

ADULT LITERACY IN THE UNITED STATES:
COMPARATIVE STUDY OF IMMIGRANT AND AMERICAN-BORN ADULTS

by

ADAM K. STEIN

Presented to the Faculty of the Graduate School of

The University of Texas at Arlington

in Partial Fulfillment of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

December 2020

ABSTRACT

Despite its status as a wealthy, developed nation, the United States is plagued by widespread deficiencies in adult literacy. The problem is quite severe among individuals who were born in country, yet the situation for the nation's immigrant population is nothing short of alarming. Using the U.S. portion of the data set for the international 2012/2014 Program for the International Assessment of Adult Competencies (PIAAC), the study explores the impact of everyday practice on the development of literacy skills among adults aged 16 to 74.

Where other studies typically focus on the literacy crisis among America's school-age children, the present study goes further by recognizing the fact that low literacy extends into adulthood. For immigrants in the U.S., the problem is often compounded by underdeveloped English-language skills and/or a lack of formal schooling. The present study provides a comparative analysis of the literacy levels and literacy practices of American-born and immigrant adults in the United States. Moreover, the two groups are compared in terms of certain sociodemographic features, including age and gender composition as well as level of education.

The study suggests that immigrants' literacy struggles can largely be attributed to language barriers and a lack of formal schooling, with nearly 25% of adult immigrants not having completed high school. Additionally, female participants demonstrated lower literacy levels, while younger adults scored on average higher on the literacy assessment.

Of the study's most significant findings, insight into the notion of how practice in a field contributes to acquisition of capital (Bourdieu, 1990, 1993), specifically language capital with respect to literacy, was underscored as certain literacy acts, such as reading and writing letters, were determined to have a positive impact on adult literacy scores. The study also found

variation in specific methods of practice which further affected literacy levels among American-born and immigrant adults.

In closing, the study recommends legislative change at the federal level to promote consistent literacy development beginning with the nation's youngest learners. Furthermore, transformative curriculum interventions are necessary in adult education programs to accommodate the unique needs of low literacy adults, as informed by the study's results. An entirely different instructional framework must also be considered for low literacy immigrants who also struggle with the English language and possibly literacy in their first language.

Copyright © by Adam Stein

All Rights Reserved

ACKNOWLEDGEMENTS

Completing this doctoral dissertation has been quite the journey, and I certainly would not have made it to this point without the support of a few noteworthy individuals in my life. First and foremost, none of this would have been possible without the support, guidance, patience, and insight from my wonderful dissertation committee chair, Dr. Maria Trache. From helping me to locate a dissertation topic to putting up with all my excuses that I learned from my own students, I could not have asked for a better mentor. Similarly, Dr. Estee Beck has been such an amazing committee member as well as a colleague, and I would not have gotten here without her consistent positivity, motivation, and expertise. I am also grateful that Dr. Yi (Leaf) Zhang agreed to join my dissertation knowing what a handful I can be. Her knowledge and guidance have also been immensely helpful.

A special thanks to my parents, Alan and LaRee Stein, and my uncle, Dr. Jerald Mankovsky, as well as my close friend, Jamie Bowden, whom I have known since preschool. All three of them continued to push me as they knew that what I lacked in consistent motivation and focus could eventually be overcome by my persistence and resilience. They also knew that even the class clown can grow up and become a PhD.

Lastly, I cannot forget to express my appreciation for my special feline companions, Stella and Lucky. Their emotional support and crazy antics during the pandemic of 2020 certainly helped get me to the finish line.

Table of Contents

Abstract	ii
Acknowledgements	v
List of Tables	ix
CHAPTER 1	1
Statement of the Problem	4
Purpose of the Study	6
Research Questions	6
Method	7
Theoretical Framework	7
Background of the Researcher	8
Significance of Research on Adult Literacy	10
Definition of Terms	12
CHAPTER 2	15
Perspectives on Adult Literacy	15
Measuring Literacy Skills	18
Literacy Development	20
Social Practice	24
Consequences of Literacy Level on Adult Lives	26
Adult Literacy and Sociodemographic Factors	29
Gender	29
Education level	31
Age	32
Orienting Theoretical Framework	33

Summary	36
CHAPTER 3	38
Research Questions	38
Research Design	38
PIAAC Data	38
United States PIAAC Sample	40
Study Research Sample	41
Variables	41
Socio-demographic characteristics	42
Literacy use in daily life	43
Proficiency rating of literacy in English	43
Data Analysis	44
CHAPTER 4	46
Research Question 1	47
Summary of Findings RQ1	48
Research Question 2	49
Summary of Findings RQ2	54
Research Question 3	54
American-born Adults	55
Adult Immigrants	59
Summary of Findings RQ3	64
Summary of Study Findings	66

CHAPTER 5	68
Summary of Key Findings	68
Adult Literacy in the United States.....	69
Adult Literacy and Education Level	72
Literacy Skills Development through Practice	73
Implications and Recommendations for Practice	74
Implications and Recommendations for Policy	78
Future Research	81
Limitations of the Study.....	84
Significance of the Study	86
Conclusion	89
References.....	91

List of Tables

Table 3-1 Variables and Constructs.....	42
Table 3-2 Summary of Research Questions and Analyses.....	44
Table 4-1 Socio-demographic Factors by Immigrant Status.....	47
Table 4-2 English Literacy and Use of Skills by Immigrant Status.....	50
Table 4-3 Regression Model for American-Born Adults.....	56
Table 4-4 Regression Model for Immigrants.....	60

CHAPTER 1

INTRODUCTION

Literacy has long been a key factor for success in American society. Being able to read and fully comprehend the written word in different settings is crucial to function in modern life as the United States is no longer an agrarian nor manufacturing society but an information society in a globalized world (Brandt, 2001).

While there is no singular definition of literacy, the International Adult Literacy Survey (IALS) defines literacy as “the ability to understand and employ printed information in daily activities, at home, at work and in the community— to achieve one’s goals, and to develop one’s knowledge and potential” (OECD, 1997, p. 14). In a more concise version, Batalova and Fix (2015) defined literacy as “adults’ ability to understand and use written text in print and electronic formats” (p. 3).

Unfortunately, out of the entire U.S. population (including immigrants), more than 36 million adults have reading skills which are below a fourth-grade level (ProLiteracy, 2019). According to the U.S. Department of Education, one in four high school seniors are unable to meet a basic level of reading achievement (NCES, 2018). The adverse effects of not being fully literate carry over into adulthood and permeate numerous aspects of an individual’s life, from navigating financial documents to obtaining full-time employment (Sticht, 2002).

Feelings of isolation and alienation additionally accompany illiteracy when an individual cannot fully participate in everyday tasks such as reading a menu at a restaurant or helping a child with homework (CCL, 2007). Accordingly, it is extremely common for low-literacy adults to hide their literacy problems from their spouses and children and use compensation strategies

and avoidance strategies to mask their deficiencies, i.e., only dining at restaurants with picture menus and making excuses not to read to their young children (Roter & Comings, 1998).

Such shortcomings in an individual's literacy skills can lead to dramatic consequences in a person's life. Newman and Beverstock (1990) declared "Literacy demands in the workplace and in society in general alienate the illiterate and the uneducated from the more knowledgeable mainstream and contribute to endemic poverty" (p. 201). Low literacy proficiency is not merely an internal problem in the United States; it is also a problem the country as a whole faces relative to other nations in an era of globalization. Compared to workers in other industrialized nations, American workers are among the lowest in terms of literacy (Stein, 1997).

The far-reaching consequences of low literacy skills affect American-born adults as well as the immigrant population over the course of their lifetime. While the condition of being literate affects one's ability to function and thrive in daily life, education, and the workforce (Hauser, Edley, Koenig, & Elliott, 2005), research indicates that there is also a strong correlation between the level of fluency of adult immigrants and their children (the second generation) in the host country's language. Quite often the children of adult immigrants with low levels of literacy continue on a similar trajectory as their parents and fail to develop advanced levels of proficiency (Casey & Dustmann, 2008) which affects their integration in the host country.

Consideration of immigrants' literacy needs is imperative as the United States has historically been a land of immigrants, and the nation's landscape continues to be shaped by immigration (Wrigley, Chen, White, & Soroui, 2009). Since 1990, the country has seen roughly one million refugees and immigrants resettle within its borders. To date, an estimated 15% of the population (38 million individuals) is *foreign-born*, 70% of whom are between the ages 25-59 (McHugh & Morawski, 2015). The foreign-born population in the U.S., which includes

immigrants and refugees, comprises 87% of the country's Limited English Proficiency (LEP) population, and 53% of this group is from Latin America (Migration Policy Institute, 2016). A lack of language proficiency, including literacy abilities, results in more pronounced educational, workplace, and societal barriers for immigrants.

Immigrants in the U.S. continue to be at disadvantage stemming from language barriers to educational inequality (Wrigley et al., 2009). Many immigrants additionally lack full access to higher education in the U.S. With a direct connection between higher education and entry into professional workforces, immigrants subsequently miss out on opportunities for substantive literacy development (Berg, 2010; Kim & Diaz, 2013; Sweetman & Truong, 2018).

Being that literacy and other aspects of language proficiency are directly related to economic outcomes (e.g., employability, job quality, and income potential) and the ability to establish social relationships (Gee, Walsemann, & Takeuchi, 2010), fluency in English and literacy play a major role in advancing the social status of immigrants and their children. It also appears that limited English abilities can trigger various forms of discrimination in an immigrant's daily life (Gee & Ponce, 2010), which can affect one's socio-economic integration. According to Clark (2007), immigrants often cite language deficiencies as a greater cause of discrimination than race, ethnicity, or skin color.

Although deep-rooted societal issues in the U.S. cannot be solved overnight, pursuing concrete and sustained strategies to literacy development with a research-based, focused vision is an initial step to tackling some of the inequalities in American society for immigrants and American-born adults. Fortunately for adults, literacy can continue to develop well beyond the school years (Mellard, 2013; National Research Council, 2012). Reder (2009) indicated that "literacy and numeracy do indeed continue to develop across the life span. A variety of

contextual, economic, and cognitive factors systematically influence these developmental processes” (p. 17). Such strategies for adult literacy development, both conscious and unconscious, vary by person. Moreover, becoming more proficient in literacy remains a challenge for many adults.

Chiswick and Miller (1995) further posited that accumulation of language capital by immigrants is heavily dependent on numerous pre-migration and post-migration factors. Language skills mediate the integration of immigrants in the host country and constitute an asset that allows accumulation of other forms of capital and social status. The precise approach to developing literacy and fluency following migration varies, depending on an individual’s exposure to host country language, frequency of use, age, and motivation. Considering the importance of adult immigrants’ integration in the host country and the role of language skills in this process, we need a more thorough understanding of the types of English language practice and the degree of practice sufficient to produce a level of language and literacy skills comparable to American-born adults.

Thus, the present study aims to clarify approaches adults use to develop their literacy skills in different contexts. Despite the individualized aspect of literacy acquisition for adults, the study attempts to determine and compare patterns of habits which result in heightened literacy abilities for American-born adults and the immigrant population of the country.

Statement of the Problem

Due to the nation’s acute and widespread adult literacy issues, researchers and policy makers must better understand the most effective ways for adults in the U.S. to become more literate. To successfully integrate individuals with low literacy skills into American society, further research is needed to offer a framework for adult literacy acquisition in both academic

and non-academic contexts for the American-born and immigrant population. While native-English speaking individuals have their own challenges with literacy, immigrants' literacy shortcomings add to their overall lack of language capital and status as "linguistic outsiders" (Adamuti-Trache, 2012, p. 107). Immigrants must overcome countless obstacles in a foreign landscape and compete for scarce resources while working toward proficiency in the English language, including literacy development (Campano, 2007).

In order to combat the dire situation facing literacy of American-born adults as well as immigrants, empirical research based on large-scale data is useful to accurately comprehend common strategies that adult learners pursue with resulting enhancement of their literacy level. What exactly are they doing, how often are they doing it, and does there seem to be an effect on their English language skills and literacy levels?

These questions apply to immigrants as well as American-born adults, but limited literacy skills are more consequential for immigrants who experience broader language barriers. While ample research exists highlighting literacy deficiencies in American society (Batalova & Fix, 2015; Greenberg, Pae, Morris, Calhoun, & Nanda, 2009; Venezky & Sabatini, 2002), especially among immigrants (Mathews-Aydinli, 2008), little is known about actual literacy practice and development among adult immigrants or American-born adults via a large-scale assessment, especially in non-academic contexts (Kirsch & Lennon, 2017). Therefore, more substantial research needs to be conducted to reduce the uncertainty surrounding the issue of literacy improvement for immigrants and American-born adults in the United States. Furthermore, existing research relies too heavily on self-reported proficiency levels of English. Thus, use of more objective measures of individual literacy ability and reliance on large scale data are crucial in order to generalize research findings onto a broader population.

