2 declined 77 blank

Data Collection

The CFCP provided funding to states in order to develop and administer programs to improve outcomes for foster care youth who are likely to turn 18 without being placed in a permanent home. States are required to develop a system for tracking services provided through CFCP and a system for collecting outcome measures to assess the effectiveness of programs. This two-part data collection came together to form NYTD. Both the Services and Outcome file contained data from all 50 states, the District of Columbia and Puerto Rico (NYTD Services User guide, pg. 1).

Both datasets were de-identified prior to dispersion for potential research. The county FIPS code from children in counties with less than 1,000 records were recoded to 8 to indicate "not provided for reasons of confidentiality" (NYTD Services User guide, pg. 5). This adjustment was only found in the NYTD Services file under element #15, LCFIPSSV. Also, the child's date of birth was recoded to the 15th of the month and was found in NYTD element #4, DOB.

The Services file was a cross-sectional collection of services provided by states under CFCP. This data were submitted by each state every six months. NYTD required that data be collected on any youth who received at least one independent living skills service paid for or provided by a CFCP funded county or agency regardless of foster care status or age. Data were collected on the following independent living skills services: independent living skills needs assessment, academic support, post-secondary academic support, career preparation, special education, education level, employment programs or vocational training, housing education and home management training, budget and finance management assistance, health education and risk management, family support and healthy marriage education, mentoring, supervised independent living, room and board financial assistance, education financial assistance, and other financial assistance (NYTD Services User guide, pg. 6). This study looked at academic support, post-secondary academic support, education level, special education, career preparation, and employment/vocational training.

Data elements in the services file were collected continuously as part of administering CFCP and reported bi-annually to the Children's Bureau. The "A" time frame was from October-March and the "B" time frame was from April-September (NYTD Services User guide, pg. 6).

The Outcomes file consisted of a cohort with data collected at three different time points. These time points were referred to as Wave 1, Wave 2 and Wave 3. The baseline population consisted of all foster care youth who turned 17 in 2011. This was considered the baseline year and made up Wave 1. It was required that all youth be asked to answer the NYTD Outcomes survey. All demographic data for the youth in the baseline population were collected in Wave 1 regardless if they completed the survey. The baseline survey was conducted during the 45-day

window following the youth's 17th birthday. If a birthday fell within the last 45 days of the "B" period, the state was allotted 45 days to collect the data. If this data were reported during the next fiscal year, it was included in the "A" period of the following year meaning that the full baseline dataset was not completed until after May 15 (NYTD Outcomes User Guide, pg. 8). Within the baseline population (Wave 1) consisted the cohort. To be a member of the cohort, the following five conditions must have been met: youth was in the baseline population, youth was in foster care on day of the survey, the youth participated in the survey, the youth completed the survey within 45 days of their 17th birthday, and at least one answer to elements 37-58 was a valid answer. Element 37-38 were the outcomes questions and a valid answer was anything other than "declined" or "not applicable" or all values are missing (NYTD Outcomes User Guide, pg. 6).

In Wave 2, the youth in the cohort were asked to participate in a follow-up survey during the six-month reporting period that contained their 19th birthday. Wave 2 was conducted in 2013 and was considered the two-year follow-up. In Wave 3, a second follow-up survey was administered during the six-month reporting period containing their 21st birthday and had the same questions as the follow-up in Wave 2. This follow-up for the 2011 cohort was conducted in 2015 (NYTD Outcomes User Guide, pg. 7). The 2011-2015 NYTD dataset was the most current complete dataset at the time of the proposed analysis. In both follow-up surveys, responses were collected anytime within the bi-annual reporting period that included a youth's 19th or 21st birthday (NYTD Outcomes User Guide, pg. 8).

The data from the Outcomes surveys was reported to the Children's Bureau every six months with the "A" period spanning from October-March and the "B" period spanning from April-September. Since foster care youth could choose to participate in the outcomes survey, the

sample could have been biased towards individuals who would be more likely to be service involved. However, it was important to look at a sample that participated in all three waves of data collection because it provided an intensity measure of service provision and outcome achievement in order to best answer the proposed research questions.

Sampling

There was no sampling permitted in the baseline population for the Outcomes file. Any youth in foster care during the 45-day period starting on their 17th birthday was eligible. The cohort was a self-selected, non-probabilistic sample of youth from the baseline population. There was no random selection; this could have led to response bias and there was no guarantee that the cohort was representative of the baseline population. Once the cohort had been established, states were given the option to use probabilistic sampling to determine the follow-up cohort in Waves 2 and 3. This sampling was conducted one time and the same sample was used at both follow-up time points. The following twelve states opted to use a sample of the baseline cohort for Waves 2 and 3: Georgia, Iowa, Illinois, Indiana, Kentucky, Louisiana, Massachusetts, Ohio, Pennsylvania, Tennessee, Texas and Washington (National Data Archive on Child Abuse and Neglect, 2016, p. 8). Table 6 provides an exact iteration of the specific NYTD regulations regarding the sampling frame, sampling method, and sample size. These regulations were found in Federal Code 73 FR 10371 §1356.84 (NYTD Outcomes User Guide, pg. 9).

Table 6

Federal Code 73 FR 10371 §1356.84

(b) The State agency must select the follow-up sample using simple random sampling procedures based on random numbers generated by a computer program, unless ACF approves another sampling procedure. The sampling universe consists of youth in the baseline

population consistent with 45 CFR 1356.81(b) who participated in the State agency's data collection at age 17.

(c) The sample size is based on the number of youth in the baseline population who participated in the State agency's data collection at age 17.

1. If the number of youth in the baseline population who participated in the outcomes data collection at age 17 is 5,000 or less, the State agency must calculate the sample size using the formula in appendix C of this part, with the Finite Population Correction (FPC). The State agency must increase the resulting number by 30 percent to allow for attrition, but the sample size may not be larger than the number of youth who participated in data collection at age 17.
2. If the number of youth in the baseline population who participated in the outcome data collection at age 17 is greater than 5,000, the State agency must calculate the sample size using the formula in appendix C of this part, without the FPC. The State agency must increase the resulting number by 30 percent to allow for attrition, but the sample size must not be larger than the number of youth who participated in data collection at age 17.

Since no state had more than 5,000 youth in their cohort, all were able to use the Finite Population Correction (FPC) (NYTD Outcomes User Guide, pg. 9). The method used for administering the Outcomes survey was up to the discretion of each state but it had to be administered directly to the person. Examples of ways the survey was conducted include in person, over the phone or over the internet. Participation was voluntary and only the youth could answer the questions (NYTD Outcomes User Guide, pg. 9).

The study required a minimum sample size of 1,250 respondents with 13 predictors to gain the minimum statistical power of .8 with a small relationship and a critical value of $p<.01$ (Statistics Kingdom, n.d.). Therefore, the data with 12,801 individuals was adequate to obtain the desired level of power for results.

Outcome Measures and Evaluation Plan

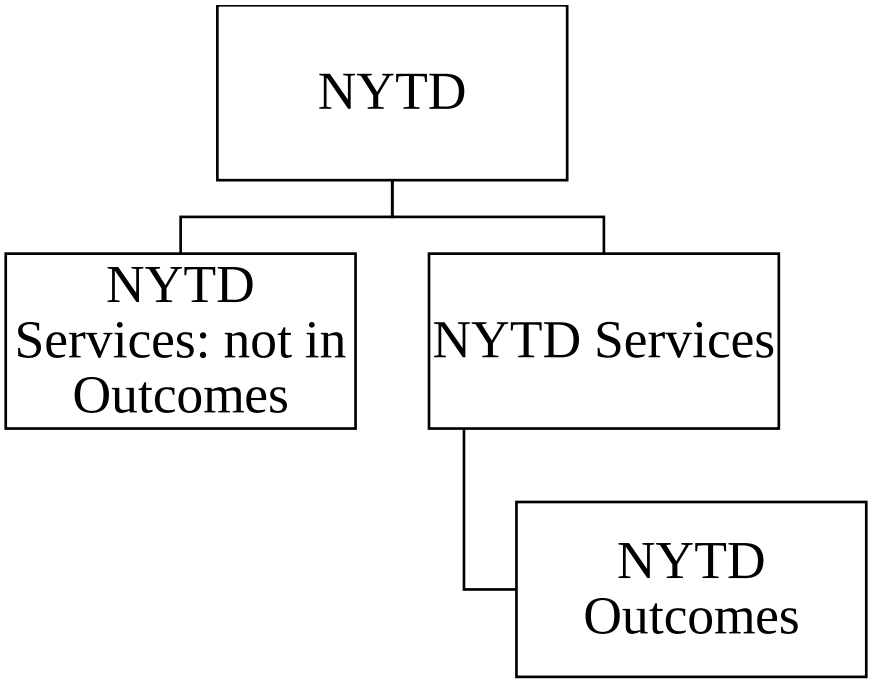
As a nonexperimental retrospective study, a cross sectional design was used to address the research questions. This secondary data analysis looked at a cross-section from the NYTD Services file that was used as prediction criteria through a multiple regression to determine if

receipt of academic support services predicted the longitudinal education and employment outcomes in the NYTD Outcomes data file.

Existing data collected by NYTD was used to answer the research questions and any potential follow-up questions. These data sets represented raw data collected by the different states. Figure 2 depicts the relationship between the NYTD Services and NYTD Outcomes datasets.