Purpose of the Study

This study will employ a comparative lens to examine the level of English literacy and the practices to improve literacy through the use of skills in everyday life among adult immigrants and their American-born counterparts while also comparing the two groups of respondents demographically in terms of age, gender, and level of education. Building on the work of Chiswick and Miller (1995) and Adamuti-Trache (2012), I will explore the notion of practice as a means to increase literacy proficiency by using data from the 2012/2014 Program for the International Assessment of Adult Competencies (PIAAC). The data set includes a standardized assessment of participants' literacy scores, which offer a more objective measure of language proficiency than self-reported indicators.

To help researchers and policymakers more adequately understand the depth of the literacy challenges among American-born adults and immigrants in the United States, the purpose of this study is to uncover factors related to demographics, education, and daily literacy practices **that demonstrate a correlation with** literacy levels. Such insight is needed to fill in existing gaps in the literature on adult literacy and to guide policy decisions on how to elevate the lives of immigrants and American-born adults in the country by improving language and literacy skills and, hence, leading to more inclusion in modern society.

Research Questions

The following research questions will guide the present study:

- 1) Are there any differences between immigrant and American-born adults with respect to socio-demographic factors (i.e., gender, age, level of education)?
- 2) What are the differences between immigrant and American-born adults with respect to English literacy scores and extent of *skills used* in everyday life?

3) What is the relationship between the level of English literacy of immigrant and American-born adults and the extent of skills used in everyday life, when controlling for socio-demographic factors (i.e., gender, age, level of education)?

Method

The study is based on a secondary data analysis of the 2012/2014 Program for the International Assessment of Adult Competencies (PIAAC) database for the United States. Information on English literacy and practices to improve literacy (i.e., the extent of skills used in everyday life) was extracted from the database for a sample of $N=7,734$ adults of whom about 1,114 were immigrants. This is a comparative study of literacy skills and social practices to improve literacy among U. S. adult immigrants and their American-born counterparts. The study employs bivariate and multivariate analyses including linear regression models.

Theoretical Framework

The study is guided by Bourdieu's (1977; 1990) sociological framework that places distinct forms of capital possessed by an individual at the center of their social and economic life course and helps to understand the dynamics of power and access to opportunities in American society. Bourdieu's framework also describes the concept of practice in a field as a means to acquire certain forms of capital. Possession of various forms of capital allows an individual to become a more full-fledged member of society (Bourdieu 1986; Daly & Silver, 2008) and to effectively navigate successfully throughout life. For immigrants, language skills are crucial for the integration in the host country as recognized by Chiswick and Miller (1995) who introduced the notion of language capital. Other authors (Dustmann & Fabbri, 2003) emphasized that for adult immigrants, language capital is a component of host country human capital that can acquire through social practice.

Background of the Researcher

After learning the phrase “citizen of the world” many years ago, I realized there was probably no better term to describe me. I have been fortunate enough to visit roughly 45 countries in Latin America, Europe, Asia, the Middle East, and North Africa. I have also lived and worked overseas and have had some amazing travel and cultural experiences along the way. In my experiences living abroad, I got to understand firsthand what it means to be an immigrant and to be a cultural and linguistic outsider. Struggling with language barriers and foreign scripts helped me to understand what many immigrants in the U.S. deal with trying to make it in this society.

Over the years, I have been able to combine my passion for education with an internal desire to empower others with language skills to help them succeed personally, professionally, and academically. I have taught academic English to international students at a large public university in the U.S. for more than 10 years. As one who helps adult learners to develop their reading, writing, listening, and speaking skills for the purposes of undergraduate and graduate studies in the U.S., I intend to use a research lens to add more to the discussion of formal and informal approaches to adult literacy development.

Typically working with traditional academic reading skills, such as skimming, scanning, drawing inferences, and understanding main ideas, I have focused on supporting learners to develop a deeper understanding of the written text, often for testing purposes. Capturing even a surface-level understanding of reading material in English can be quite a challenge for non-native-English speakers, and critically interacting with the text can be even more challenging.

While using fiction and non-fiction reading selections for instructional purposes, I became more and more interested in understanding how learners can move beyond merely

comprehending the written word. While literacy means different things in different contexts, I have sometimes wondered if learners actually understand what they are reading. For academic purposes or for those who read for pleasure, my interests have grown to use literacy as a means to actually learn and develop, to expand one's horizons, and to be exposed to differing perspectives.

Outside of academic contexts, I have also worked with immigrants and refugees at ESL and literacy community centers. This population often has a more unique set of circumstances and requires a more immediate and accessible approach to literacy, often for "survival" purposes to function on a day-to-day basis in an English-speaking country. The varying levels of education and possible illiteracy in the first language also present another layer of challenges for immigrants and refugees when confronted with literacy in the English language. While my true desire is for all adults to develop the capacity of advanced literacy practices, I realize that there are many whose lives will greatly benefit personally and professionally from the acquisition of basic literacy skills in English. Through this community experience, I understood that adult immigrants benefit from a range of practices to help them acquire language skills and improve their level of literacy.

After countless experiences witnessing the firsthand struggles that language learners encounter in developing their literacy skills, I have developed a strong desire to contribute to transformative literacy acquisition practices for adult learners. International students, immigrants, refugees, and American-born adults alike experience varying forms of obstacles on the pathway to functional literacy, depending on the context and their needs. Looking outside of a brick-and-mortar classroom, I intend to look for patterns in the data to highlight everyday methods of practice that adults engage in to enhance their literacy skills. Upon reaching

conclusions from the research, a framework can be devised to elevate the literacy of adults in the U.S. using practical and realistic techniques. Being that millions of adults in the U.S. have literacy skills equivalent to those of an elementary school student (ProLiteracy, 2019), the time to act is now.

Significance of Research on Adult Literacy

With demographic trends continually shifting in the United States as immigration patterns are influenced by geopolitical factors and domestic policy, immigrants remain a prominent and sizable portion of the population in the country (Batalova, Shymonyak, & Mittelstadt, 2018). Presently, there are an estimated 44.7 million immigrants residing in the United States (Batalova, Blizzard, & Bolter, 2020) who may benefit from intentional policy and programs to support their growth as English learners. On a national stage, immigration remains a controversial issue at the forefront of American politics. Immigration policy has often focused on setting quotas for skilled and unskilled workers while ignoring factors such as the wage gaps that immigrants face, often stemming from underdeveloped language and literacy skills (Smith & Fernandez, 2015). Regardless of politics and policy, immigrants, in addition to many American-born adults, face daily hinderances stemming from individual literacy deficiencies, and the study contributes to research examining means to support adult literacy.

Literacy levels for immigrants and American-born individuals must be a key focus of policy related to adult education and workforce development programs for individuals who lack a functional literacy level. Not only do individuals suffer, but the nation as a whole is affected as there are clear links between deficient literacy levels and low workplace productivity, and unemployment (National Council for Adult Learning, 2015). Low literacy skills additionally exasperate societal exclusion of groups that were already marginalized, such as women and older

adults (McCaffery, Merrifield, & Millican, 2007). Policy at the federal, state, and local level must include funding for programs to elevate the literacy skills of adults in the United States toward the betterment of the nation. When policymakers allocate resources, results-driven literacy programs for adults must become a priority (McCaffery, Merrifield, & Millican, 2007). The study draws attention on differences in literacy skills for specific demographic groups of adults in the United States.

Reliable forms of literacy assessment, such as the PIAAC study, are a key factor to inform the work of policy makers to help identify discrepancies between workers' skills and their jobs as well as offering insight into literacy development endeavors. Hauser et al. (2005) stated, "Policy makers rely on assessments to evaluate both the extent of such mismatches and the need for services that provide basic literacy skills for adults. Such assessments can provide the foundation and impetus for policy interventions" (p. 1). Using PIAAC data for the present study offers a framework of literacy development practices which can be incorporated into transformative adult education programs which often require legislative support. Overall, the study will contribute to understanding differences between immigrant and American-born adults with respect to literacy by employing a large-scale dataset that includes standardized assessments of adults' literacy and information on practices used to develop literacy skills.

Research on adult literacy has numerous implications for practice, research, and policy. Practitioners who work with low-literacy adults can weave certain literacy practices into their instruction to nurture literacy development. Additionally, adults' instructional needs are inherently different than those of children, and adult literacy educators are called upon to connect classroom instruction to real-world application. Educators must also rise to the

challenge of fulfilling the overall language learning needs of immigrants while also working toward literacy advancement.

Definition of Terms

The following definition of terms will assist the reader in understanding the key concepts used in this study.

Capital: Bourdieu (1986) defines capital as “accumulated labor (in its materialized form or its “incorporated,” embodied form) which, when appropriated on a private, i.e., exclusive, basis by agents or groups of agents, enables them to appropriate social energy in the form of reified or living labor” (p. 15).

Cognitive Skills: Thinking abilities including literacy, numerical computation, memory, and reasoning (Farkas, 2003)

English Language Learners (ELLs): Students, typically non-native speakers, who lack fluency in English and are participating in targeted language courses (Bigelow & Schwartz, 2010).

Ethnography: According to Papen (2005), ethnography “refers to close, in-depth examinations of social activities as they occur in real-life settings” (p. 59).

Human Capital: An individual’s tangible skills and knowledge that equate to participation in the economy. Forms of human capital include language, education, and market experience (Chiswick & Miller, 2003).

Immigrant: For the purposes of this study, participants were classified as immigrants based on their responses on the background questionnaire. Individuals were categorized as immigrants if they indicated that they were born outside of the U.S. (first generation), were born outside of the U.S. but arrived in the country prior to the age of 13 (generation 1.5), or were born

in the U.S. and at least one of their parents was born outside the country (second generation). (Batalova & Fix, 2015).

Language Capital: A form of human capital used to leverage an individual's language skills as a means of power in society (Chiswick & Miller, 2003); also known as linguistic capital (a form of cultural capital) where individuals' cumulative language abilities are part of their status in society as determined by the dominant group (Bourdieu, 1991).

Large-Scale Adult Literacy Studies:

- Adult Literacy and Lifeskills (ALL) Survey: A large-scale, international study conducted from 2003-2008 in 11 countries and territories to assess the literacy and numeracy skills of adults between 16 and 65 years old. The U.S. portion of the study was conducted in 2003 with a sample size of 3,420 individuals (Kirsch, 2001).
- International Adult Literacy Survey (IALS): A large-scale, international literacy study conducted in 22 countries, including the United States, between 1994-1998. The sample size for the U.S. segment was 3,053 (U.S. Department of Education, 2020).
- Programme for the International Assessment of Adult Competencies (PIAAC): A global study which has taken place in more than 40 countries and was designed to measure numerous adult competencies, including literacy. The U.S. sample size included 5,000 participants. The U.S. portion of the study was conducted from 2011-2012. (Organisation for Economic Co-operation and Development, 2020).
- National Adult Literacy Survey (NALS): A national study conducted in all 50 states of the U.S. in 1992 where 26,000 participants were surveyed. The participants were between 16 to 64 years old. (Kirsch, 1993).

Limited English Proficiency (LEP): A descriptive term used for those who lack functional fluency in the English language in regards to the four language skills (reading, writing, listening, and speaking); typically reserved for second-language speakers of English (Wonacott, 2000).

Literacy as a Social Practice: Literacy is perceived as an act that does not occur in isolation. It is contextualized through various social practices in daily life (Brandt & Clinton, 2002).

OECD Education Attainment Levels: The OECD's international classification includes three broad groups: below upper-secondary, upper secondary, and tertiary. An intermediate classification, post-secondary non-tertiary, is used in broad terms internationally to describe less academic endeavors following high school, such as trade schools (OECD, 2002).

CHAPTER 2

LITERATURE REVIEW

Identifying and understanding the different approaches to adult literacy skill development is key to offering recommendations for various stakeholders involved in literacy instruction. Literacy development is sometimes intentional while unintentional at other times. Regardless, a functional literacy level often equates to a higher quality of life in addition to more employment opportunities and fair wages (Moore, Fee, Ee, Wiley, & Arias, 2014). Exploring relevant published literature offers insight into the different aspects and issues related to literacy development of adults in the U.S. The literature review provides support from existing research on major themes relevant to the study by beginning with a working definition of literacy that applies to adults in the U.S. including various strategies to measure literacy skills. I also discussed issues related to literacy development and literacy acquisition practices for immigrants and American-born adults. Next, relevant literature on the role of literacy in adult life is presented, including the crucial importance for employment, social life and civic participation. Then the literature review focused on the exploration of demographic factors that may affect literacy, i.e., gender, age, and level of education that have been identified by researchers. The chapter will conclude with a section presenting an orienting theoretical framework for the study.

Perspectives on Adult Literacy

Historically, a working definition of literacy has focused on transactional aspects of being able to read and write in what is known as the “skills view of literacy,” involving coding and decoding of written material (Papen, 2005). Barton (1994) also refers to this approach as limiting the scope of literacy to an academic standpoint (spelling, grammar, and traditional forms of literature). Although the skills view has merit in educational settings, it ignores the contextual

and social aspects of literacy, which become even more important for adults when considering factors such as one's job circumstances, socioeconomic status, daily routine, and family situation (Greenberg & Feinberg, 2019). Barton and Hamilton (2000) emphasized that to truly comprehend literacy, one must delve into the social pursuits in which literacy takes place while Papen (2005), from an ethnographical perspective, detailed adult literacy as social practices contextualized within their function in society. Moving beyond a skills approach, literacy's key relevance is how it is used.

Similarly, Street (2016) emphasized the ethnographic dynamic of literacy to underscore the meaning of literacy in a social setting and the way literacy is actually used in the context. From this perspective, literacy does not take place independent of its surroundings. Literacy is intertwined with people's daily customs and habits and does not only occur within the confines of formal or informal educational settings. Literacy may involve processing the information on a menu at a local restaurant or decoding the policies for a child's afterschool program. Therefore, a one-size-fits-all approach to teaching and acquiring literacy is ineffective given the complex nature of the situated needs of adult learners.

Street's (2016) ethnographic approach incorporates the literacy as a social practice (LSP) philosophy which focuses on "the nature of literacy in use" (p. 336). Therefore, there is no singular definition of literacy, and there are multiple literacies, varying from context to context. Power dynamics and social norms also contribute to the construct of literacy in each context. Street (2016) recognizes knowledge, including literacy, cannot only be acquired in educational institutions but also in other spheres, such as religious communities and the workplace.

Congruent with Street (2016), Appleby and Hamilton (2006) emphasized literacy must be considered a social practice in order to "consider the uses of literacy in varying cultural and

language contexts and how these fit with the range of available communication media” (p. 197). As opposed to focusing on literacy shortcomings in their research, Appleby and Hamilton shifted the emphasis to individuals’ contextual relationship to literacy within various segments of society, i.e., a car mechanic might have to decipher technical manuals at work while a college student needs to navigate more academic material. Thus, since the lives of adults often take place outside of a classroom setting, literacy becomes intertwined in specific “cultural” contexts (work, commuting, church, etc.) for specific purposes (understanding side effects of a prescription) and activities, such as ordering products online (Papen, 2005, p. 1)

Furthermore, there are many different approaches to “literacy” that go beyond the traditional notion of literacy; in addition to reading fiction and non-fiction books, the participants in Barton, Ivanic, Appleby, Hodge, and Tusting’s (2007) study reported deciphering bus timetables, participating in online chat forums, reviewing instruction manuals, keeping a diary, and reading and writing emails to friends.

Literacy is not only highly contextual (Appleby & Hamilton, 2006), but it is also highly individualized, and individuals can be highly literate in one domain regardless of their education level or cognitive abilities (Barton et al., 2007). Therefore, the development of literacy is a highly contextual, personal, and lifelong learning process that can be achieved through an array of practices in various societal contexts.

McCaffery, Merrifield, and Millican (2007) proposed a more comprehensive model of literacy which incorporates four *concepts* of literacy (i.e., skills, tasks, practices, and critical reflection) that operate as cumulative, overlapping layers in the literacy development process. The authors argued that:

Literacy is rooted in the *skills* of reading and writing. These skills are used by

individuals to accomplish *tasks* in their daily lives. These tasks are part of their literacy *practices*, socially and culturally rooted in the communities in which they live and work. Literacy can be a means for *critical reflection* on the world as a necessary part of becoming capable of creating change. (p. 41)

The final layer of critical reflection, also known as the *radical approach*, focuses on literacy not simply as a means to read and write, but more so as a way to achieve social development, critical reflection, and social justice.

For the purposes of this study, PIAAC's similarly comprehensive definition of literacy will be used as follows: "the ability to understand, evaluate, use, and engage with written texts to participate in society, to achieve one's goals, and to develop one's knowledge and potential" (OECD, 2013, p. 61). The definition builds upon other definitions of literacy (Appleby & Hamilton, 2006; Barton & Hamilton, 2000; Papen, 2005) to account for the dynamic ways in which adults' literacy skills are used for different purposes in various societal contexts.

Measuring Literacy Skills

While there is no singular definition of literacy, there are also various ways in which people attempt to measure certain literacy skills (comprehension, fluency, vocabulary in context, etc). Depending on the objectives of assessment, various studies may attempt to measure literacy in different contexts, i.e., workplace, academic, social, and civic. Rychen and Murray (2005) indicated that it is necessary to identify key competencies which are necessary for "personal, social, and economic well-being" (p. 33) when devising a process to measure literacy. Adding further complexity to the issue are the inherent challenges of measuring adult literacy. Literacy assessment is typically designed for children in an academic setting, and available standardized forms of assessments for adults typically do not account for individuals with very low literacy

skills (Greenberg, Morris, Calhoon, & Nanda, 2009; MacArthur, Konold, Glutting, and Alamprese, 2010; Venezky & Sabatini, 2002).

Hauser et al. (2005) reinforce the idea that literacy be thought of as a critical skill. . . “one that has the power to enhance the number and variety of opportunities available to individuals and that can enable them to lead productive lives and become informed community members and citizens” (p. 182). As such, the authors believe literacy must be assessed in a way which reflects first the needs of adults in the United States before designating various contexts (home, work, health services, leisure, etc.) which will be used to formulate test questions. This approach, arguably, elicits data that gives a more holistic depiction of adults’ ability to properly function in different spheres of daily life in the U.S.

Previous large-scale surveys on adult literacy in the United States, e.g., the 2003 National Assessment of Adult Literacy (NAAL), have included standardized assessments (i.e., testing) in areas such as prose and document literacy. Prose literacy involves the ability to “search, comprehend, and use information from continuous texts” while document literacy involves the ability to “search, comprehend, and use information from noncontinuous texts in various formats” (Kutner, Greenberg, & Baer, 2006, p. 2).

The recent PIAAC study does build upon previous large-scale studies (i.e., IALS and NALL) of adult literacy while offering a more refined approach, including enhancement of “quality assurance standards” and the incorporation of “more information about individuals with low levels of literacy by assessing reading component skills” (Goodman, Finnegan, Mohadjer, Krenzke, & Hogan, 2013). The component skills include vocabulary for reading, sentence understanding, and comprehending simple reading selections. Furthermore, the literacy portion of PIAAC was specifically designed to assess the abilities of adults at the lower end of the

literacy spectrum, distinguishing it from many of its predecessors. Some previous large-scale literacy studies, such as the National Adult Literacy Survey (NALS), even relied upon a supplemental assessment for poorly literate individuals, as the main form of assessment did not account for a full range of literacy abilities (Hauser et al., 2005).

Data from PIAAC is also more sound given the study's methods of assessment. According to Ortiz-Ospina and Beltekian (2008), literacy is commonly measured using one of four methods of assessment. The authors indicated that "self-reported literacy declared directly by individuals, self-reported literacy declared by the head of the household, tested literacy from proficiency examinations, and indirect estimation or extrapolation" are all common approaches to measure literacy. While a self-reported assessment of literacy (or the literacy of a family member) can be open to a high degree of bias and subjectivity, the PIAAC assessment does rely on scores from a standardized literacy test in addition to self-reported responses regarding daily skills use (Batalova & Fix, 2015). Since PIAAC is an international assessment, the data additionally offers a useful benchmark for comparing the literacy levels of Americans to the levels of adults in other participating countries (Schleicher, 2008).

Literacy Development

In recent years, there has been much debate surrounding the idea of literacy as a basic skill that can be obtained or acquired. Although this traditional viewpoint is congruent with the way academic literacy has historically been taught and assessed, the notion of *acquiring* literacy can be problematic when considering how individuals actually use literacy in daily life, outside of an academic environment (Purcell-Gates, 2007). For adults, literacy development must be considered in academic as well as non-academic contexts.

Becoming more proficient overall in literacy over life course may not be a concern for

most adults, but the actual development of literacy skills can be a daunting and long-term endeavor for some American-born adults with lower levels of education and for the immigrants in the U.S. who find themselves struggling with the written word. For immigrants from non-native English-speaking countries, literacy challenges are compounded by the possible inability to operate functionally in English as a second language. Furthermore, immigrants must assimilate to a society that has different norms in areas such as transportation, banking, and healthcare while attempting to use a second language to navigate daily life (Fennelly & Palasz, 2003). When an immigrant is also illiterate in the first language, the challenges of becoming literate in a second language are often greatly amplified. Other factors, such as age, education level and gender, can contribute to an immigrant's difficulties developing literacy skills (Bigelow & Schwarz, 2010).

The literacy scores of immigrants are typically lower than those of American-born test takers, though this often can be attributed to deficiencies in the English language as opposed to mere literacy deficiencies. When the literacy scores are unusually low for immigrants, this does suggest that a language barrier in English is a decisive factor (Ferrer, Green, & Riddell., 2006). Particularly notable are immigrants whose first language uses an alphabet different than the Roman alphabet. Chinese speakers, for example, are often written off as being members of the *model minority* designation attributed to individuals from East Asian societies. This overreaching stereotype glosses over the fact that many Chinese speakers greatly struggle with the English language, specifically when it comes to literacy challenges when confronted with texts written in an alphabet that is fundamentally different from their own (Li, 2003).

Regardless of linguistic background, there is no singular approach toward literacy development, especially when contextualizing adult learners in a globalized, 21st century digital

society, such as the United States (Reder & Bynner, 2009). Adults, especially non-native English speakers, differ from children in that they often continue developing literacy skills in non-academic settings as part of their daily lives (Mathews-Aydinli, 2008).

Any type of learning that takes place outside of the structured context of an academic setting (formal learning) is known as *informal learning*. Eshach (2007) sees informal learning as being spontaneous in nature and occurring in natural settings, such as amongst family and in the community. Unique to informal learning is the absence of an authority figure or a person who functions as a mediator. Intrinsic motivation may also play a stronger role in this type of learning (Eshach, 2007).

A third type of learning, *non-formal learning*, is also used to underscore a unique process which is distinct from formal and informal learning. Non-formal learning is typically tied to an institution and is somewhat structured, but it is more flexible and is not finalized through a degree completion (Eshach, 2007; Tuijnman & Boström, 2002;). An example of non-formal learning for school-age children might be a field trip to a local museum or zoo. The learning experience may be connected to the curriculum, but it is not assessed in the same formal way as traditional classroom learning. For adults, non-formal learning could consist of a literacy program, non-credit language courses, a recreational course (painting or swimming), or participation to a professional conference.

In conscious and unconscious pursuits of personal and professional growth, adults implement the practice of literacy skills to foster acquisition in a variety of contexts (informal, formal, and non-formal). For instance, in less formal environments, participants in Adamuti-Trache's 2012 study reported skill use by interacting with various forms of media. Friends, family, and coworkers also play a role by helping immigrants acquire new literacy skills outside

of formal and non-formal environments designed to enhance literacy skills (see *social practice* below).

Another learning context involves learners intentionally pursuing literacy advancement by themselves (self-study) or by participating in more formal language learning programs, such as adult education courses (Adamuti-Trache, 2012; Evans, Waite, & Admasachew, 2008; Rogers, 2011). Adult education courses, specifically those offered at the workplace, can greatly contribute to an adult's functional literacy abilities. Adult learners in Evans et al.'s (2008) study reported how a workplace program that was specifically focused on literacy helped them to adapt to various situations in professional and personal settings. Participants reported more confidence in creating reports at work, sending emails to an upset consumer, and being able to read in public. The vast majority of participants additionally reported having a more positive view toward education because of the courses.

Additionally, some immigrants, such as those in Adamuti-Trache's (2012) study, were able to develop advanced literacy skills by taking part in formal education at the tertiary level. At the post-secondary level, Lum (2015) stressed the importance of ESL students in the Canadian higher education system participating in general writing courses for language learners as well as content-specific writing courses to "learn how to locate, interpret and evaluate relevant sources on a question and to summarize, synthesize and critique research findings" (p. 10). Burt et al. (2008) found that this type of focused instruction is beneficial for enhancing adults' second language skills, increasing their levels of English literacy. Adult learners, and specifically immigrants, can greatly benefit by participating in certain types of adult education programs (Adamuti-Trache & Sweet, 2010), yet there are many other options for those who do not have the time or financial resources to participate.

Social Practice

For adults, literacy development does not take place in a vacuum. On a daily basis, individuals navigate various social spheres using their literacy and other language skills. As noted by many scholars (Appleby & Hamilton, 2006; Brandt & Clinton, 2002; Papen, 2005), literacy can be developed through various social practices in the daily lives of adults as part of the informal learning process.

The notion of social practice is well recognized by sociologists as contributing to capital acquisition in certain fields and social spaces (Bourdieu, 1990, 1993). Developing language skills and literacy through social practices and interactions is particularly beneficial to adult immigrants. For instance, by practicing language and literacy in various societal contexts, immigrants are able to accumulate more language capital, which in turn may be converted into other forms of capital (Bourdieu, 1986), especially human capital. Conversely, when immigrants remain isolated (linguistically and otherwise) in their relatively closed-off communities, opportunities for language practice diminish. Hence, without social practice, the ability to advance one's language and literacy skills is greatly compromised (Adamuti-Trache, 2012), which affects one's ability to participate in society.