Figure 2

NYTD Services and Outcomes relationship



The study design lacked randomization due to the historic nature of the NYTD data sets. Participants were assigned to the NYTD Services data set by being in foster care and receiving supportive services offered through the Chafee Act at age 17 and the NYTD Outcomes data set by NYTD Services enrollment and answering survey questions at one or each of the assigned

time points (17, 19, 21). This study intended to look at comparisons between existing outcomes in order to see the degree of association between each independent and dependent variable.

As a non-experimental design, it was difficult to support inferences of causation since there was no intervention to distinguish a comparison group. The lack of randomization threatened external validity and statistical conclusion validity. One of the threats to internal validity of the proposed study was the difficulty of interpreting correlational findings. Personal, environmental and biological factors interrelate in complex ways. This created multiple possible reasons for significant results. By controlling for sex, race and foster care status in all three research questions and employment related skills in RQ2 and RQ3, the proposed study worked to reduce these threats.

The validity and reliability of the NYTD datasets was controlled by each state. Through standardized reporting procedures consisting of federally approved forms, the same data elements were collected by each state. However, reliability was threatened through the different and unknown ways that the information in these forms was collected and how missing data were coded. Training on this data collection varies by and within each state threatening inner-rater reliability. The validity of measurement quality was similarly threatened since all the data were self-report or was reported by third parties (social workers, probation officers, foster parents etc.).

Analysis

The NYTD Services and Outcomes were secured from the National Data Archive on child Abuse and Neglect (NDCAN). Youth who participated in all three waves of Outcomes data collection were evaluated. The data were cleaned in preparation for multiple regression by

examining accuracy, normality, univariate outlier analysis, multivariate outlier analysis, missing data, and multivariate normality.

Accuracy was checked by looking at univariate descriptive statistics through IBM SPSS FREQUENCIES to see if the variable values were within range and if the standard deviations were plausible (Tabachnick, Fidell, 2013). Next, the normality of the distribution was evaluated through descriptive statistics, frequency distributions and histograms. If the data were not normally distributed, logarithmic and inverse transformations were considered (Tabachnick, Fidell, 2013). Data were considered to be univariate outliers if they possessed a standardized score (z score) in excess of 3.29 ($p<.001$) as determined by IBM SPSS DESCRIPTIVES (Tabachnick, Fidell, 2013). Histograms were also visually examined for the presence of outliers. Multivariate outliers were identified using the Mahalanobis D statistic at a critical value of χ^2 =36.123 for 14 variables (Tabachnick, Fidell, 2013). Any multivariate outliers were deleted instead of transformed. Transformations with these types of outliers had the potential to distort the results in any direction (Tabachnick, Fidell, 2013). The linearity of the distribution was determined by using bivariate scatter plots through IBM SPSS GRAPH. If the distribution was not the standard oval shape, dichotomous dummy variables were created (Tabachnick, Fidell, 2013). If there were missing data, Little's Missing Completely at Random (MCAR) test was used to determine if the data were missing completely at random. A result was considered statistically nonsignificant if $p=.76$, indicating that the probability of the pattern of the missing diverging from randomness is greater than .05. If MCAR was statistically significant, missing at random (MAR) was assessed through separate variance t-tests. If missingness was related to the dependent variable, not missing at random (NMAR) was inferred. If less than 5% of the values were missing, all outlier cases would have been dropped because the dataset had the potential to

produce a large sample. If only a few data points were missing in a random pattern from a large data set, problems would have been considered less serious (Tabachnick, Fidell, 2013, p. 63). However, if there were many missing values, mean substitution would have been used. Multivariate normality was determined after the data set had been finalized. Histograms of residuals from regression analysis were examined to see if the distributions appeared normal. After completing the above-mentioned processes, the dataset was considered clean and used in each regression analysis.

Three separate multiple regressions were done to answer the research questions. Co-variates were considered prior to adding the predictors individually into each model. A stepwise insertion method was used for both the co-variates and the predictors.

Study Limitations

The way NYTD data were collected and reported was unstandardized. NDCAN did not outline a consistent data collection tool or process across the states. In order to combat this threat to type 1 error, this study used a lower alpha of $p<.01$ and used a small effect size of .14. Aside from the threats to type 1 error, there were other limits to the generalizability of study results. Research indicated relationships between academic achievement/employment and variables like age of entry into foster care, mental health diagnosis, number of placements, type of placements and geographic location. Unfortunately, these potential predictors were not collected in either the NYTD Services or Outcomes files. To look at the influence of environmental factors not indicated as a study variable would have taken on a broader scope than was the intention of this study. Instead, these variables had the potential to become future lines of inquiry. The current endeavor was designed to evaluate Chafee funded services only.

However, by not looking at these other impactful variables, it was difficult to compare study findings to the foster care population.

The proposed study was biased towards youth who remain system involved in some way because only cases that participated in all three waves of data collection were included. Completing the outcomes survey was optional at Wave 2 and Wave 3 and depended on an external party (social worker, counselor, probation officer, etc.) contacting the individual twice. Youth who remained in foster care longer could have been easier to reach making them more likely to participate in all three waves. The proposed study looked to control this phenomenon by turning foster care status into an intensity measure that was co-varied in each research question.

There are historical factors and attributes that were not captured by NYTD but were impactful on a foster care youths' education and employment. Most of the experience of foster care took place prior to the start of NYTD outcomes data collection. While Chafee services may begin in high school, prior to age 17, NYTD only captured the intensity of those services. Not having access to individual information prior to age 17 limited the interpretation of potentially significant correlational findings and reduced the likelihood that real population differences came to light. It was important to note that NYTD was collected in order to inform policy and research but how it was collected hindered statistical conclusion validity. The limitations that the database currently possess are areas for future improvement aimed at making it more useable and applicable.

Chapter 4: Results

Three separate regression equations provided evidence of statistically significant relationships between services funded through CFCP and education and employment outcomes. The chapter is organized into several sections: sample, observed measures, data cleaning, statistical analyses, and a summary of significant findings. Results for each research question are discussed in the statistical analyses section. The chapter concludes with an overview of all significant results.

Sample

The sample consisted of foster care youth who received supportive academic services funding through CFCP and participated in all three waves of NYTD outcome data collection. At the first wave of NYTD Outcomes data collection, youth in the sample were 17 years old, 19 years old at wave two, and 21 years old at wave 3.

After approval by the National Data Archive on Child Abuse and Neglect (NDCAN) through a Terms of Agreement, two data sets were available. One was the National Youth in Transition Database (NYTD) Outcomes File that contained the results of a periodic survey of youth who turned 17 in certain years, along with follow-up surveys at ages 19 and 21. The other was the NYTD Services File, data collected from states on all youth who received independent living services using funds provided through the Chaffee Act. These files were downloaded in zipped formats.

The Outcomes file consisted of survey records for a survey completed every three years; 2011, 2013 and 2015. For the purposes of this research, youth who started in 2011 were chosen for the 2011 Cohort. For each youth, there were up to three survey records. These records were

merged into a single record for each youth, a total of 30,009 youth or cases, each containing data from up to three surveys, a total of 131 data elements.

The Services file contained data collected twice a year from the states, once in March and once in September. It contained records of services received by each youth during that past six months. The file contained data for eight years consisting of 1,365,933 records of 40 data elements each. These sixteen sets of services data were matched to the Outcomes file, one six month data set at a time, by a common data element in both the Outcomes and Services files, a youth identifier that was a State abbreviation and a unique youth ID. The resulting data set described 30,009 youth in the 2011 Cohort using 446 data elements. It was the basis for all remaining data analysis.

Of the 30,009 youth in the 2011 cohort, 12,801 youth possessed data on all three survey waves and all 16 sets of services data. It was necessary to have a complete data set for each youth to develop intensity of services measures and to provide enough time for the youth to attain education and employment outcomes. For example, the academic support services measure was the sum of each of the sixteen state submissions where each state submission was coded as a "1" if services were provided during that six months. If academic support services were provided during the entire eight years, the maximum academic support services score was a 16. If no academic support services were provided, the academic support services score was a zero.

A power analysis suggested a sample size of 1,250 assuming 13 predictors, a small relationship, a critical value of $p < .01$ and a minimum statistical power of .80. The available sample of 12,801 surpassed the minimum sample size indicated by the power analysis.

Observable Measures

As explained above, each of the CFCP funded services considered in the study were manifest as an intensity score, a sum of the sixteen state submissions with a possible range of 0 for no services provided to 16 for services provided for the six month periods prior to each of the 16 state submissions.

The CFCP funded services considered in the study are academic support, employment/vocational training, post-secondary education support, career services, special education, and education level services. Each of these services measures were interval levels of measurement utilized for the subsequent regression analyses. Further detail about the aforementioned service variables has been provided below. Descriptive statistics for each predictor variable and co-variate can be found in Table 7.

Table 7

Descriptive Statistics of Predictor Variables and Co-variates

	Mean	**Standard Deviation**
Sex	.51	.50
White	.60	.49
African American	.34	.475
Hispanic or Latino	.16	.371
Foster Care Status**	1.42	.71
Employment Related Skills	.36	.69
Academic Support	1.67	2.21
Employment/Vocational Training	.82	1.57
Post-Secondary Education Support	1.04	1.90
Career Preparation	1.40	2.04
Special Education	.93	2.06
Education Level	3.92	3.34

The education-level service variable provided information about the amount or quantity of secondary education. Existing literature supported the inclusion of educational attainment as

the amount of secondary education positively predicts graduation (Clemens et al., 2017; Strolin-Goltzman, Woodhouse, Suter, & Werrbach, 2016; Villegas et al., 2014). The special education service variable was also included as a predictor. This is a supportive service delivered in a secondary education setting with the purpose of promoting academic success for qualifying foster care youth (Moyer & Goldberg, 2019). Like the other service variables, it represents one of the ways that CFCP helped this population achieve academic and employment success.