Adamuti-Trache's (2012) study explored the relationship between language abilities and social engagement, determining that language proficiency is a strong factor in an immigrant's social inclusion. Barton et al. (2007) further explored the role of literacy in daily life, the way in which literacy was used as a tool to explore areas of interest, and the advancement of literacy by engaging in "literacy events" which occurred "beyond college" (p. 53). In their qualitative study, Barton et al. (2007) came to the realization that adults' literacy development is uniquely diverse, depending on family dynamics, workplace demands, individual interests, and

community circumstances. The five participants in the study reported many individualized practices for developing their literacy skills, including chatting online, researching family genealogy, learning to drive, writing poetry, shopping, travelling, and reading nutrition labels, instructional manuals, novels, and non-fiction books. Therefore, adult literacy practice is inherently social in nature as adults use and develop their literacy skills to fulfill a multitude of personal and professional pursuits in daily life.

While context is a vital component to understand the process by which adults acquire literacy skills, the actual strategies employed are equally important. Generally, adults develop their literacy skills through practice and everyday activities (Appleby & Hamilton, 2006; Hauser et al., 2005; Reder & Bynner, 2009; White, Chen, & Forsyth, 2010). Everyday reading acts are crucial in the development of literacy when contemplating adult learners. For starters, the learning approach of “trial and error,” which involves practicing language skills in a safe, non-threatening environment such as the home, is often beneficial. For non-native English speakers, activities including watching TV in English, reading newspapers and online material, talking to neighbors, and teaching children in English and their first language all seemed to contribute to literacy growth as a means of informal instruction (Appleby & Hamilton, 2006; Hauser et al., 2005).

Various forms of scaffolding at home and in the workplace moreover contribute to language development. When one coworker helps another to decipher online and printed documents, both parties benefit of this informal learning action. Individuals are also able to transfer learning techniques acquired in the home to the workplace and vice versa (Appleby & Hamilton, 2006; Hauser et al., 2005).

Additionally, Adamuti-Trache, Anisef, and Sweet’s (2018) study revealed numerous

proactive approaches that enhanced literacy acquisition among the immigrant population, especially among female immigrants. The researchers reported that nearly 68% of female immigrants in Canada improved their language skills using various forms of media. Additionally, roughly 40% of respondents relied on their network of family and friends as well as learning through self-study and their jobs.

Clearly, adults undertake a myriad of approaches in their day-to-day lives to foster literacy skill development. Some of these approaches are strategic and intentional to develop literacy, while others are the byproduct of fulfilling a task in a certain everyday context in the home, workplace, or society at large. Continued analysis of existing and future research in academic and non-academic contexts can inform literacy acquisition efforts in various contexts for native and non-native English speakers alike.

Consequences of Literacy Level on Adult Lives

In general, higher literacy levels, coupled with higher numeracy skills, are a factor in an individual's success in the workforce and more active participation in the labor market and society (Kutner, Greenberg, & Baer, 2005; Sum, 2007). Workers proficient in literacy and numeracy were also twice as likely to possess full-time employment as compared to individuals who did not receive a rating of proficiency on the 2003 National Assessment of Adult Literacy (NAAL) (Sum, 2007). Sum additionally indicated that literacy and numeracy proficiency gave workers access to more skilled positions in the labor market in areas such as executive-level and management positions. Finally, using a composite proficiency score of literacy and numeracy on the NAAL, Sum (2007) demonstrated the positive relationship between proficiency and earnings for both American-born workers as well as immigrants.

The relationship between English literacy skills and labor market opportunities is particularly critical for immigrants. While Gentsch and Massey (2011) concluded that from 1996 onward, English-language proficiency did not have a marked effect on immigrants' ability to obtain skilled labor jobs, the researchers noted that this phenomenon was largely due to a lack of labor rights stemming from immigrants' legal status in the United States. More congruent with existing literature, Sum, Kirsch, and Yamamoto (2004) cited the measurable benefits in the labor market enjoyed by immigrants with more developed English literacy skills. In Sum et al.'s (2004) study, the authors found that greater literacy skills result in more active participation in the labor market, higher wages, and access to more skilled work.

In another large-scale study, Mattoo, Neagu, and Ozden (2008) used data from the 2000 U. S. Census and found that immigrants from Eastern Europe and Latin America were at a great disadvantage accessing employment opportunities in the U.S. based on their human capital (i.e., credentials, prior work experience). Their high level of education and skills in the home country often did little to secure skilled labor in the American workforce. The gross income and educational inequality in American society additionally exasperates deficiencies in literacy skills (Kerbo, 2012; ProLiteracy, 2019), and immigrants in the U.S. tend to have lower skills, specifically in regards to literacy, than immigrants in other advanced nations (Perry, 2013). Similarly, Sabatini (2015) noted that non-native English speakers in the U.S. exhibit lower literacy scores than non-native speakers in other English-speaking nations.

When comparing literacy levels of U.S. immigrant and American-born adults using data from the Program for the International Assessment of Adult Competencies (PIAAC), Batalova and Fix (2015) noticed that immigrants, at only 15% of the total adult population between the ages 16 and 64, were disproportionately represented among low-skilled workers in the U.S. Over

one third of low-skilled workers with substandard literacy scores are immigrants, and roughly one quarter of low-skilled workers with deficient numeracy skills are also immigrants. Among the immigrant population, approximately 40% do not have the necessary English literacy proficiency.

Unfortunately, the cycle of low literacy typically does not only affect the adult worker's employment status and earnings but other facets of life. It also has harmful consequences for the financial well-being of their family, healthcare choices, and civic involvement, and it can perpetuate a state of poverty within family. According to ProLiteracy (2019), low literacy is passed from one generation to the next whereby nearly 75% of children whose parents have low literacy skills also end up with similar literacy levels. Adults who demonstrate the lowest literacy skills in the U.S. are more than 40% likely to live in a continuous state of poverty. Substandard literacy skills are often a contributing factor of poverty (Morrow, Rueda, & Lapp, 2009; Compton-Lilly & Lilly, 2004). In addition to workplace exclusion, adults in the U.S. with low literacy skills often make poor choices with their healthcare and have difficulty comprehending correspondence from health care providers and insurance companies, hence resulting in financial losses amounting to \$232 billion annually (ProLiteracy, 2019).

For immigrants, low literacy is additionally one of the factors that contribute to their overall marginalization in society. In an often never-ending cycle, the life of an immigrant is one of the working poor (Campano, 2007), and inclusion in American society remains unattainable. Additionally, the education gap encountered by immigrants is commonplace in the U.S. (Smith & Fernandez, 2015). Because of the inequality of educational attainment, which is so visible in working class neighborhoods, literacy skills are not properly nourished for school-age immigrants or the children of immigrants, much less immigrant adults (Campano, 2007).

Consequently, the combined effects of low literacy and economic marginalization result in barriers to post-secondary education, workforce participation, health and civic life.

Sum, Kirsch, and Yamamoto (2004) emphasize that the literacy gap between American-born individuals and immigrants is present at every level of education in the United States, making it very difficult for immigrants to ever catch up. Although a wide range of literacy levels exists among the immigrant population of the United States, the majority of immigrants in the country have subpar literacy skills. Not being equipped with developed literacy skills makes success particularly difficult for immigrants in the U.S. and presents barriers to education, the workforce, and social institutions (Sum, Kirsch, & Yamamoto, 2004). Henceforth, a push to elevate immigrant literacy skills will result in broader inclusion in various spheres of American society for the immigrant population.

Despite obvious barriers that both American-born adults and immigrants with low literacy skills experience in the labor market and other facets of life, the workplace environment offers adults an opportunity for language practice and improvement of literacy proficiency. However, since employment status is already an indicator of certain literacy levels, and the workplace participation inevitably creates a language practice environment, the study will focus on all adults (not just those employed) practicing and improving skills in everyday life.

Adult Literacy and Sociodemographic Factors

Gender. Of the various sociodemographic characteristics that are often considered when researching adult literacy, gender is a noteworthy factor that merits further exploration. Gender was a key variable in the predecessor of PIAAC, the National Assessment of Adult Literacy (NAAL), which was administered in 1992 and 2003. In their analysis of the data from the 2003 version of the large-scale study, Kutner et al. (2006) found that females scored higher in prose

and document literacy than males.

In their 2010 study, MacArthur, Konold, Glutting, and Alamprese reviewed the literacy scores of adult students from 23 Adult Basic Education (ABE) programs in the U.S. Such programs are geared toward low-literacy adults (reading below a seventh-grade level), and the data confirmed that women, both native and non-native English speakers, comparatively scored markedly higher than men on reading fluency. However, male participants in the studies outperformed women in other reading skills (decoding, word recognition, and comprehension).

Among men and women in the workforce, females typically score higher on prose and document literacy assessments, while men are more likely to be at the low end of the literacy spectrum (D'Amico, 2004; Sticht, 2002). However, D'Amico (2004) notes that the majority of students in adult literacy programs are female, and this phenomenon can be attributed to a lack of access to power and opportunity in the American society. Stromquist (2014) echoes this contradictory dynamic that women may score higher on literacy assessments in certain contexts (work and school), yet women are more likely than men to have weak literacy skills in broader society.

According to Stromquist (2014), "gender forces" (p. 546) affect women's literacy levels even in advanced, industrial societies, such as the United States. Although females might have stronger reading skills in their school years (OECD, 2014) because being studious is not considered as important for males, adult females are expected to stay home more than men and take care of domestic duties, i.e., cooking, cleaning, and child-rearing (Stromquist, 2014). This is especially true for women from lower socioeconomic classes. The resulting effect is reduced social engagement and fewer opportunities to develop literacy skills beyond the confines of the household. Hence, the relationship between gender and literacy is complex for adults. To add

clarity to gender's impact on literacy, additional research is needed to obtain a comprehensive understanding of women's literacy for American-born and immigrant females.

Education Level. Existing research generally confirms that higher literacy levels correlate with higher levels of education (Barrett and Riddell, 2019; Hanushek, Schwerdt, Woessmann, & Zhang, 2016; Kaestle, Campbell, Finn, Johnson, & Mikulecky, 2001). Hanushek et al. (2016) analyzed the data from the International Adult Literacy Survey, the authors confirmed that individuals graduating with a general high school education tended to have higher literacy scores than those who did not complete high school or attended some type of vocational school instead. In general, adults who never completed high school have the lowest levels of literacy in American society (Kaestle et al., 2001), although those who dropped out of high school but later obtained a GED tend to have low literacy skills as well (Kaestle et al., 2001; Reder & Bynner, 2009).

Other research has confirmed that there is indeed a direct relationship between the amount of time spent in formal schooling and literacy levels. In fact, after reviewing the data from the National Adult Literacy Survey, Kaestle et al. (2001) concluded that "increased levels of formal schooling correlate with substantial gains in adult literacy proficiency for all groups, at all levels of education" (p. 67).

Additionally notable is the phenomenon of educated immigrants from Latin America who become "underplaced" (p. 255) as they found themselves trapped in low-skilled jobs which they would otherwise be overqualified for in their country of origin. Unfortunately, many immigrants have no choice but to work more than one job, and henceforth have little time to devote to developing their English language skills (Yakushko, Backhaus, Watson, Ngaruiya, & Gonzalez, 2008). Yet according to Yakushko et al. (2008), "receiving English language

instruction in formal ways is necessary for immigrants and refugees to gain basic proficiency required by vast majority of employers” (p. 383).

Using the 1990 U. S. Census data, Chiswick and Miller’s (2002) study focused on adult (ages 25-64) male immigrants from non-English speaking countries. The researchers used the term *language capital* to describe immigrants’ level of proficiency in the English language. The study was meant to explore the intersection of language capital and other dimensions of human capital (e.g., formal education). Not surprisingly, the researchers found that having a formal education added little weight to an immigrant’s human capital accepted by the host country employers when there was a lack of proficiency in the English language. Language skills, therefore, heighten the transferability of human capital from one society to another, so educated immigrants can benefit greatly from investing in English language acquisition as other skills can subsequently be transferred.

Age. Available research typically indicates an inverse relationship between age and literacy levels. In their study, Hanushek et al. (2016) drew upon data from the International Adult Literacy Survey (IALS), conducted between 1994-1998 in 18 countries, including the United States, to assess the current status of literacy skills among working-age individuals (i.e., 16-65-year old). The authors used a sample of high school male graduates who were not students at the time of the study ($N = 15,218$), including 809 participants in the U.S. Similar to other studies (Kaestle et al., 2001; Smith, 1996), Hanushek et al. (2016) concluded that younger individuals typically demonstrated stronger literacy scores.

Overall, results from the PIAAC indicated that older immigrants seemed to be less skilled in literacy than their younger counterparts (Batalova & Fix, 2015). Only 17% of older working-age immigrants (aged 55-65) demonstrated proficiency in English compared to 30% for younger

immigrants in the 16-26 age bracket. Over half of educated immigrants were “below proficient” in their literacy score compared to 22% for American-born educated individuals. Another salient finding in the PIAAC data was that almost 9 out of 10 Latino immigrants had low levels of proficiency in English. This ratio starkly compares to Caucasian immigrants who were not of Latino origin—only 4 out of 10 were labeled as having low English proficiency. PIAAC findings (Batalova & Fix, 2015) show significant differences in literacy scores by socio-demographic factors.

In their review of several large-scale surveys on adult literacy (IALS, ALL and PIAAC), Barrett and Riddell (2019) determined that in the United States, literacy skills show a consistent yet moderate decline (relative to several European nations) for adults beginning in their mid-twenties. The researchers concluded that the decline beginning at such a young age is likely attributable to young adults’ separation from formal schooling. Moreover, cognitive decline is a decisive factor for decreasing literacy levels of older Americans at the opposite end of the age spectrum.

However, many other factors (education level, socioeconomic status, gender, etc.) influence the change in individual literacy levels over the course of an adult’s lifetime. While some adults may see an increase in literacy levels through professional employment and active participation in the labor market and society, others may experience a decline in literacy skills due to lack of social practice (Calero, Murillo Huertas, & Bara, 2019). Further research will help to highlight various approaches to prevent a decline in adult literacy levels over time.

Orienting Theoretical Framework

Individual’s access to economic, political, and educational opportunities in society are largely determined by the distinct forms of capital they possess. Bourdieu’s (1986) widely used

framework of capital can be employed to understand the dynamics of power and access to opportunities that immigrants grapple with while gaining their footing in American society. In this sociological framework, the juxtaposition of cultural, economic, and social capital influence one's degree of inclusion in social circles, the workplace, and the local community, respectively. Likewise, Bourdieu (1977; 1990) described the concept of practice as a means to acquire certain forms of capital. Although the forms of capital are distinct, they work together to determine one's ability to effectively navigate successfully throughout life as more capital typically equates to a higher social status. Additionally, possession of capital allows an individual to become a more full-fledged member of society, and hence facilitates the potential to acquire more capital (Bourdieu 1986; Daly & Silver, 2008).

Of particular interest for this study is language capital which is “an important component of host country human capital” (Dustmann & Fabbri, 2003, p. 697) that adult immigrants need to acquire through social practice. As Adamuti-Trache (2012) stated, practice is “the key to language acquisition and immigrant successful integration in the host society” (p. 124). Similar to the idea of social practice (Bourdieu, 1977) is Chiswick and Miller's (1995) concept of exposure, which the researchers noted “refers to the learning by doing and the formal instruction aspects of acquiring fluency in the destination language, as well as formal language training” (p. 249).

Other forms of capital could play a role in acquiring language capital through social practice, while language capital helps individuals to enhance other forms of capital. For instance, language capital is critical in acquiring other forms of human capital (Dustman & Fabbri, 2003) which allow an individual to move through social spheres and break through existing power dynamics (Bourdieu, 1993). Without basic language skills, immigrants are not

able to increase their level of education, secure better employment, and hence are not granted full membership into the host country. Language capital is, in itself, a form of human capital because it allows the individual to enhance his or her returns to education (Chiswick & Miller, 2003).

Similarly, cultural capital, the first in Bourdieu's framework, is handed down from one generation to the next and allows members of society to conduct themselves in accordance with the norms determined by the dominant group (Dumais, 2002). Trueba (2002) stated "The acquisition of human communicative competence with mastery of codes and concepts requires a clear understanding of one's own position in a given cultural setting" (p. 8). Nee and Sanders (2001) additionally indicated that "competence in the language of the receiving country and familiarity with its cultural customs are highly valuable cultural capital" (p. 392) because they allow individuals to enhance their cultural capital through communication and socialization, which requires adequate language skills.

Another form of capital in Bourdieu's framework is social capital whereby an individual gains access to resources via memberships and networks among certain groups in society. Cheong, Edwards, Goulbourne, and Solomos (2007) argued that "social capital building is rooted in the uneven and harsh realities of the reception experience of immigration" (p. 38). Despite the challenges associated with social capital, immigrants can greatly benefit by having familial connections when they first arrive in the host country. Members of the immediate family, extended family, or other connections from the homeland can help with securing employment, housing, and orientation into the unfamiliar landscape. Yet, a fundamental challenge often remains for immigrants: extending work opportunities and social capital beyond the respective

ethnic community (Nee & Sanders, 2001) which is often impeded by poor language skills and inability to communicate in the host country language.

For the purpose of this study, both the notions of capital and practice are particularly useful. Language capital is reflected in the level of English proficiency and literacy demonstrated by adults. The notion of language-related practice that helps acquiring language capital will be described by the extent of skills use in everyday life. Other forms of capital will be included in the *study* such as level of education as indicative of adults' human capital.

Summary of Chapter 2

Research shows that despite the literacy proficiency disparities experienced by adults, the use of language in various contexts contributes to increasing adult literacy. Social practice plays a crucial role in this process and leads to increasing employment chances and participation in society for various socio-demographic groups. Being that adult learning transpires via informal processes in everyday life, the present study contributes knowledge to the phenomenon of literacy development through social practice. Analysis of the PIAAC data is suitable for understanding relationships between literacy scores and informal skill use in everyday situations in which participants reported the frequency of certain activities, such as reading novels and reading financial statements.

While existing research suggests social practice is a key component of adult literacy development, little is known about specific approaches or the effects on literacy levels for certain demographics. Understanding the approaches that American-born individuals follow relative to immigrants will yield an important perspective into effective literacy practices of adults in the U.S. and can also inform educational institutions and workplaces on useful adult literacy programs that can be developed. Furthermore, there is a research gap into the relationship

between gender and adult literacy, and existing research is somewhat contradictory, i.e., some studies show adult females faring better while other studies show males have higher literacy levels. Additional research will help fill the void and provide insight into the intersection of certain sociodemographic variables (gender, immigration status, etc.), the social practices used to develop literacy skills, and the literacy levels of adults in the United States.

CHAPTER 3

METHOD

The purpose of this study is to examine the level of English literacy and the practices to improve literacy (i.e., the extent of skills used in everyday life) among U. S. adult immigrants compared to their American-born counterparts. The study will also examine the effect of various demographic factors (gender, age, and education level) on the level of English literacy, by using data from the 2012/2014 Program for the International Assessment of Adult Competencies (PIAAC).

Research Questions

The study will address the following research questions:

- 1) Are there any differences between immigrant and American-born adults with respect to socio-demographic factors (i.e., gender, age, level of education)?
- 2) What are the differences between immigrant and American-born adults with respect to English literacy scores and extent of *skills used* in everyday life?
- 3) What is the relationship between the level of English literacy of immigrant and American-born adults and the extent of skills used in everyday life, when controlling for socio-demographic factors (i.e., gender, age, level of education)?

Research Design

PIAAC Data

The Program for the International Assessment of Adult Competencies (PIAAC) is a global assessment of the cognitive skills of adults between the ages of 16 to 74. The PIAAC survey was created by the Organization for Economic Cooperation and Development (OECD)

and first PIAAC Cycle has been administered in 2012 in 24 participating countries, with additional 14 countries included in 2014 and 2017 (OECD, n.d.).

Although the version of the PIAAC administered in the United States was only in English, the background questionnaire was bilingual (English and Spanish) and was conducted in-person. First, the background questionnaire included questions about the participants' computer skills in order to determine if a computer-based assessment or a paper-based assessment was administered. According to Goodman et al. (2013), each of the direct PIAAC assessments included "literacy, numeracy, component skills and/or problem solving in technology-rich environments (p. 1)." Participants were given roughly one hour to complete the assessment, but they were also able to have more time if necessary. When participants began the Computer-Based Assessment (CBA), they took an information Technology Communication Core (ICT) as well as a literacy/numeracy core. If the participants scored low on either assessment, they were then redirected to the Paper-Based Assessment (PBA) (Hogan, Thornton, Diaz-Hoffmann, Mohadjer, Krenzke, Li, & Khorramdel, 2016). This survey administration methodology ensured that response biases due to lack of computer skills were eliminated and the data produced accurate measures of adult literacy skills in specific areas. Respondents' answers to interview questions were collected with CAPI (i.e., Computer Assisted Personal Interview).

For the purpose of this study, only PIAAC literacy data will be considered (i.e., English literacy scores). The study will only focus on the practice developed through the use of literacy skills in everyday life and will not include information on the extent of literacy skills use at the workplace, because not all adults were employed. In addition, participants responded to questions about their background which is used to identify potential explanatory factors of their literacy skills level and the way adults practice these skills in everyday life.

United States PIAAC Sample

In the United States, the first round of the PIAAC was conducted in 2012 and sampled 5,010 individuals, including 636 immigrants. The designation of immigrant was based on questions from the background questionnaire where participants indicated if they were American-born or foreign born, length of time in the U.S., and respective generation of immigrant (Batalova & Fix, 2015). Data collection spanned from August 2011-April 2012.

A second round of data collection was conducted from August 2013 until April 2014 to obtain data that was more representative of certain demographic groups. According to OECD (n.d.), “The original 2012 data have been updated, reweighted, and revised with the release of this 2012/2014 dataset.” New additions to the participant groups include unemployed individuals between the ages of 16 to 65, young adults between 16 to 34, and a new group of older adults between the ages of 66 to 74-years old (Hogan et al., 2016). Additionally, the 2014 supplement included incarcerated individuals between the ages of 16 to 74 from 98 different prisons in the U.S. For this study, I accessed the complete public use data files available about the second round of data collection.

The PIAAC assesses cognitive skills including “literacy, numeracy, and problem-solving skills in technology-rich environments” (Batalova & Fix, 2015, p. 3). Acquisition of the aforementioned cognitive skills allows adults to have greater participation in the U.S. knowledge-based economy and also opens the door to academic and professional success, use of social services, and a more active voice in society (Batalova & Fix, 2015). Since PIAAC data also include information on adults’ participation in the workforce and society, it allows to examine the role of literacy in all aspects of adult lives, and to find how adult immigrants fare in these areas in comparison to American-born adults. This study will not include aspects related to

adult participation in the workforce (e.g., employment, income) and literacy skills development through practice in the labor market because this would reduce the study population by selecting only those who possess adequate skills for employment. On the contrary, by focusing on the entire adult population and examining the daily practice of English, I believe the study provides a more accurate portrayal of the actual literacy skills of American-born and immigrant adults in the United States. While low literacy skills may prevent some individuals from gaining full access to the labor market, it is important to include data on participants who are economically marginalized because of their inability to read at a certain level.

Study Research Sample

The present study uses data from the revised 2012/2014 PIAAC dataset, which includes a sample of 8,670 respondents aged 16 and above. After eliminating records with incomplete responses and retaining only cases with valid data (all measures included), the research sample for this study was reduced to about $N=7,734$ adults of whom about 1,114 were immigrants (i.e., individuals not born in the United States, either first or second generation).

Variables

In the study, the primary dependent variable is proficiency score of English literacy, and the independent variables include the use of literacy skills in daily life and socio-demographic characteristics, i.e., age, gender, and level of education. All study variables are listed in Table 3.1 and then discussed in more detail. Table 3.1 shows the variable names as used in the PIAAC data, a brief description of each variable, followed by the type of variable (i.e., continuous or categorical) and additional information on derived variables or categories.

Table 3.1

Variables and Constructs

Variables	Survey items	Type	Categories
Socio-demographic characteristics			
Immigrant status (J_Q04a)	Background - Born in country	2-category variable	0=American-born 1=Immigrant (first & second generation)
Gender (GENDER_R)	Person resolved gender (derived)	2-category variable	1 = Male 2 = Female
Age (AGEG5LFS)	Age groups in 10-year intervals (derived)	5-category variable	1=16-24; 2=25-34; 3=35-44; 4=45-54 5=55 plus
Level of education (EDLEVEL3)	Educational level of the respondent (derived by CAPI)	3-category variable	1 = Low (Primary & Lower secondary educ) 2 = Medium (Upper sec & Postsec non-tertiary) 3 = High (Tertiary educ)
Skill use everyday life - Literacy			
Reading /writing skill use everyday life (H_Q01a--H_Q01h) (H_Q02a--H_Q02d)	Read directions or instructions Read letters memos or mails Read newspapers or magazines Read professional journals or publications Read books Read manuals or reference materials Read financial statements Read diagrams maps or schematics Write letters memos or mails Write articles Write reports Fill in forms	5-category Likert scale (treated as ordinal variable range 1-5)	1=Never 2=Less than once a month 3=Less than once a week but at least once a month 4=At least once a week but not every day 5=Every day
Level of English literacy			
Literacy score (PVLIT1-PVLIT10)	Literacy scale score (average value of 10 plausible values)	Continuous variable	Derived variable (scale 0-500)

Socio-demographic characteristics. In the background questionnaire, respondents indicated whether they were born in the U.S. or abroad in addition to their age group, gender,

and level of education. The immigrant status categories include American-born adults and both first- and second-generation immigrant adults. The immigrant status is the main independent variable because it defines the two adult groups compared in the study.