Education and employment outcomes measures were derived from the observed measures in the NYTD data set. Education was the highest degree attained as reported in the third survey wave, when the youth was 21 years old. The observed values included: no educational certification (0), high school or GED (1), vocational certification (2), vocational license (3), Associate's degree (4), Bachelor's degree (5), and higher/graduate degree (6). While the highest education attained variable was ordinal, given the 12,801 sample size, I chose to assume it was interval for subsequent regression analyses (Tabachnick, Fidell, 2013).

Employment was reported in each wave as either full-time or part-time in two separate variables where a 1 indicated employment. The employment measure in this research counted a 1 in each of the three waves for full time plus one half in each of the three waves for part time. The maximum possible employment score was 4.5 for a youth who reported both full time and part time work for all three waves and a 0 for youth who reported no employment during that same period, a ratio level of measurement. The employment variable was coded in this way because of the nature of the database. It was reported as either yes or no for full time or part-time. These two measures were combined in order to create a measure of the amount of employment in order to best capture the construct of employment.

Several covariates were included to reduce the extent to which they obscure the relationship between the independent variables and the dependent variables. They included sex, white, African American, Hispanic, the intensity of foster care status and possession of employment skills.

Sex was reported in all three waves of the survey as a 1 for male and a 2 for female. Female was recoded to a zero so that the sex covariate ended up as male. It was used as a binary measure in subsequent regressions. The survey waves reported each race as a separate variable where a 1 identified the youth as belonging to that race. Wave 3 survey results were used in this study because it was the most recently reported observation. The race variables included American Indian or Alaska Native, Asian, African American, white, unknown, declined or Hispanic or Latino.

Of these, white and African American were chosen because there was a sufficient sample size to avoid threats to homogeneity of variance. Both were included as binary covariates for subsequent regression analyses.

Hispanic or Latino was included because, in the most recent NYTD report to Congress, the Office of Planning, Research and Evaluation (OPRE) under the Administration for Children and Families within the Department of Health and Human Services (HHS), it was indicated that this ethnic group comprised 20% of youth in foster care (Administration for Children and Families, 2020, p. 10). This group also was equally as likely as an African American youth at 57% to achieve a high school diploma or GED (Administration for Children and Families, 2020, p. 13). It was included as a binary covariate for subsequent regression analyses.

Intensity of foster care status was the sum of reporting across all thee waves, reported as a 1 for in foster care for each wave. It was a maximum of 3 for foster care status reported for all three waves and a minimum of 1, as the selection criteria included foster care services in the initial survey. Employment related skills was transformed in a manner like foster care status, the sum of reporting across all thee waves. Both were interval for subsequent regression analyses.

Correlations Between Variables

There were several significant correlations between the covariates, predictors, and outcome variables in this study. A table of all correlations can be found in Appendix 2 and a table of correlations between the co-variate and predictor with the outcome variables can be found in Table 8. Correlations were considered to be significant at $p<.01$ using the Pearson Correlation Coefficient (Tabachnick, Fidell, 2013).

The highest education certification received outcome variable in RQ 1 had several significant correlations with predictor variables and co-variates. The significant relationships with the predictor variables included correlations with education level services (.248), academic support services (.095), employment/vocational training (.106), post-secondary education support services (.173), and career preparation services (.132). Highest education certification received was also significantly correlated with the co-variates white (-.107) and foster care status (.114).

In RQ 2 and RQ 3, employment was found to be correlated with the following predictor variables: foster care status (.096), co-variate white (-.064), education level service (.215), academic support service (.094), employment/vocational training (.131), post-secondary education support (.154), and career preparation services (.145). The co-variate employment related skills (.462) was found to be highly correlated with employment in RQ 2 and RQ 3.

Also, highest education certification, a co-variate in RQ 3, was found to be highly correlated with employment at .439. Lastly, the co-variate employment related skills was highly correlated with employment and was also correlated with the predictor variables employment/vocational training (.144) and career preparation (.164).

Table 8

Correlations between co-variate, predictor, and outcome variables

Variable		Highest Educational Certification Received	Employment
Sex	Pearson Correlation	-.107**	-.064**
	Sig. (2-tailed)	0	0
White	Pearson Correlation	-0.018	0.017
	Sig. (2-tailed)	0.041	0.054
African American	Pearson Correlation	0.019	-0.015
	Sig. (2-tailed)	0.036	0.088
Hispanic Or Latino	Pearson Correlation	0.005	-0.004
	Sig. (2-tailed)	0.564	0.672
Fostcare Status	Pearson Correlation	.114**	.096**
	Sig. (2-tailed)	0	0
Education Level Services	Pearson Correlation	.248**	.215**
	Sig. (2-tailed)	0	0
Special Education Services	Pearson Correlation	0.013	-0.001
	Sig. (2-tailed)	0.134	0.931
Academic Support Services	Pearson Correlation	.095**	.094**
	Sig. (2-tailed)	0	0
Employment/Vocational Training	Pearson Correlation	.106**	.131**
	Sig. (2-tailed)	0	0
Highest Educational Certification Received	Pearson Correlation	1	.439**
	Sig. (2-tailed)		0
Employment	Pearson Correlation	.439**	1
	Sig. (2-tailed)	0	
Post-Secondary Education Support Services	Pearson Correlation	.173**	.154**
	Sig. (2-tailed)	0	0

Career Preparation Services	Pearson Correlation	.132**	.145**
	Sig. (2-tailed)	0	0
Employment Related Skills	Pearson Correlation	.410**	.462**
	Sig. (2-tailed)	0	0

******p<.01

Data Cleaning

Data cleaning was the next set of activities to prepare the data for multiple regressions. It included information on accuracy, normality, transformations to improve normality (if needed), multivariate outlier analysis, and multivariate normality.

In Table 10, for each research question, a list of the dependent variables (DV), independent variables (IV) and covariates (CV) was provided along with a brief description of how they were computed, their level of measurement, transformation if appropriate, and descriptive statistics for the final sample.

Accuracy

Most of the variables used in this study were originally reported as the presence of a characteristic coded a 1. The exception was highest level of educational certification. If the original reporting was not a 1 to indicate the characteristic, it was reported as a 0 for no characteristic, a 77 for missing, a blank or 0 for a handful of cases a 2 for prefer not to answer. For these youth it made sense to assume that the characteristic was not present unless a code of 1 was present. The variables for these cases were recoded to 0. If we considered only those cases coded a 0 or 1 were provided in either the waves of state submissions, 94 cases met the criteria. With these assumptions, 12,801 cases were examined during data cleaning.

NYTD Outcomes data were collected in three waves by the Children's Bureau at 6-month intervals. The "A" period covered October-March which represented the first 6 months of the fiscal year. The "B" period represented the second half of the fiscal year and covered April-September. Baseline survey administration was required to take place within 45 days following a youth's 17th birthday. The two follow-up surveys collected responses at any time within the six-month semi-annual reporting period that included the youths' 19th or 21st birthday (National Data Archive on Child Abuse and Neglect, 2016, p. 7) . There was no baseline sampling permitted.

After the Cohort had been established by the baseline sample, states could use probabilistic sampling at 19 and 21. Sampling was done one time and the same sample was used at each follow-up. Within the 2011 cohort, the following 12 states used sampling for their follow-up surveys: Georgia, Iowa, Illinois, Indiana, Kentucky, Louisiana, Massachusetts, Ohio, Pennsylvania, Tennessee, Texas, and Washington. All states that opted for sampling had to use simple random sampling procedures based on computer generated random numbers and were required to calculate their sample size with the finite population correlation. The states agencies then had to increase the resulting number by 30% to allow for attrition as long as the resulting sample size was not larger than the baseline cohort (National Data Archive on Child Abuse and Neglect, 2016, p. 8).

NYTD allowed for states to choose the methods that they used to administer the outcomes survey to youth as long as the survey was administered directly to the person. Methods could have included in person, over the phone, or over the internet. Data could not be gathered from other sources, no other party could answer for the youth, and participation was voluntary (National Data Archive on Child Abuse and Neglect, 2016, p. 9). To address the lack

of standardization within state data collection at each wave, no response, 77, and 0 were all coded as 0 or no response. No official guidance was provided to states on how to record missing data vs. declining to answer.

Missing values were not an issue because there were none when analyzing the presence of a service of characteristic of the youth. Univariate outliers were not an issue because the measures had well defined minimums and maximums mostly zeroes and ones. Any presence of outlier cases was considered in an examination of normal distributions.

Normality

For variables with an interval level of measurement, descriptive statistics, frequency distributions and histograms were examined to determine the extent that both the predictor and outcome variables were normally distributed in the sample (Tabachnick, Fidell, 2013). Residual scatterplots were examined, and errors were normal. Sex, white, African American and Hispanic origin, the binary variables for subsequent regressions met the normality and homogeneity of variance assumption if the smaller cell had a sample size of at least 10% of the sample size of the larger cell (Tabachnick, Fidell, 2013). Table 9 shows these percentages.