We use a 2-category variable for gender and a 5-category variable for age (Table 3.1). In addition, a 3-category variable for level of education indicates low (i.e., primary and lower secondary), medium (i.e., upper secondary and postsecondary non-tertiary) or high (i.e., tertiary) levels of education¹. This variable was derived by CAPI (i.e., Computer Assisted Personal Interview) and based on specific interview questions regarding formal and informal education and training.

Literacy use in daily life. The participants reported the frequency of being engaged in various acts of reading and writing in their everyday life in personal and professional situations. The categories measuring literacy practice on a five-point Likert scales are: never, less than once a month, less than once a week but at least once a month, at least once a week but not every day, and every day. The 12 survey items will be included separately in the analysis, and treated as continuous variables.

Proficiency rating of literacy in English. The participants' score on the literacy portion of the one-hour PIAAC test was recorded as another primary dependent variable. During the computer-based assessment, participants took 52 literacy *items* (the term used for test questions) to be used as a benchmark against the literacy scores of other individuals as the PIAAC is a standardized form of assessment (Hanushek, Schwerdt, Wiederhold, & Woessmann, 2015).

According to NCES (n.d.),

¹ OECD levels of education are based on ISCED 2011 classification (e.g., Education at a Glance 2020, p. 20). Thus, in PIAAC, Low level indicates ISCED = 1 and 2; Medium level indicates ISCED=3 - 5; High level indicates ISCED=6 – 8. In North American terms, High level corresponds to Bachelor and above, while Medium level include Associate degrees but also upper secondary level that often differentiates general and vocational education.

Literacy items ask participants to answer questions about texts that are drawn from a broad range of real life settings, including occupational, personal (home and family, health and safety, consumer economics, leisure and recreation), community and citizenship, and education and training contexts. An average of the 10 plausible values² for the literacy scale scores available in the data will be used for analysis as a measure of literacy skill performance.

Data Analysis

Table 3.2 indicates the variables and statistical procedures employed to answer each research question. The focal variable for each analysis is underlined, while other independent variables are then included in the second column.

Table 3.2

Summary of Research Questions and Analyses

Research Question	Variables	Procedure
RQ1: Are there any differences between immigrant and American-born adults with respect to socio-demographic factors (i.e., gender, age, level of education)?	<u>Immigrant Status</u> Gender Age Level of Education	Cross-tabulations & chi-square tests
RQ2: 2) What are the differences between immigrant and American-born adults with respect to English literacy scores and extent of <i>skills used</i> in everyday life?	<u>Immigrant Status</u> Literacy Level Skills use in everyday life	Descriptive statistics & ANOVA tests
RQ3: 3) What is the relationship between the level of English literacy of immigrant and American-born adults and the extent of skills used in everyday life, when controlling for socio-demographic factors (i.e., gender, age, level of education)?	<u>Literacy Level (DV)</u> Skills use in everyday life Gender Age groups Level of education	Linear regression models for each Immigrant status groups

² Plausible values are used to improve the estimates of a population and are produced by randomly selecting values from mathematically computing distributions around reported values.

Cross-tabulations will be performed to describe and classify the categorical data in order to provide an overview of the research sample and explore further associations among variables using chi-square tests. According to Creswell (2009), the chi-square test of independence is useful to determine the degree of association between two categorical variables.

Descriptive statistics will additionally be used to summarize the averages of literacy scores and the frequency of skills use in daily life, such as *read books and write reports*. ANOVA tests will be performed to explore statistically significant differences in means for continuous variables (e.g., literacy scores, Likert scale items) when comparing immigrant and American-born adults.

Furthermore, linear regression analysis will be used to explore the relationship between English literacy scores and socio-demographic variables such as age, gender, education level, immigrant status, and everyday literacy skill practice. According to Bluman (2009), regression analysis is an appropriate statistical method to determine the relationship among variables, and in this case, to understand which variables have the most marked effect on literacy – what is the amount of variance explained in the dependent variable by the set of independent variables selected. The coefficients of the linear regressions indicate the degree that different variables (age, gender, education level, frequency of skills use, etc.) contribute to the literacy levels of American-born adults and immigrants. Coefficients are useful to reveal the extent of the effect that predictors have on a dependent variable (Young, 2018). I will conduct two separate linear regression analyses, one for each group: adult immigrants and American-born and compare the contribution of each explanatory variable. The analyses were conducted with the Statistical Package for Social Sciences (SPSS 25) using normalized survey weights (i.e., reproduce the proportions in the population but preserve the sample size).

CHAPTER 4

FINDINGS

To properly analyze the data to address the three research questions, the Statistical Package for Social Sciences (SPSS) has been used. The study employed comparative analysis to address the first two research questions. For the first research question exploring differences between immigrant and American-born adults in regard to socio-demographic factors (categorical variables), cross-tabulations and chi-square tests were used. The crosstabulations allow to compare the distributions of the two adult populations by gender, age, and education level. Chi-square tests were additionally used to determine if a relationship existed between immigrant status and each of the three socio-demographic variables.

The second research question explored the differences in literacy scores and the extent of skills used in everyday life among immigrant and American-born adults. The study used descriptive statistics to summarize means and standard deviations for literacy scores (range from 0 to 500) and for the extent subjects reported engaging in specific literacy acts in different contexts (Likert scale ranging from 1 to 5) such as *reading newspapers or magazine* or *writing memos or email*. ANOVA tests were then performed to determine if there were any statistically significant differences between the means of these continuous variables when comparing the two groups (American-born adults and immigrants).

For the final research question, two separate linear regression models (one for each group) were used to determine if a relationship exists between the level of English literacy of immigrant and American-born adults and the extent of skills used, when controlling for socio-demographic factors (age, gender, and level of education).

Research Question 1

Are there any differences between immigrant and American-born adults with respect to socio-demographic factors (i.e., gender, age, level of education)?

To answer this research question, I conducted a series of Crosstabulations and chi-square tests. Table 4.1 shows the distributions by gender, age and level of education within each adult group (i.e., American-born and immigrants) to compare the group column percentages with the total representation in the research sample for each category of the socio-demographic variables. The statistical significance of the three corresponding chi-square tests is indicated in column 1 for each variable and will be further discussed.

Table 4.1

Socio-demographic Factors by Immigrant Status (column %)

	Immigrant status		ALL
	American-born	Immigrants	
All	6620	1114	7734
Gender (ns)			
Male	48.9	48.8	48.9
Female	51.1	51.2	51.1
Age ***			
24 or less	19.7	11.0	18.5
25-34	20.1	21.2	20.3
35-44	18.3	27.1	19.6
45-54	21.0	24.1	21.4
55 plus	20.9	16.7	20.3
Level of Education***			
Low	12.1	24.8	13.9
Medium	51.6	38.9	49.8
High	36.3	36.4	36.3

* $p < .05$; ** $p < .01$; *** $p < .001$

Gender. As shown in Table 4.1, there is no association between immigrant status and gender, and the two adult populations have comparable proportions of women (about 51%) and men about 49%). The chi-square test is not significant ($\chi^2=.953$, $df = 1$, $p = .490$).

Age. Table 4.1 shows an association between immigrant status and age. The immigrant population has only 11% adults aged below 24 and 16.7% adults over 55 as compared to the American-born adults who have 19.7% adults aged below 24 and 20.9% adults over 55. However, the adult immigrant population is overrepresented in the 25-34 age group (21.2%), the 35-44 age group (27.1%) and the 45-54 age group (24.1%) which represent the active working age adult population. The chi-square test of association between age and immigrant status is significant ($\chi^2=90.849$, $df = 4$, $p<.001$).

Level of education. Table 4.1 also shows a strong association between immigrant status and the education level of the two groups. While about 36% of both American-born and immigrant adults have a high level of education, differences between the two groups appear when comparing the low and medium education level categories. Among adult immigrants 24.8% have a low education level compared to only 12.1% among the American-born adults. Meanwhile, 51.6% of the American-born adults have a medium level of education compared to 38.9% of immigrants. Although overall, American-born adults are more educated, both groups are similarly represented at the high education level. The chi-square test of association between level of education and immigrant status is significant ($\chi^2=141.383$, $df = 2$, $p<.001$).

Summary of Findings RQ1

Based on crosstabulations and chi-square tests, I found that the two adult populations (American-born and immigrants) were similar in terms of gender distribution but showed differences with respect to age and level of education. The age comparison suggests immigrants

are better represented in the age range 25 to 54 that includes over 72% of the immigrant population, as compared to about 59% in the same age range among the American-born adults. This result is not surprising because most immigrants to the United States are recruited from the active working age groups. However, many of these adult immigrants (25%) have a low level of education, a percentage significantly higher than among the American-born adults. While 36% of both American-born and adult immigrants are highly educated, the significant percentage of low educated immigrants is concerning because it may also correspond to low levels of English literacy.

Research Question 2

What are the differences between immigrant and American-born adults with respect to English literacy scores and extent of skills used in everyday life?

To address this research question, I will present means and standard deviations for all continuous variables by immigrant status and will test the significant differences between the means using ANOVA tests. Table 4.2 shows the descriptive statistics for American-born and immigrant adults, as well as the entire research sample for the literacy scores and for eight readings tasks and four writing tasks that indicate the average use of skills. The range of values for literacy scores is 0 to 500. The skills use is measured on a 5-points Likert scales (1=Never, 2=Less than once a month, 3=Less than once a week but at least once a month, 4=At least once a week but not every day, and 5=Every day), and the variables have been treated as continuous.

ANOVA tests were additionally performed to assess statistical significance between the scores of American-born adults and immigrants. A p -value of $p > .05$ suggests that there is not a statistically significant difference between the means of the two groups while a p -value of $p < .05$ does suggest a statistically significant difference between the means of the two groups. The

significance of the ANOVA statistics testing mean differences between the two groups is also indicated in column 1 (Table 4.2) next to each variable. Overall, there are significant differences between American-born and immigrant adults in all measures, with the exception of reported frequency of reading professional journals or publications and writing reports. More details are presented separately for each variable.

Table 4.2

English Literacy and Use of Skills by Immigrant Status – Means (SD)

	Immigrant status		ALL
	American-born	Immigrants	
English literacy***	277.3 (43.9)	239.3 (56.8)	271.8 (47.9)
Skills used in everyday life			
Read directions or instructions***	3.6 (1.3)	3.2 (1.5)	3.6 (1.3)
Read letters memos or mails***	4.4 (1.1)	3.9 (1.5)	4.3 (1.2)
Read newspapers or magazines***	4.0 (1.2)	3.7 (1.4)	4.0 (1.2)
Read professional journals or publications (ns)	2.4 (1.3)	2.5 (1.5)	2.4 (1.4)
Read books***	3.2 (1.5)	2.9 (1.5)	3.1 (1.5)
Read manuals or reference materials***	2.6 (1.3)	2.4 (1.3)	2.6 (1.3)
Read financial statements***	3.6 (1.2)	3.3 (1.3)	3.6 (1.2)
Read diagrams maps or schematics***	2.3 (1.2)	2.0 (1.2)	2.2 (1.2)
Skills used in everyday life			
Write letters memos or mails***	3.7 (1.4)	3.4 (1.6)	3.6 (1.4)
Write articles**	1.2 (.6)	1.2 (.7)	1.2 (.6)
Write reports (ns)	1.5 (1.0)	1.5 (1.0)	1.5 (1.0)
Fill in forms***	2.3 (1.1)	2.1 (1.2)	2.3 (1.1)

* $p < .05$; ** $p < .01$; *** $p < .001$

English literacy scores. As shown in Table 4.2, all adults in the United States scored about 272 points out of 500 on literacy, which is a very average score. However, American-born adults obtained higher literacy scores than immigrants (277 versus 239 points) which is not

surprising considering the lower level of education of immigrants. The difference between the literacy score means was statistically significant as indicated by the ANOVA test: $F(1, 7732)=651.033, p<.001$.

Read directions or instructions. An examination of the first skill use measure on Table 4.2, *Read directions or instructions* demonstrates American-born adults (3.63) reported higher frequency of use than immigrant participants (3.23). The average value of 3.6 (closer to 4) suggests American-born adults read directions and instructions *at least once a week but not every day*, while immigrant adults are more likely to engage in this type of reading *less than once a week but more than once a month*. The results of the ANOVA tests show that a statistically significant difference exists between the means of the two groups as indicated by the F-statistics: $F(1, 7732)=86.990, p<.001$.

Read letters memos or mails. For the second measure on Table 4.2, *Read directions or instructions* demonstrates, American-born adults (4.36) reported higher frequency of use than immigrant participants (3.90). The average values of 4.36 and 3.90 (almost four) suggest that American-born adults and immigrants read letters, memos, or mail *at least once a week but not every day*. ANOVA tests indicate a statistically significant difference between the means of the two groups, according to the F-statistics: $F(1, 7732)=145.740, p<.001$.