Table 9

Binary variable value percentages of 12,801 cases

Variable	Percent (%)
Sex	51.3
White	59.6
African American	34.3
Hispanic or Latino	16.5

Histograms of the remaining distributions suggested highly skewed and kurtotic distributions. Most were ‘L’ shaped with a large number of cases without any educational

certification, employment or services. A series of transformations were applied to achieve more normal distributions (Tabachnick, Fidell, 2013, p. 89). Since there were large numbers of zeroes in the observed variables, transformations were centered by adding 1 to each observed variable before transformation. Next the log and the inverse were calculated and from these possible transformations, the one that minimized skew and kurtosis was used. Histograms were studied to assure the transformations were more normalized than observed variables. Table 9 shows the original variable, its skew and kurtosis, the transformed variable that was the closest to a normal distribution as judged by its skew, kurtosis, and histogram.

I examined assumptions for the remaining variables (e.g., foster care status, education level, special education, employment related skills, academic support, post-secondary education support, career preparation, employment/vocational training, highest education certification received, education level and employment) and the untransformed data set violated normality assumptions for regression analysis with variables exhibiting extreme skewness and kurtosis. Validity was threatened by the way that the data were collected. The data collection from states may have resulted in inconsistent reporting as both a 77 and blank answer were coded as "no response." This was a study limitation and a limitation for researchers using NYTD data sets in the future.

Transformations demonstrating the best empirical fit for a normal distribution were chosen. Inverse transformation was used on special education services, academic support services, employment and vocational services, post-secondary education support services and employment outcomes. Highest education certification and career preparation support were the only logarithmic transformations. Sex, White, African American, Hispanic or Latino, education

level, and foster care status were not transformed since they were binary variables and reasonably balanced.

Sex was coded as either male (1) or not male (0). Approximately 51.3% of the sample identified as male and 48.7% identified as not male. The distribution did not violate homogeneity of variance. The race variable was measured into separate observable variables and White, African American, Hispanic or Latino were chosen as they were the measure exhibiting homogeneity of variance. The regression analysis could isolate variance due to each characteristic. The sample identified as 59.8% White, 34.3% Black or African American, and 16.6% Hispanic or Latino. Each distribution was homogenous and there were no outliers.

Education level represented the completed grades or amount of school received. It was an intensity measure coded as 0 for less than 6^{th} grade and up to 14 for college over 16 reporting periods. I performed both an inverse and log transformation on education level and determined that the original distribution was most normal with a skew of 36.31 and kurtosis of 5.49 opposed to the inverse (skew 48, kurtosis -14.76) and the log (skew -19, kurtosis -24.30).

Log, square root, and inverse transformations were created to normalize the curve of the foster care status variable. All increased the skew and kurtosis of the distribution. A transformation of the foster care status variable was not used. Given the sample size and natural tendency for students to become more independent as they got older (Dworsky & Gitlow, 2017; Munson, Stanhope, Small, & Atterbury, 2017) this predictor was used and the risk of increased type 1 error was accepted. The foster care status variable was created as a measure of intensity totaling the number of youth in foster care during each data collection wave. At each of the three waves of NYTD Outcomes data collection, fewer youth remained in foster care. The sample went from 71.4% of participants being in foster care in 2011 to 13.6% in 2015.

Table 10

Comparison of variables pre and post transformation

Variables	Skew	Kurtosis
Special Education	122.37	168.55
Inverse Special Education	-61.09	-1.25
Academic Support	92.03	139.91
Inverse Academic Support	-4.5	-42.37
Employment/Vocational Training	137.67	313.06
Inverse Employment/Vocational Training	-42.77	-21.09
Highest Education Certification	109.77	150.25
Log. Highest Education Certification	37.14	.32
Employment	93.28	84.23
Inverse Employment	-57.47	-2.38
Employment Related Skills	89.93	71.13
Inverse Employment related Skills	-58.58	-4.34
Post-Secondary Education Support	122.85	217.59
Inverse Post-Secondary Education Support	-34.72	-28.35
Career Preparation	96.16	141.08
Log. Career Preparation	33.13	-18.84

The log transformation was used for the highest education certification variable as it normalized kurtosis and substantially reduced skew (109.77 vs. 37.14). A log transformation was also used as the transformation for the career preparation service variable reducing skew (96.16 vs. 33.13) and kurtosis (141.08 vs. -18.84). An inverse transformation was used on post-secondary education support (skew 122 vs. -34.72; kurt.217.59 vs. -28.35, special education services (skew 122.37vs. -61.09; kurt. 168.55vs. -1.25) academic support (skew 92.03vs. -4.5; kurt. 139.91vs. -42.37), employment/vocational training (skew 137.67vs. -42.77; kurt. 313.06vs. -21.09), and employment (skew 93.28vs. -57.47; kurt. 84.23vs. -2.38) to reduce both skew and kurtosis(Tabachnick, Fidell, 2013).

Linearity

Assumptions of linearity were evaluated through scatterplots that compared residuals to predicted values of each of the education and employment criteria. They were uniformly linear and had no curvilinear patterns. They appeared to meet the assumption of linearity for the regression models.

Multivariate Outliers

The Mahalanobis D statistic was calculated for each case to identify multivariate outliers. With 14 variables, the χ^2 critical value was 36.123. There were 155 cases (1.21%) with a Mahalanobis D larger than 31.264 that were eliminated, reducing the sample size from 12,801 to 12,646 - a reduction of 155 cases or 1.5%.

Multivariate Normality

On the final sample of 12,646 cases, histograms of residuals from regression analyses using all the CV and IVs for each of the education and employment DVs were examined to determine multivariate normality. The distribution appeared to be reasonably normal with skew of 2.180 and kurtosis of -18.055. This was unexpected since the data were univariately non-normal.

Despite efforts to normalize the distributions via variable transformations, threats to internal validity were still present and suggest caution in interpretation of regression results. On the positive side, the large sample size, marked improvements in the normality of transformed variable distributions, linearity of the residuals from both education and employment regression models and the relative multivariate normality add some robustness to the results (Tabachnick, Fidell, 2013).

Table 11

Baseline Variable Values

Variable	Transformation	Mean or %	Standard Deviation	Research Question 1	Research Question 2	Research Question 3
Sex*	None	51.3		Co-variate	Co-variate	Co-variate
White*	None	59.6		Co-variate	Co-variate	Co-variate
African American*	None	34.3		Co-variate	Co-variate	Co-variate
Hispanic or Latino*	None	16.5		Co-variate	Co-variate	Co-variate
Foster Care Status	None	1.42	0.72	Co-variate	Co-variate	Co-variate
Education Level	None	4.03	3.48	Independent Variable	Independent Variable	Independent Variable
Special Education	Inverse	0.94	2.09	Independent Variable	Independent Variable	Independent Variable
Academic Support	Inverse	1.72	2.34	Independent Variable	Independent Variable	Independent Variable
Employment/Vocational Training	Inverse	0.844	1.65	Independent Variable	Independent Variable	Independent Variable
Highest Education Certification Received	Log	0.51	0.72	Dependent Variable		Co-variate
Employment	Inverse	0.3	0.57		Dependent Variable	Dependent Variable
Post-Secondary Education Support	Inverse	1.05	1.94	Independent Variable	Independent Variable	Independent Variable
Career Preparation Services	Log.	1.44	2.14	Independent Variable	Independent Variable	Independent Variable
Employment Related Skills	Inverse	0.36	0.7		Co-variate	Co-variate

Note. *Percent is used for binary variables

Statistical Analyses

Predictors of Education and Employment outcomes for Foster Care youth

Three separate multiple regression analyses were performed using the entire sample (N = 12,646) to predict the relationships of academic achievement or employment outcomes and six service predictors: academic support, post-secondary education support, career preparation, education level, special education and employment/vocational training.

I conducted multiple regressions to answer all three research questions. This method was chosen to explore possible antecedents to employment and education. There is a lack of literature relative to the importance of the predictors but there is evidence supporting the

covariates relationship to the outcome variables. In each question, in the first step, covariates were entered in a hierarchical manner based off of the literature indicating these variables as antecedents to the outcome variables (Akinola & Dunkley, 2019; Romano et al., 2019; Sebba & Luke, 2019; Tessier et al., 2018). In the next step, predictors were added to the model one at a time using stepwise inclusion criteria until the statistical significance of the model did not change. The service variables were used in RQ1 to predict education achievement. In RQ2, they were used to predict employment. Sex, white, African American, Hispanic origin and foster care status were used as covariates in all three regression equations. Employment related skills was covaried in the regression equation for RQ2 and RQ3. Highest education certification was treated as a covariate in RQ3. I used a stepwise insertion method for the predictors in all research questions. The analysis yielded five models for RQ1, six models for RQ2, and six models for RQ3. The large sample size resulted in statistical significance at $p < .05$ where, in some cases, the practical significance was questionable.

Research Question 1:

A multiple regression was conducted using the complete sample (N=12,646) with highest education certification received as the dependent variable and education level, special education, post-secondary education support and academic support, career preparation and employment/vocational training as the predictor variables. The following variables were treated as co-variates: foster care status, sex, Hispanic or Latino, White, and African American and entered before the predictors (hierarchical). The predictors were entered using a stepwise approach after adjusting for the variance explained by the covariates. Career preparation and employment/vocational training were not included in the final regression model as they did not meet stepwise inclusion criteria meaning that they did not contribute enough to the change the

model. The regression analysis results yielded five regression models that can be found in Table 12. Model 1 resulted in an R^2 of .033 and was comprised of only the covariates to control them in the following four models. It was statistically significant (F (5, 12,635) = 77.78, p=.001). Model 2 added education level services increasing R^2 to .088 and was found to be significant with (F (6, 12,634) = 800.2, p=.0001. Education level services alone accounted for 5.8% of the variance in the educational certification outcome. Model 3 included special education services with an R^2 of .094 with special education services adding .6% explained variance. Model 4 put in post-secondary education services contributing an R^2 of .097 and adding an additional .4% explained variance. Lastly, Model 5 contributed academic support and an R^2 of .101, an additional .3% of explained variance. The other services, career service and transition services did not contribute substantially enough to explain variance and be included in the model. From a practical standpoint, model 2 seemed to be the 'best' model with education level accounting for 5.8% of the variance explaining the most change in R^2 compared to the other models. The remaining service predictors only contributed about .5% of explained variance.