Read newspapers or magazines. American-born adults (4.03) reported higher frequency of use than immigrant participants (3.72). The average values for the two groups of participants suggest that American-born adults and immigrants read newspapers or magazines *at least once a week but not every day* (3.72 is close to 4). Results of the ANOVA tests show a statistically significant difference between the means of the two groups, according to the F-statistics: $F(1, 7732)=58.274, p<.001$.

Read professional journals or publications. American-born adults (2.43) reported only a slightly higher frequency of use than immigrant participants (2.47) for reading professional journals or publications. Both groups reported reading this type of material *less than once a week but at least once a month*. The results of the ANOVA tests do not show a statistically significant difference between the means of the two groups, according to the F-statistics: $F(1, 7732)=1.046, p=.306$.

Read books. American-born adults (3.15) reported higher frequency of use than immigrant participants (2.89) when asked how often they read books. Since 2.89 is almost 3, the average values for both groups indicate that adults in the U.S. read books *at least once a week but not every day*. Additionally, the ANOVA tests demonstrate a statistically significant difference between the means of the two groups, as indicated by the F-statistics: $F(1, 7732)=64.693, p<.001$.

Read manuals or reference materials. The data additionally indicates that American-born adults (2.58) reported reading manuals or reference materials at a somewhat higher frequency than immigrant participants (2.39). On average, both groups reported reading this type of material *less than once a week but at least once a month*. The results from the ANOVA tests indicate a statistically significant difference between the means of the two groups, according to the F-statistics: $F(1, 7732)=34.959, p<.001$.

Read financial statements. The data for the next skill use measure, *Read financial statements*, suggest that American-born adults (3.62) read these types of documents more often than immigrants (3.33). On average, the two groups in the study reported reading financial statements *less than once a week but at least once a month*. The ANOVA tests also suggest a

statistically significant difference between the means of the two groups, according to the F-statistics: $F(1, 7732)=77.992, p<.001$.

Read diagrams maps or schematics. A less frequent activity, American-born adults (2.25) reported reading diagrams or schematics more often than immigrant participants (2.00) did. Both groups reported reading this type of material *less than once a month*. The difference between the means of the two groups is statistically significant (ANOVA tests) based on the F-statistics: $F(1, 7732)=60.210, p<.001$.

Write letters memos or mails. For the first skill use measure involving writing, *Write letters, memos, or mail*, American-born participants (3.65) reported engaging in this activity more frequently than immigrants (3.35). Both participant groups reported writing memos or mail *less than once a week but at least once a month*. The difference between the means for the two groups was statistically significant as indicated by the ANOVA test: $F(1, 7732)=84.025, p<.001$.

Write articles. American-born adults (1.17) actually reported lower frequency of use than immigrant participants (1.23) for writing articles, though both groups engage in this activity infrequently (*less than once a month*). The results of the ANOVA tests show that a statistically significant difference exists between the means of the two groups: $F(1, 7732)=4.154, p<.01$.

Write reports. Neither participant group reported writing reports frequently (1.54 for American-born adults versus 1.49 for immigrants) as American-born adults and immigrants write reports *less than once a month*. The results of the ANOVA tests do not demonstrate a statistically significant difference between the means of the two groups, according to the F-statistics: $F(1, 7732)=2.358, p=.132$.

Fill in forms. The final skill use measure, *Fill in forms*, was also not a common activity (*less than once a month*) as reported by the participants in the study. American-born adults (2.30) reported higher frequency of use than immigrant participants (2.10). The data from the ANOVA tests suggest that the difference of the means for the two participant groups is statistically significant, as the F-statistics indicate: $F(1, 7732)=39.879, p<.001$.

Summary of Findings RQ2

As can be expected, the literacy scores of American-born adults were significantly higher than the scores of immigrants. The distinction can likely be attributed to factors such as educational attainment and language challenges for non-native English-speaking immigrants.

Overall, there are statistically significant differences between how often immigrants and American-born adults engage in reading and writing activities that are expected to develop their literacy skills through everyday life use of English language. The two exceptions of not significant differences are activities like *reading professional journals or publications* and *writing articles*, activities that are related to professional employment that require higher level of education. Since the higher educated adults have equal representations among the two groups, this could explain what none has an advantage with respect to these activities. However, overall, American-born are scoring higher than immigrants on all items.

Research Question 3

What is the relationship between the level of English literacy of immigrant and American-born adults and the extent of skills used in everyday life, when controlling for socio-demographic factors (i.e., gender, age, level of education)?

To address this research question, I will run two separate linear regression models to examine the determinant factors of English literacy for each adult group. For each regression

model, I will introduce all independent variables and report the adjusted R square and its corresponding F statistics, followed by tables that include regression coefficients and their corresponding t-tests of significant contribution to the outcome (i.e., literacy score). For categorical independent variables with more than two categories, dummy variables were created, and results are reported with respect to the reference categories (i.e., male, age 55 plus year old, high level of education).

American-born Adults

The regression model indicates an adjusted R square of .363, which means 36.3% of the variance in the outcome is explained by the selected independent variables. The model is highly significant (large coefficient of determination R-square) as indicated by the ANOVA test $F(19, 6600)=199.576, p<.001$. The variance in the outcome can be predicted from the independent variables (socio-demographic factors, and the various skills used in everyday life, e.g., fill in forms, write articles, etc.). Table 4.3 presents both unstandardized and standardized coefficients of the model, so the following discussion can describe the independent variables' contribution to the scores as well as their relative contributions to the model.

Gender. The predictor gender contributes significantly to the literacy scores of American-born adults showing a clear difference in scores between men and women who score about 4 points less than men in the predicted literacy score when all other variables remain constant.

Age. First, age is a more significant predictor of literacy scores than gender as indicated by the larger standardized coefficients (about .10 for each category compared to only .05 for gender). Second, compared to American-born adults over 55 years of age, younger adults scored higher in English literacy. For instance, adults aged 24 or less scored about 18 points more than the older immigrants, while similar patterns are noticeable for those aged between 25 and 34 (13

points more), 35 to 44 (about 12 points more) and 45 to 53=4 (about 7 points more). The poorer language performance of American-born adults could be related to variability in their level of education, since only 36% of this group are highly educated (see Table 4.1).

Table 4.3

Regression Model for American-Born Adults

	Unstandardized Coefficients		Standardized Coefficients	t-test	Sig
	B	Std Error	Beta		
Constant	249.246	2.727		91.405	.000
Female (ref=Male)	-4.138	.942	-.047	-4.392	.000
Age less than 24 (ref=55 plus)	18.039	1.526	.164	11.819	.000
Age 25 to 34 (ref=55 plus)	13.627	1.368	.124	9.963	.000
Age 35 to 44 (ref=55 plus)	11.956	1.394	.105	8.578	.000
Age 45 to 54 (ref=55 plus)	6.942	1.335	.064	5.201	.000
Low level educ (ref=high level)	-51.817	1.656	-.385	-31.291	.000
Medium level educ (ref=high level)	-27.793	1.005	-.316	-27.650	.000
Read directions or instructions	-3.930	.399	-.115	-9.857	.000
Read letters memos or mails	4.810	.503	.123	9.563	.000
Read newspapers or magazines	2.792	.434	.077	6.439	.000
Read prof journals or publications	.273	.393	.008	.694	.488
Read books	2.963	.332	.100	8.938	.000
Read manuals or reference materials	-1.342	.430	-.038	-3.118	.002
Read financial statements	-2.484	.412	-.068	-6.024	.000
Read diagrams maps or schematics	4.431	.424	.122	10.457	.000
Write letters memos or mails	4.648	.417	.147	11.156	.000
Write articles	-2.425	.799	-.032	-3.036	.002
Write reports	-.880	.510	-.021	-1.723	.085
Fill in forms	1.121	.452	.029	2.479	.013

Level of education. According to the coefficients in Table 4.3, the level of education is the most significant contributor to the model, with the largest standardized coefficients between .3 and .4. Compared to American-born adults with a high level of education, those with a low level of education scored about 52 points lower in English literacy. These individuals who did not finish high school (low level of education) exhibit a low literacy level. Out of all the predictors, not completing high school has the strongest (and most negative) **correlation** with literacy levels. Having a medium level of education has a less pronounced effect on literacy scores but is also significant in the model. Those who completed high school but did not complete at least an associate degree scored about 28 points less in English literacy.

Read directions or instructions. Clearly, not all skill usage has a **positive association with adult** literacy. For instance, **there was a negative association between** *reading directions or instructions* **and** literacy skills. For each unit increase of this indicator, there was a decline in literacy scores of about 4 points, and the effect was statistically significant.

Read letters memos or mails. Out of all the predictors related to literacy acts in daily life, *reading letters, memos, or mail* has the strongest positive **correlation with** American-born adults' literacy levels and also contributes significantly to the model. For each unit increase in the reading letters, memos, or mail predictor, there was nearly a 5-point increase in literacy scores.

Read newspapers or magazines. Another significant contribution to the model is produced by *reading newspapers or magazines*. For each unit increase of this predictor, there is almost a 3-point increase in literacy scores, suggesting that newspapers and magazines are beneficial for increasing adult literacy.

Read professional journals or publications. The data in the coefficient table suggests that *reading professional journals or publications* does not contribute significantly to level of literacy for American-born adults. For some reason, each unit increase of this predictor only leads to about a low .3 increase in literacy scores.

Read books. Although *reading professional journals or publications* does not contribute significantly to the model, *reading books* contributes significantly. For each unit increase of *read books*, there roughly a 3-point increase in literacy scores. The PIAAC assessment only inquires about the reading frequency and does not account for the genre of books or number of pages read at each sitting. However, it can reasonably be inferred that reading books leads to enhancement of adult literacy levels.

Read manuals or reference materials. Similar to *reading instructions or directions*, *reading manuals or reference materials* is negatively correlated with literacy scores. For each unit increase of this predictor, literacy scores decline by more than 1 point.

Read financial statements. While also a significant contributor to the model, *reading financial statements* as a predictor is also negatively correlated with literacy levels, similar to *reading directions or instructions* and *reading manuals or reference materials*. For each unit increase in *read financial statements*, there is about a 2.5-point reduction in literacy scores.

Read diagrams maps or schematics. This predictor significantly contributes to the model in addition to indicating a positive association with literacy levels. For each unit increase of *read diagram maps or schematics*, there is almost a 4.5-point increase in literacy scores.

Write letters memos or mails. Everyday skill use involving writing appears to have varying levels of association with adult literacy levels. The predictor *write letters, memos, or*

mail significantly contributes to the model and is positively correlated with literacy scores (nearly a 5-point increase).

Write articles. The predictor *writing articles* does contribute significantly to the model, though for each unit increase of *write articles*, there is about a 2.5-point decrease in the literacy scores of American-born respondents.

Write reports. *Writing reports*, however, does not contribute significantly to literacy scores although the association is still negative. For each unit increase of this predictor, there is less than a 1-point decline in literacy scores.

Fill in forms. The final predictor, *fill in forms*, does make a significant contribution to the model. For each unit increase in this predictor, literacy scores increase more than 1 point. The increase is minor yet statistically significant.

Adult Immigrants

For immigrants, the adjusted R square is .508, meaning that 50.8% of the variance in the outcome is explained by the independent variables. As with American-born adults, the model is significant, according to the ANOVA test $F(19, 1094) = 61.383, p < .001$. Table 4.4 presents both unstandardized and standardized coefficients of the model, so the following discussion can describe both the independent variables' contribution to the scores as well as their relative contributions to the model.

Table 4.4

Regression Model for Immigrants

	Unstandardized Coefficients		Standardized Coefficients	t-test	Sig
	B	Std Error	Beta		
Constant	208.582	6.661		31.312	.000
Female (ref=Male)	-5.277	2.544	-.046	-2.074	.038
Age less than 24 (ref=55 plus)	23.914	5.062	.132	4.724	.000
Age 25 to 34 (ref=55 plus)	15.776	4.034	.114	3.911	.000
Age 35 to 44 (ref=55 plus)	12.148	3.838	.095	3.165	.002
Age 45 to 54 (ref=55 plus)	3.550	3.865	.027	.919	.359
Low level educ (ref=high level)	-58.570	3.929	-.446	-14.908	.000
Medium level educ (ref=high level)	-34.209	3.083	-.294	-11.095	.000
Read directions or instructions	-1.020	1.051	-.026	-.971	.332
Read letters memos or mails	4.331	1.300	.113	3.331	.001
Read newspapers or magazines	3.549	1.125	.089	3.154	.002
Read prof journals or publications	-2.457	1.090	-.065	-2.253	.024
Read books	1.172	.944	.031	1.241	.215
Read manuals or reference materials	-1.228	1.209	-.028	-1.016	.310
Read financial statements	.333	1.086	.008	.306	.759
Read diagrams maps or schematics	1.829	1.208	.040	1.514	.130
Write letters memos or mails	9.156	1.165	.252	7.859	.000
Write articles	-5.927	1.895	-.074	-3.128	.002
Write reports	-5.261	1.494	-.093	-3.521	.000
Fill in forms	4.610	1.272	.094	3.625	.000

Gender. As with American-born adults, the predictor gender contributes significantly to the literacy scores of immigrants. For every unit increase in female, there is about a 5-point decrease in the predicted literacy score (compared to a 4-point decrease for American-born

adults) when all other variables remain constant. Therefore, for female immigrants, the predicted literacy score is more than five points lower than for males.