Table 12

Summary of regression models for Research Question 1

Model	Variable added	R^2	Adjusted R^2	Change in R^2	F statistic	DF 1	DF 2	p-value
Model 1	Covariates*	0.03	.029	0.03	77.778	5	12640	<.0001
Model 2	Education Level	0.088	.087	0.058	800.193	1	12639	<.0001
Model 3	Special Education	0.094	.093	0.006	82.383	1	12638	<.0001
Model 4	Post-Secondary Education Support	0.097	.097	0.004	53.504	1	12637	<.0001

Model 5	Academic Support	0.101	.100	0.003	48.712	1	12636	<.0001

Note. *foster care status, sex, Hispanic or Latino, White, African American

The unstandardized B and beta coefficient values for model 5 can be found in Table 13. The co-variates for this analysis were foster care status with a beta coefficient of .055, sex with a beta coefficient of -.072, Hispanic or Latino with a beta coefficient of .014, White with a beta coefficient of .011, and African American with a beta coefficient of .02. The predictor education level had a beta coefficient of .259 with a p-value of <.000. The special education predictor had a beta coefficient of .069 with a p-value of <.000. The post-secondary education support predictor had a beta coefficient of -.101 with a p-value of <.000 and the academic support predictor had a beta coefficient of .076 with a p-value of <.000.

Education level services was strongest at .259 and post-secondary education support at -.10, about 40% as important as education services. Interestingly post-secondary education support was inversely related to education cortication meaning that receiving post-secondary education support was less likely to result in education certification. Given that education certification was a measure taken at 21 years old, it may have been that post-secondary education support had yet to result in a post-secondary certification. It makes sense that being in school leads to education certification.

Table 13

Coefficients for Model Five

Predictor	**Standard Error**	**Beta**	**t**	**P-value**	**Partial Correlation**
Education Level	.001	0.259	22.979	<.0001	.200

Post-Secondary Education		-0.101		<.0001	
Support	.005		-9.310		-.083
Academic		0.076		<.0001	
Support	.005		6.979		.062
Sex*	.003	-0.072	-8.403	<.0001	-.075
Special		0.069		<.0001	
Education	.005		7.840		.070
Foster care		0.055		<.0001	
status*	.002		6.149		.055
African		0.020		<.144	
American*	.005		1.463		.013
Hispanic or		0.014		<.115	
Latino*	.004		-1.578		-.014
White*	.005	0.011	.863	<.388	.008

Note. *Covariates that were controlled for in the model

Research Question 2:

A hierarchical multiple regression was conducted using the complete sample (*N*=12,646) with employment as the dependent variable and education level, special education, post-secondary education support, career preparation, academic support, and employment/vocational training as the predictor variables. The following co-variates were controlled for: sex, White, Hispanic or Latino, foster care status, and employment related skills. The predictors were added using a stepwise method and yielded six separate models. A summary of these models can be found in Table 14.

Model 1 consisted of the covariates to control for their effect in the subsequent models. Model 1 had an R^2 of .292 explaining 29.3% of the variance and was the only statistically significant model (F (6, 12,633) = 872.215, p=.000). Model 2 inserted education level and yielded an R^2 of .305 explaining 1.2% of the variance. Model 3 added the special education predictor creating an R^2 of .31 explaining .5% of the variance. Model 4 had an R^2 of .311 after adding post-secondary education support explaining less than .1% of the variance. Model 5 put

in predictor academic support with an R^2 of .311 explaining .1% of the variance and model 6 added employment/vocational training with an R^2 of .312 explaining less than .1% of the variance.

Table 14

Summary of regression models for Research Question 2

Model	Variable added	R^2	Adjusted R^2	Change in R^2	F statistic	DF1	DF2	p-value
Model 1	Co-variates*	0.292	.292	0.293	872.215	6	12639	<.0001
Model 2	Education Level	0.305	.304	0.012	217.47	1	12638	<.0001
Model 3	Special Education	0.31	.310	0.005	99.063	1	12637	<.0001
Model 4	Post-Secondary Education Support	0.311	.310	.000	7.298	1	12636	<.007
Model 5	Academic Support	.311	.311	0.001	13.925	1	12635	<.0001
Model 6	Employment/Vocational Training	.312	.311	.000	4.419	1	12634	<.036

Note. *Foster care status, sex, Hispanic or Latino, White, African American, employment skills

The unstandardized regression coefficient (B) and beta coefficient values for model 6 are in Table 15. The co-variates for this analysis were foster care status with a beta coefficient of -.024, sex with a beta coefficient of .027, Hispanic or Latino with a beta coefficient of .014, White with a beta coefficient of -.018, African American with a beta coefficient of .019, and employment skills with a beta coefficient of .502. The predicator education level had a beta coefficient of-.133 with a p-value of <.000. The special education predictor had a beta coefficient of -.037 with a p-value of <.000. The post-secondary education support predictor had a beta coefficient of .033 with a p-value of <.001, the academic support predictor had a beta coefficient of -.042 with a p-value of <.000, and the employment/vocational training predictor

had a beta coefficient of .019 with a p-value of <.036. While small, the negative beta coefficients for the foster care status, white, special education, and academic support variables indicate that white youth remaining in foster care who received supportive services in school may be less likely to be employed.

Table 15

Coefficients for Model Six

Predictor	Standard Error	Beta	t	P-value	Partial Correlation
Employment skills*	.007	.502	65.566	.000	.504
Education Level	.001	-.133	-13.255	.000	-.117
Special Education	.006	-.073	-9.371	.000	-.083
Academic Support	.006	-.042	-4.182	.000	-.037
Post-Secondary Education	.007	.033	3.425	.001	.030
Sex*	.003	.027	3.538	.000	.031
Foster care status*	.002	-.024	-3.106	.002	-.028
Employment/Vocational Training	.006	.019	2.102	.036	.019
African American*	.006	.019	1.627	.104	.014
White*	.005	-.018	-1.611	.107	-.014
Hispanic or Latino*	.005	.014	1.789	.074	.016

Note. *Covariates that were controlled for in the model

Research Question 3:

A hierarchical multiple regression was conducted using the complete sample (*N*=12,646) with employment as the dependent variable and education level, special education, post-secondary education support, career preparation, academic support, and employment/vocational training as the predictor variables. The following co-variates were controlled for: sex, White, Hispanic or Latino, foster care status, highest education certification received, and employment

related skills. The predictors were added using a stepwise method and yielded six separate models. A summary of these models can be found in Table 16.

Model 1 consisted of the covariates to control for their effect in the subsequent models. Model 1 had an R^2 of .380 and explained 38% of the variance and was the only statistically significant model (F (7, 12,631) =1,108.120, p=.000). Model 2 inserted education level and yielded an R^2 of .384 explaining .4% of the variance. Model 3 added the special education predictor creating an R^2 of .386 explaining .2% of the variance. Model 4 had an R^2 of .386 after adding employment/vocational training. Model 5 put in predictor academic support with an R^2 of .387 and Model 6 added the career preparation predictor with an R^2 of .387. Models 4, 5, and 6 each explained less than .1% of the variance. Post-secondary education support did not meet criteria for step-wise insertion and was not added to the regression model.

Table 16

Summary of regression models for Research Question 3

Model	Variable added	R^2	Adjusted R^2	Change in R^2	F statistic	DF 1	DF 2	p-value
Model 1	Co-Variates*	.380	.380	.380	1,108.12	7	12638	<.0001
Model 2	Education Level	.384	.384	.004	75.087	1	12637	<.0001
Model 3	Special Education	.386	.386	.002	47.172	1	12636	<.0001
Model 4	Employment/Vocational Training	.386	.386	.000	3.950	1	12635	<.047
Model 5	Academic Support	.387	.386	.000	4.078	1	12634	<.043
Model 6	Career Preparation	.387	.386	.000	4.897	1	12633	<.027

Note. * sex, White, Hispanic or Latino, foster care status, highest education certification received, employment related skills

The unstandardized B and beta coefficient values for model 6 are in Table 17. The co-variates for this analysis were foster care status with a beta coefficient of -.016, sex with a beta coefficient of .008, Hispanic or Latino with a beta coefficient of .0.011, White with a beta coefficient of -.016, and African American with a beta coefficient of .021, employment skills with a beta coefficient of .364 and highest education certification received with a beta coefficient of -.322. The predicator education level had a beta coefficient of -.075 with a p-value of <.000. The special education predictor had a beta coefficient of -.05 with a p-value of <.000. The employment/vocational training predictor had a beta coefficient of .017 with a p-value of <.052 and the academic support predictor had a beta coefficient of -.026 with a p-value of <.007. The last predictor, career preparation, had a beta coefficient of -.021 with a p-value of <.027. While insignificantly small, the negative correlations between the variables foster care status, white, highest education certification, education level, academic support, and career preparation could indicate that a white youth in foster care who received supportive education services may be less likely to be employed.

Table 17

Coefficients for Model Six

Predictor	Standard Error	Beta	t	P-value	Partial Correlation
Employment skills*	.007	.364	45.305	.000	.374
Highest Education Certification*	.011	-.322	-39.494	.000	-.332
Education Level	.001	-.075	-7.908	.000	-.070
Special Education	.005	-.050	-6.862	.000	-.061
Academic Support	.006	-.026	-2.688	.007	-.024
African American*	.005	.021	1.875	.061	.017
Career Preparation	.007	-.021	-2.213	.027	-.020
Employment/Vocational Training	.006	.017	1.941	.052	.017

White*	.005	-.016	-1.449	.147	-.013
Foster care status*	.002	-.016	-2.181	.029	-.019
Sex*	.003	.008	1.126	.260	.010

Note. *Covariates that were controlled for in the model

Summary of significant results

The NYTD Services and Outcomes files did not meet regression criteria. The data violated normality assumptions of skewness and kurtosis which increased the likelihood of type 1 error. Inverse and logarithmic transformations were used on predictor and outcome variables to normalize their distributions. The normality violations in the untransformed dataset highlighted data collection issues that make it difficult for researchers to make use of NYTD.

In RQ 1, model 2 was found to be most significant with the addition of education level explaining 5.8% of the variance. Education level appears to have a small to medium (beta coefficient of .259) relationship with earning an education certification. This was the only significant finding in the five models created to answer this research question. Findings for RQ 2 were similar. After model 1 (R^2=.292), little variance was explained by regression models two through six. While not significant, the beta coefficients for several predictors did appear to indicate a negative correlation between school related attendance/services and employment. Like RQ 2, RQ 3 found co-variates (employment related skills, highest education certification) to be more impactful to the regression model than the predictor variables (R^2=.380).

When interpreting the results of the regression analysis for RQ 1 it is important to keep in mind that, despite not finding many significant relationships between the service predictors and education certification, this study cannot determine their unique contribution to the variance. Order of variable entry into the regression equation could be responsible for not finding more significant relationships among service predictors and the outcome variable because education

level (.248) was entered into the regression equation first. Education level is highly correlated with academic support services (.586), post-secondary education support (.536), career preparation (.534), and employment/vocational training (.439). By entering it into the regression equation first, the impact of academic support services, career preparation, and employment/vocational training could be masked.

The correlations of different variables with employment demonstrated how the strength of each relationship with the dependent variable dictated when it was entered into the regression equation. In RQ 2 and RQ 3, post-secondary education support and career preparation were highly correlated with each other (.618). They were also both correlated with employment. Since post-secondary education support had a slightly higher correlation than career preparation (.154 vs .145), the amount of variance available for career preparation to independently contribute was limited since post-secondary education support was assigned their overlapping variance. Similarly, career preparation was also highly correlated with employment/vocational training (.514). However, since employment/vocational training was slightly less correlated to employment than career preparation (.131 vs. .145), career preparation was entered into the equation first and assigned the variance shared with employment/vocational training.

Career preparation and employment/vocational training were designed to foster the development of employment related skills over time as foster care youth participated in either service. This was important to note because, by co-varying employment related skills in RQ 2 and RQ 3, variance that may be contributed by either service to employment was removed from the equation. While this made it difficult to determine the unique contribution of both the career preparation variable and the employment/vocational training variable, employment related skills was co-varied so as to best answer RQ 2 and RQ 3. The purpose of each was to examine the

impact of services funded by CFCP, not individual characteristics. Including employment related skills in future studies could help researchers more directly examine the impact of specific services like career preparation and employment/vocational training on employment.

It was important to take correlational relationships into consideration when interpreting the results of this study because of the potential policy implications for supportive programming for foster care youth. This study was unable to determine if service variables like career preparation or employment/vocational training impacted employment. Similarly, this study cannot determine whether or not academic support, career preparation or employment/vocational training contributed to earning an education certification. Despite not finding a significant correlation between these variables in the regression models, these variables were correlated with employment or education certification. However, there were a few relationships that confirm findings from existing research and support the need for continued funding for programming in schools for foster care youth.

Chapter 5: Discussion

This chapter offered a summary of the study and key inferences drawn from the data presented in Chapter 4. It provided a dialogue on the implications for each action and suggestions for further research and policy.

Study Purpose and Methodology Overview

The purpose of this study was to look at the effects funding the CFCP had on academic and vocational outcomes for foster care youth. This research looked to see if designating funding in this way contributed to the intended education and employment outcomes outlined in CFCP. To do this, supportive education services funded through CFCP were examined to determine if they were associated with graduation and employment rates of foster care youth. The study employed a non-experimental cross-sectional study design using data collected from the NYTD services and outcomes files collected between 2011-2015. NYTD was a secondary data source made up of data compiled by each state. Prior to submission, all data were de-identified. After this process, the data were sent by each state's Department of Social Services to the Office of Administration for Children and Families' Children's Bureau under the U.S Department of Health and Human Services. The Internal Review Board at Virginia Commonwealth University deemed this study to be exempt as it did not meet inclusion criteria to be considered human subjects research. A copy of this exemption can be found in the Appendix 1.

To answer the research questions, three separate regression analysis were performed on the sample (N = 12,646). In each analysis, covariates were first considered followed by each predictor. Despite the data not meeting regression normality assumptions, the large sample size,

various normality improving transformations, linear education and employment residuals and relative multivariate normality, the results may be considered modestly applicable to the population.

Major Findings

In all three analysis, the predictor variables were found to be minimally correlated to the outcome variables but, in some instances, they were highly correlated to each other. Based off existing literature that has found relationship between the services similar to the predictor variables and desired outcomes, this could represent a measurement issue stemming from how the NYTD data files were collected (Moyer & Goldberg, 2019; O'Higgins et al., 2017; Palmieri & La Salle, 2017). It could also be a result of the order of variable entry into each regression equation. There were a few relationships that both support existing research and continued funding for programming in schools for foster care youth.

Research Question 1: After controlling for sex, race and foster care status, does academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training predict achievement of a GED/High School Diploma, Associates Degree, Bachelor's Degree or Higher Education?

Research question one sought to identify predictors of academic achievement. Analysis indicated the academic support variable, post-secondary academic support variable, employment/vocational training variable, special education variable, and career preparation variable did not significantly contribute to academic achievement. However, it did suggest that more time spent in middle and high school may predict academic achievement. In other words, the more grades completed while enrolled in secondary education, the more likely a foster care

youth was to graduate from high school, earn a GED, or attend a post-secondary institution. While this may seem an obvious conclusion, it does provide justification for further efforts in programming designed to support foster care youth maintaining school attendance.

Recent research has found that, given the opportunity and support to graduate, foster care youth will strive for graduation (Berlin, Vinnerljung, Hjern, & Brännström, 2019; Geiger & Beltran, 2017; Geiger, Piel, Day, & Schelbe, 2018). Thus, the question transforms from being about programs designed to support specific needs to one focused on secondary school retention. To put it another way, what is the most effective way to help a foster care youth get from the 9th grade to graduation?

In order to begin to address this question, existing obstacles need to be identified. A significant barrier to secondary school retention is the placement instability experienced by foster care youth. Instability turns the institutions that children are involved with into their most stable support system. As a foster care youth moves from placement to placement, foster family to foster family, the most consistent adults in their lives become the social workers, teachers, probation officers and therapists with whom they work. A more coordinated presence of these consistent players in the foster care youths' school life may help to increase school retention and utilization of supportive programs. It could also help to match foster care students up with mentors or coaches whose purpose it is to support them prepare for adulthood. Under the Every Student Succeeds Act, mentor like programs are necessary components of a public schools structure and should be available to this population ([P.L.]114-95, 2015).

The school itself could be used as a connection point for the major institutions playing a role in the foster child's life (Hill, 2013). It could also serve as a meeting place for other important supportive adults who the foster care youth consider to be natural or unpaid supports

to co-ordinate. This group of adults could include family, coaches, mentors, or any individual that the foster care youth wants to have an influence in their life. By standardizing a place for all parties to meet, communication could be streamlined.

Looking at these interactions through the bioecological model shows inefficiencies in the proximal processes between the major institutional players in a foster care youth's exosystem and the local connections that comprise the microsystem (e.g., teachers, social workers, etc.). Such inefficiencies are due in part to a lack of coordination by agencies within the microsystem that often operate in silos (Moyer & Goldberg, 2019). These disconnections can leave agencies unaware of the resource opportunities funded by the institutions at the exosystem level. Research indicates that there can be a strained relationship between foster care youth and schools that may result in them not being connected to resources that could help them be successful (Moyer & Goldberg, 2019). When supports like social workers or foster parents try to address these academic struggles with the schools, they frequently find supportive programming already exists. Offered services frequently include tutoring, mentoring, career exploration, support groups, coaching, counseling, and financial assistance (Ahmann, 2017; Geiger et al., 2018). Despite availability, the youth has not been connected to services. To reduce this inefficiency in proximal process the school could act as the intersection for players in the microsystem of a foster care youth to promote school stability, retention, and service utilization thus making more efficient use of federal funding distributed by the exosystem. This is in line with suggestions made by Moyer and Goldberg (2019) that positive engagement with school helps reduce academic instability. It is also supported by the findings in this study that indicate high correlations between going to school (education level) and programs that promote school engagement (academic support services, career preparation services).

Another barrier to secondary school retention is instability in school retention, a problem being addressed at the exosytem level. There is existing legislation designed to decrease the number of school placements a youth experiences while in foster care. As part of the Every Student Succeeds Act, a Best Interest Determination or BID meeting can be held to help determine if it is in a foster care youth's best interest to remain in their current school or transfer [(P.L.] 114-95, 2015). Increasing the engagement that a foster care youth has with a school could help education stability by clearly delineating in the BID process that the current academic placement should not be disrupted. These positive associations could be built through the previously suggested changes to the microsystem, helping foster care youth become involved in existing programs at the school connecting them, not only to positive adults, but resources to help build scholastic confidence. The interaction between existing legislation and the proposed microsystem level coordination could create a more efficient proximal process.

In this way, supportive programs funded through CFCP may begin to serve the dual function of increasing school retention and providing academic/vocational assistance. Despite the data suggesting a limited relationship between supportive services and academic achievement, there is a body of literature that supports programs within the school system designed to address specialized needs of foster care youth (Moyer & Goldberg, 2019; O'Higgins et al., 2017; Palmieri & La Salle, 2017). There is also research that links participation in supportive school services to increased attendance rates (Hill, 2013; Palmieri & La Salle, 2017). The correlations uncovered in this study support this body of literature. In short, one way to help increase school attendance for foster care youth between 9th and 12th could be for the school to act as the intersection for major institutional players along with other supports.

Research Question 2: After controlling for sex, race, foster care status and employment related skills, does academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training predict unemployment, part-time employment or full-time employment?

Research Question 3: Does receiving academic support, post-secondary education support, career preparation, education level, special education, and employment/vocational training impact achieving part-time employment or full-time employment independent from achievement of a GED/High School Diploma, Associates Degree, Bachelor's Degree or Higher Education Degree after controlling for sex, race, foster care status and employment related skills?

The purpose of research questions two and three were similar to each other and have been discussed jointly in this section. Both looked for a predictive relationship between employment and the following: academic support, post-secondary academic support, employment/vocational training, education level, special education, and career preparation. The difference between research question two and research question three was treating the highest education certification received variable as a co-variate in question three. After examining the results of the analysis, it was discovered that the predictor variables listed above do not appear to be correlated with employment in either research question. However, examination of the covariates revealed three small correlations. Employment skills had a slight positive correlation with employment indicating that employment skills may predict employment. Even though the chosen predictors were not found to be significant, many were correlated to employment skills (education level service, employment/vocational training, post-secondary education support, and career preparation). In this way, the predictors could relate to skill level impacting employment

through the employment skills variable. Foster care status had a small negative correlation with employment in each analysis. In research question three, highest education certification had a slight negative correlation with employment. In other words, foster care youth were more likely to be employed if they possessed employment skills and had signed themselves out of foster care. They were also less likely to have achieved an academic credential. These were logical conclusions after considering that foster care alumni who have employment skills and are not in foster care not only can gain employment but must work to support themselves. It looked like the foster care youth who decide to sign themselves out of foster care may not have had support to stabilize themselves enough to complete an education without the support of foster care.

The findings in research question two and three were similar to those in existing literature. It has been indicated that staying in foster care longer may increase the likelihood of attending post-secondary education (Sebba & Luke, 2019). The correlation between employment and foster care status in this study supported the conclusion. Having the added support of foster care while pursuing education provided a level of stability to those who chose to stay in. There would be services, funding, and people available to this group that more closely resemble the trajectory of a non-foster care youth with a sustaining family unit where the average age of independence is several years beyond eighteen.

If increased education increases employment which increases human capital (Becker, 1964; Rosen, 1975; Saraçoğlu & Karaoğlan, 2017), promoting programs that assist with school retention and increase employability would be paramount. Conversely, decreases in school retention and employability negatively effects the development of human capital. For example, the foster care youths that sign themselves out of care did not have institutional support in meeting basic needs making employment a matter of survival, which could have quickly put an

end to school attendance. This pressure to find immediate employment would suggest that youth who leave foster care tend to not earn an academic or vocational certification. The types of employment held by this group of foster care alumni likely do not require these pre-requisites indicating an unskilled type of work with minimal earning potential. The absence of such certifications likely contributes to why they earn less money annually than peers similar in socio-economic status that did not have a foster care experience (Gypen et al., 2017; Okpych & Courtney, 2014; Pecora, 2012) and decreases their economic contribution to society.

In order to increase education levels, earning potentials, and therefore human capital of foster care youth, the relationships between the actors involved would likely require adjustment given the previously described inefficiencies in associated proximal processes. If local connections at the microsystem level better coordinated with secondary education institutions at that level to implement evidence-based resources focused not only on getting foster care youth to graduation, but also encouraging vocational certification and pursuit of post-secondary education this population may be better able to increase their human capital. If resource utilization on the microsystem level was reevaluated this way to address barriers to grade matriculation, increased rates of graduation/vocational certification and skilled employment could increase human capital benefiting the exosystem through proximal process leading to societal economic benefits on the macrosystem level. CFCP has laid the groundwork by making available funding for creative programming by states. An example of this is the Year Up employment program adopted by several localities within different states designed to be flexible in meeting different population needs (Fein et al., 2018). The findings from this study supported the documented need for research on practical ways to help foster care youth finish their secondary education and achieve

skilled employment as a means of increasing their human capital (Geiger & Beltran, 2017; Palmieri & La Salle, 2017; Sebba & Luke, 2019).

Limitations

It is important to remember that, when interpreting the results of this study, the data were not normally distributed, were highly skewed, and were highly kurtotic. All findings were threatened by type one error despite the use of logarithmic and inverse transformations to normalize the distributions. The source of this abnormality can be traced back to the way that NYTD data were collected by each state. Guidelines on how to collect data and how to record data are vague and largely left up to the discretion of the individual data collector. The lack of standardization in how missing values specifically were collected make it difficult for researchers to use NYTD. In recent studies, it has been noted that the quality of secondary data sources on foster care youth are lacking (Romano et al., 2019; Sebba & Luke, 2019; Tessier et al., 2018). One of the purposes of NYTD and other secondary datasets like it is to give researchers a unique opportunity to study a protected population. They contain valuable and unique insights into foster care youth that are not accessible any other way. Having the ability to do more robust and targeted analysis of available secondary data could help researchers determine the best way to increase school attainment and employability simultaneously. NYTD specifically would become much more valuable as an information source if data collection procedures were more thoroughly prescribed by the Office of Administration for Children and Families' Children's Bureau.

The study is also limited by the nature of the sample. Only youth who participated in all three waves of data collection were included. This was done in order to capture the effect of service variables over time but does bias the sample towards individuals who were more likely to

be engaged in foster care services or other welfare services between 18-21. Variables like mental health, geographic location, foster care history, incarceration, and parenthood were not considered in the study despite potentially providing valuable insight into education and employment for this population. As an exploratory, hypothesis generating study, the goal was to look at services variables related to education and/or employment collected by NYTD. While these are all areas for future research, not including the variance caused by the variables above and others like them does limit the applicability findings.

The correlational findings of this study revealed how the chosen method of analysis limited the amount of variance contributed by potentially impactful variables. In RQ 1, by entering education level services into the regression equation directly after the co-variates, the potential impact of both academic support services and employment/vocational training was masked because both were highly correlated with education level services. Even more importantly, by co-varying employment related skills in RQ 2 and RQ 3, the study potentially masked the impact of academic support services and employment/vocational training on employment. Academic support and employment/vocational training were highly correlated with employment related skills which was highly correlated with employment. This meant that, by controlling for the impact of employment related skills on employment, the study also removed variance attributed to either of these predictor variables. This study limitations created by the analysis method made it difficult to draw conclusions about the predictor variables and their impact on employment. The findings cannot be used to draw funding or policy conclusions about the efficacy of existing supportive programs for foster care youth.

Future Research Recommendations

In order to address limitations of this study, it would be interesting to conduct a hierarchical regression analysis using inclusion criteria based on the correlational findings between NYTD variables. Specifically, looking at the relationship between employment related skills, employment, and services designed to promote employment would fill a gap in the existing study. The current study only looked at service variables associated with education. It would be interesting to see if other potentially intersecting services related to areas like mental health or independent living had an impact on education achievement and/or employment. Similarly, studies looking at geographic location and education/employment outcomes could be used to identify how the receipt of CFCP services like Independent living services by foster care youth in different areas of the country were impacted by variables like mental health or substance use. One way to start to look at relationships like these would be to link NYTD with AFCARS. By doing this, researchers would be able to collect information about the impact of the broader foster care experience on the outcomes of foster care alumni.

To conduct the research needed to identify effective evidence-based interventions for this protected population, there is a need for increased quality in secondary data sources moving forward. However, there is room for growth within existing secondary data sources like NYTD to ask questions related to policy and the impact of different mediating/moderating variables. It is important to highlight the need for study replication and propose a reproduction of this study with the most recent NYTD cohort. Future studies could be conducted in a similar manner but include variables not yet examined (mental health, substance use, homelessness, incarceration, etc.). As this potential research base emerged, it would then be important to do comparison studies between the most recent completed NYTD cohorts and historical NYTD datasets. By creating a knowledge base built of the relationships of difference CFCP services and

employment over time, the needs of this population may become clear. Also, comparing the data from different NYTD cohorts would lend to the scientific rigor of this research vein.

One of the more direct ways to gather information about this population could be to conduct a qualitative study of in-person interviews with different parties involved in the lives of foster care youth. Even though this is a protected population, there are no regulations surrounding research with foster care alumni or the parties involved in their foster care experience. A study like this could include foster care alumni, foster care social workers, foster parents, and adoptive parents. It would be interesting to look at the first-hand experiences of these different groups as they relate to employment and see how they are similar and how they are different. This perspective could guide researchers more expediently towards practical solutions that youth are currently experiencing instead of having to wait for different secondary datasets to become published. It would also provide a supplement to the findings of studies that used NYTD or similar databases to more broadly analyze the experience of foster care on a larger scale.

Concluding Remarks

The findings in the current study align with existing research yet also start to fill in an identified gap in our understanding of the systematic and systemic problems in implementing individual programs created to support foster care youth's ability to reach academic and vocational success (Sebba & Luke, 2019). This study is among the first to begin examining the relationship between wider policy, education and employment outcomes. By combining Bronfenbrenner's Bioecological Model and Human Capital Theory, this study gave perspective on the foster youths' development as well as the mixed results of the policies intended to enhance that development. The Bioecological Model provided a framework to describe the

mechanisms of Human Capital Theory explaining how these policy interventions could benefit both the foster youth and society more broadly if functioning efficiently.

Analysis from this study indicated a need to re-evaluate coordination by local partners in a foster care youth's microsystem to facilitate more efficient use of funds allotted by the exosystem. Using the school as the junction for involved parties, a shared focus on grade matriculation combined with the pursuit of skilled employment through post-secondary education or vocational training has the potential to create a more skilled workforce out of a historically economically disadvantaged population. By helping foster care youth build their human capital, programs would be fulfilling the intended micro and macro-economic purposes of CFCP through increased self-sufficiency. The more human capital that can be created by the foster care population, the greater the potential positive impact on the macrosystem through an ever-increasing micro-economic benefit.

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Appendix 1

VCU IRB Documentation

Office of Research and Innovation
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TO: Amy Armstrong

Amy Armstrong

CC: Carlisle Bates

FROM: VCU IRB Panel A

RE: Amy Armstrong ; HM20018822 Education Support for Foster Care Youth: The Impact of Federal Spending on Employment Outcomes

To be subject to the regulations, a study must meet the definitions for BOTH *"human subject"* AND *"research"*. While your study may fit one of these definitions, it does not fit both. Therefore, your study is not subject to the regulations and no IRB review or approval is required before you proceed with your study.

Section 45 CFR 46.102(l) of the HHS Regulations for the Protection of Human Subjects defines ***research*** as "*a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes.*"

Section 45 CFR 46.102(e)(1) of the HHS Regulations for the Protection of Human Subjects defines a ***human subject*** as *"a living individual about whom an investigator conducting research:*

- *Obtains information or biospecimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or biospecimens; or*
- *Obtains, uses, studies, analyzes, or generates identifiable private information or identifiable biospecimens."*

Thank you for informing us of the project. If we can be of service with respect to future research studies, please contact us.

If you have any questions, please contact the Office of Research Subjects Protection (ORSP) or the IRB member(s) assigned to this review. Reviewer contact information is available by clicking on the Reviewer's name at the top of the study workspace.

Thank you for your continued collaboration in maintaining VCU's commitment to protecting human participants in research.

Appendix 2

Correlations between all study variables

Variables		1	2	3	4	5
1. Sex	Pearson Correlation	1	0.012	-0.001	-.020*	-.042**
	Sig. (2-tailed)		0.196	0.949	0.021	0
2.White	Pearson Correlation	0.012	1	-.741**	0.011	-.155**
	Sig. (2-tailed)	0.196		0	0.208	03
3.African American	Pearson Correlation	-0.001	-.741**	1	-.245**	.106**
	Sig. (2-tailed)	0.949	0		0	0
4.Hispanic Or Latino	Pearson Correlation	-.020*	0.011	-.245**	1	.065**
	Sig. (2-tailed)	0.021	0.208	0		0
5.Fostercare Status	Pearson Correlation	-.042**	-.155**	.106**	.065**	1
	Sig. (2-tailed)	0	0	0	0	
6.Education Level Services	Pearson Correlation	-.121**	-.049**	.017*	.067**	.292**
	Sig. (2-tailed)	0	0	0.049	0	0
7.Special Education Services	Pearson Correlation	.052**	-0.015	0.009	.018*	.174**
	Sig. (2-tailed)	0	0.102	0.321	0.043	0
8.Academic Support Services	Pearson Correlation	-.073**	-0.005	-.022*	.034**	.197**
	Sig. (2-tailed)	0	0.588	0.012	0	0
9.Employment/Vocational Training	Pearson Correlation	-.023*	-.022*	-0.001	.047**	.180**

	Sig. (2-tailed)	0.01	0.012	0.916	0	0
10.Highest Educational Certification Received	Pearson Correlation	-.107**	-.018*	.019*	0.005	.114**
	Sig. (2-tailed)	0	0.041	0.036	0.564	0
11.Employment	Pearson Correlation	-.064**	0.017	-0.015	-0.004	.096**
	Sig. (2-tailed)	0	0.054	0.088	0.672	0
12.Post-Secondary Education Support Services	Pearson Correlation	-.102**	.022*	-.038**	.030**	.196**
	Sig. (2-tailed)	0	0.015	0	0.001	0
13.Career Preparation Services	Pearson Correlation	-.058**	.032**	-.034**	0.009	.153**
	Sig. (2-tailed)	0	0	0	0.304	0
14.Employment Related Skills	Pearson Correlation	-.055**	-.036**	.042**	0.002	.130**
	Sig. (2-tailed)	0	0	0	0.847	0

Variable		**6**	**7**	**8**	**9**	**10**
1. Sex	Pearson Correlation	-.121**	.052**	-.073**	-0.023	-.107**
	Sig. (2-tailed)	0	0	0	0.01	0
2.White	Pearson Correlation	-.049**	-0.015	-0.005	-0.022	-0.018
	Sig. (2-tailed)	0	0.102	0.588	0.012	0.041
3.African American	Pearson Correlation	0.017	0.009	-0.022	-0.001	0.019
	Sig. (2-tailed)	0.049	0.321	0.012	0.916	0.036
4.Hispanic Or Latino	Pearson Correlation	.067**	0.018	.034**	.047**	0.005
	Sig. (2-tailed)	0	0.043	0	0	0.564
5.Fostercare Status	Pearson Correlation	.292**	.174**	.197**	.180**	.114**
	Sig. (2-tailed)	0	0	0	0	0
6.Education Level Services	Pearson Correlation	1	.323**	.586**	.439**	.248**
	Sig. (2-tailed)		0	0	0	0
7.Special Education Services	Pearson Correlation	.323**	1	.233**	.192**	0.013
	Sig. (2-tailed)	0		0	0	0.134
8.Academic Support Services	Pearson Correlation	.586**	.233**	1	.511**	.095**
	Sig. (2-tailed)	0	0		0	0
9.Employment/Vocational Training	Pearson Correlation	.439**	.192**	.511**	1	.106**

	Sig. (2-tailed)	0	0	0		0
10.Highest Educational Certification Received	Pearson Correlation	.248**	0.013	.095**	.106**	1
	Sig. (2-tailed)	0	0.134	0	0	
11.Employment	Pearson Correlation	.215**	-0.001	.094**	.131**	.439**
	Sig. (2-tailed)	0	0.931	0	0	0
12.Post-Secondary Education Support Services	Pearson Correlation	.536**	.098**	.539**	.462**	.173**
	Sig. (2-tailed)	0	0	0	0	0
13.Career Preparation Services	Pearson Correlation	.534**	.205**	.610**	.514**	.132**
	Sig. (2-tailed)	0	0	0	0	0
14.Employment Related Skills	Pearson Correlation	.231**	.087**	.123**	.144**	.410**
	Sig. (2-tailed)	0	0	0	0	0

Variable		**11**	**12**	**13**	**14**
1. Sex	Pearson Correlation	-.064**	-.102**	-.058**	-.055**
	Sig. (2-tailed)	0	0	0	0
2.White	Pearson Correlation	0.017	0.022	.032**	-.036**
	Sig. (2-tailed)	0.054	0.015	0	0
3.African American	Pearson Correlation	-0.015	-.038**	-.034**	.042**
	Sig. (2-tailed)	0.088	0	0	0
4.Hispanic Or Latino	Pearson Correlation	-0.004	.030**	0.009	0.002
	Sig. (2-tailed)	0.672	0.001	0.304	0.847
5.Fostercare Status	Pearson Correlation	.096**	.196**	.153**	.130**
	Sig. (2-tailed)	0	0	0	0
6.Education Level Services	Pearson Correlation	.215**	.536**	.534**	.231**
	Sig. (2-tailed)	0	0	0	0
7.Special Education Services	Pearson Correlation	-0.001	.098**	.205**	.087**
	Sig. (2-tailed)	0.931	0	0	0
8.Academic Support Services	Pearson Correlation	.094**	.539**	.610**	.123**
	Sig. (2-tailed)	0	0	0	0
9.Employment/Vocational Training	Pearson Correlation	.131**	.462**	.514**	.144**
	Sig. (2-tailed)	0	0	0	0

10.Highest Educational Certification Received	Pearson Correlation	.439**	.173**	.132**	.410**
	Sig. (2-tailed)	0	0	0	0
11.Employment	Pearson Correlation	1	.154**	.145**	.462**
	Sig. (2-tailed)		0	0	0
12.Post-Secondary Education Support Services	Pearson Correlation	.154**	1	.618**	.151**
	Sig. (2-tailed)	0		0	0
13.Career Preparation Services	Pearson Correlation	.145**	.618**	1	.164**
	Sig. (2-tailed)	0	0		0
14.Employment Related Skills	Pearson Correlation	.462**	.151**	.164**	1
	Sig. (2-tailed)	0	0	0	

*p<.05, **p<.01