Age. In general, age is a significant predictor of literacy scores for immigrants, similar with the effects of age on the scores of American-born adults. The standardized coefficient is about .1 for each age band, with the exception of the 45 to 54-year old group (.027). As with American-born adults, age contributes more significantly to literacy scores than gender (.05 for immigrants).

Relative to immigrants 55 years or older, the younger age bands demonstrated higher literacy scores on the PIAAC assessment. Younger individuals scored the highest followed by a noticeable decline in each subsequent age bracket. The youngest group (adults age 24 or lower) scored 24 points higher than older immigrants. Those between 25 and 34-years old scored almost 16 points higher than older adults while the 35 to 44 age bracket scored about 12 points higher. Immigrants in the 45 to 54-year old age band, however, only scored about 3.5 points higher than individuals in the 55 and above category.

Level of education. Being that their literacy scores are collectively lower than American-born adults, immigrants' weak literacy abilities are likely also tied to educational shortcomings (nearly 25% reported not finishing high school) and also language issues as non-native English speakers. According to coefficients in Table 4.4, the level of education contributes significantly to the model for immigrants (similar but more pronounced than the contribution for American-born adults). Education is the most significant predictor to the model since the largest standardized coefficients (between .3 and .45) are associated with the levels of education categories.

Individuals who did not finish high school (low level of education) have very low literacy levels when compared to those with a high level of education and score nearly 59 points less (compared to a 52-point decrease for American-born adults). Parallel to the results of American-born adults, not finishing high school has the greatest (and most negative) impact on literacy level. Belonging to the medium education level also has a strong negative effect on literacy levels when compared to those with a high level of education, as indicated by the 34-point decrease in the literacy score of immigrant adults (compared to a 27-point reduction for American-born adults).

Read directions or instructions. For the first skill used in everyday life, the predictor *read directions or instructions* had a negative correlation with literacy skills, though this predictor does not contribute significantly to the model. For each unit increase of this predictor, there was roughly a 1-point decline in literacy scores (compared to a decline of 4 points for American-born adults).

Read letters memos or mails. The predictor *read letters, memos, or mail* is positively correlated with immigrant adults' literacy levels and does make a significant contribution to the model. For each unit increase in the *reading letters, memos, or mail predictor*, there is over a 4-point increase in literacy scores (compared to almost 5 points for American-born adults).

Read newspapers or magazines. An additional significant contribution to the literacy scores is *reading newspapers or magazines*. For each unit increase of this predictor, there is a predicted 3.5-point increase in literacy scores, which suggests that newspapers and magazines are beneficial for increasing adult literacy (There is nearly a 3-point increase for American-born adults for the same predictor).

Read professional journals or publications. The data suggests that *reading professional journals or publications* contributes significantly to the model although this predictor **is negatively correlated** with literacy levels. For each unit increase of this predictor, there is a 2.5-point decrease in literacy scores. For American-born participants, there is a less than .3 increase in literacy scores.

Read books. Along with the three following literacy acts, *reading books* does not contribute significantly to the model. For each unit increase of *read books*, there is only a 1-point increase in literacy scores. American-born adults' literacy scores, on the other hand, increase by 3 points when reading books was reported.

Read manuals or reference materials. Very similar to the effect for American-born adults, *reading manuals or reference materials* **is negatively correlated** with literacy scores (just over 1 point), and this predictor does not contribute significantly to the model.

Read financial statements. Additionally not a significant contributor to the model, *reading financial statements* **is negatively correlated with** the literacy levels of immigrants. For each unit increase in *read financial statements*, there is only .3 increase in predicted literacy scores. Conversely, American-born adults' literacy scores decreased by about 2.5 points for the same predictor.

Read diagrams maps or schematics. This predictor moreover does not contribute significantly to the model as the effect on literacy levels is minor. However, for each unit increase of *read diagram maps or schematics*, there is roughly a 2-point increase in literacy scores. The effect is more significant for American-born adults with over a 4-point increase in literacy scores.

Write letters memos or mails. The predictor *write letters, memos, or mail* significantly contributes to the model and enhances literacy scores with a 9-point increase in literacy scores for each unit increase of the predictor. *Writing letters, memos, or mail* is the most **positively correlated** skill use in everyday life **in relation to** literacy levels for immigrants (largest standardized coefficients among skill use independent variables). The effect is significant but less pronounced for American-born adults (nearly a 5-point increase in literacy scores).

Write articles. Similar to the effect on American-born adults' literacy levels, *writing articles* **is negatively correlated with** immigrants' literacy scores. The predictor does contribute significantly to the model, though for each unit increase of *write articles*, literacy scores decrease by 6 points (the reduction is roughly 2.5 points for American-born respondents).

Write reports. *Writing reports* contributes significantly to the model, and similar to writing articles, there is a **negative correlation with** immigrant literacy levels. For each unit increase of this predictor, there literacy scores go down 5 points, compared to less than a 1-point reduction for American-born adults' literacy scores.

Fill in forms. The final predictor, *fill in forms*, also makes a significant contribution to the model. For each unit increase in this predictor, there is about a 4.6-point increase in literacy scores. The effect on American-born adults' literacy scores is also positive (an increase of 1 point) but less significant.

Summary of Findings RQ3

To address the third research question, I first conducted two separate models for the two adult groups. Results from the two models (Table 4.3 and Table 4.4) are compared in terms of unstandardized coefficients. First, the literacy model for American-born adults is statistically significant; the independent variables explain 36.3% of the variability in the outcome. However,

the literacy model is stronger for adult immigrants as the independent variables explain 50.8% of the variability in outcome.

The regression coefficients showed that nearly all demographic factors contribute significantly to the models for American-born adults and immigrants. For both groups, the data indicates that being female and having a lower level of education **is negatively correlated with** levels of literacy. Although for American-born adults, all younger adults perform better on the literacy test, among immigrants, there is no significant difference between the 45 to 54-year-olds compared to being over 55-years old. Both models indicate that level of education is the most important contributor with a significant drop in literacy scores for both medium and low level of education.

Among the predictors related to skills used in everyday life, the relevance of usage appears to be more important for American-born adults for whom all skills contributed significantly to the model with the exception of *reading professional journals or publications* and *writing reports*. However, five predictors did not contribute significantly to the literacy model for immigrants: *reading directions or instructions*, *reading books*, *reading manuals or reference materials*, *reading financial statements*, and *reading diagrams, maps, or schematics*. On the other hand, all writing practices **had a correlation with** literacy scores for immigrants, although *writing articles* and *writing reports* were associated with a decrease in the level of literacy. One of the most interesting findings was the **weak association between** *reading books* **and** the predicted increase in literacy scores. For American-born adults, there was only a predicted point 3-point increase in literacy scores. For immigrants, there was only a predicted 1-point increase in scores.

Summary of Study Findings

First, the data shows the two adult populations hardly differ in terms of gender composition, while the age distribution is different with 27% of immigrants compared to 18% of American-born in the age group 35-44, which is at the core of the working-age population. Overall, 70% of immigrants compared to 60% of American-born adults are between age 25 and 54 and are presumably active in the labor market. However, the data shows that 25% of immigrants compared to 12% of American-born adults have a low level of education (i.e., do not have a high school diploma), which suggests many immigrants over the age of 25 who are expected to be active in the labor market could be locked into unskilled jobs due to low level of formal education. As the data also shows, immigrants and American-born adults differ with respect to literacy skills with American-born individuals scoring higher. Finally, American-born adults are practicing literacy skills more often than immigrants, which combined with the lower percentage of adults with a low level of formal education, may explain why this population demonstrates higher literacy skill levels.

While it is not surprising that immigrants have lower literacy levels than American-born individuals, the data has revealed numerous commonalities between the two groups of adults with respect to variables that may affect literacy. The findings indicate that females in both groups clearly had lower literacy skills. This finding is noteworthy and definitely merits further exploration. As predicted in the literature on immigrants, there is a strong relationship between age and English language skills and consequently literacy skills. The literacy models developed in this study show that age is more important than gender and confirms previous findings for immigrants (Berg, 2010; Kim & Diaz, 2013; Mathews-Aydinli, 2008; Sweetman & Truong,

2018). It is noteworthy that similar results are obtained for American-born adults—findings that will be further discussed in Chapter 5.

The level of education of American-born adults and immigrants moreover had a marked effect on their literacy scores. More than anything, the data clearly highlights the adverse effects that not completing high school has on literacy levels. While not as profound, not continuing on to receive a college or university degree also had a very damaging effect on the literacy levels of immigrants and American-born adults. It can therefore be inferred that there is a direct connection between an individual's level of education and his or her literacy level.

The two groups of respondents engaged to varying degrees in everyday tasks related to literacy. Certain skills that adults practice on a regular basis contribute to literacy scores, some positively and some negatively. The significance and the effect of various skills largely differs for American-born adults and immigrants, though some common patterns emerged in the data. The literacy scores of American-born adults and immigrants were noticeably boosted by reading letters, memos, or mail as well as writing letters, memos, or mail. American-born adults also greatly benefited by reading diagrams, maps, or schematics while immigrants benefited by filling in forms.

In conclusion, there are several variables which influence the literacy levels of American-born adults and immigrants in the United States. The data has provided a useful starting point for approaching the literacy needs of certain segments of American society, namely women, immigrants, and the less educated. Furthermore, the data suggests that certain practices enhance the literacy levels of adults. A greater understanding and deeper exploration of these practices is worthy of consideration toward the betterment of adult literacy.

CHAPTER 5

DISCUSSION

The final chapter presents a summary of key findings of the study followed by a discussion and interpretations of major findings relative to existing research. Furthermore, the implications of the study are situated to provide insight into challenges and obstacles of adult literacy development to inform policy, practice, and additional research. The limitations (and delimitations) of the study are included which can also suggest opportunities for future research to address unanswered questions. Lastly, the significance of the study highlights the contributions to the field of adult literacy in the United States.

Summary of Key Findings

This study explored the literacy levels and literacy practices of American-born adults and immigrants in the United States. The study began by exploring how the two demographics differed in terms of sociodemographic factors, i.e., age, gender, and level of education. Even though the gender composition (roughly 50/50) is about the same for American-born and immigrant adults in the U.S., the two groups are starkly different in terms of age and education level. The immigrant population in the U.S. is much younger than the American-born population, where 72% of the immigrants in the PIAAC were between 25 to 54 years-old (59% of American-born adults were in this age bracket).

The study also highlights the educational disparity between immigrants and American-born adults. One quarter of the nation's immigrants fall into the low level of education category, meaning they failed to complete high school. Clearly, this is an area of national concern. The high school completion rate for American-born adults (88%) is worrisome as well, but the situation for immigrants is more dire.

One of the key objectives of the study was to understand the effects of certain variables on adult literacy scores. Out of all the variables, not completing high school had the most detrimental effect on the literacy levels of immigrants and American-born adults. Moreover, American-born adults outperformed immigrants on the literacy assessment, suggesting that a language barrier education level adversely affect the literacy levels of immigrants.

Congruent with existing research, younger adults exhibited higher literacy levels in the study. Surprisingly, though, males (American-born and immigrant) outperformed females on the PIAAC literacy assessment. As this is not consistent with many other significant studies of adult literacy, more research is necessary to understand the discrepancy.

One of the most noteworthy attributes of the study was the insight into specific literacy practices that adults use to enhance their literacy levels. American-born adults and immigrants participate in a broad range of activities which **seem to have a positive effect on their literacy levels**, including reading letters, memos, or mail. Both groups also seemed to enhance their literacy levels by writing letters, memos, or mail. Interestingly, **my study demonstrated a positive relationship between immigrant literacy levels and filling in forms, while American-born adults demonstrated a positive relationship between literacy levels and reading diagrams, maps, or schematics.**

Adult Literacy in the United States

Data from the current study suggests that the average literacy score (272) of all adults in the United States is slightly higher than the average score (267) of all participating countries in the PIAAC study (Hogan et al., 2016). However, many countries scored much higher than the United States, including the high-performing nations of Japan, Finland, the Netherlands, Sweden, Norway, and Estonia (Hogan et al., 2016). The unimpressive literacy levels in the U.S.

relative to other high-income countries has also been corroborated by earlier studies, such as the National Adult Literacy Survey (NALS), International Adult Literacy Survey (IALS), and Adult Literacy and Life Skills Survey (ALL) (Satherley, Lawes, & Sok, 2008; Sum, Kirsch, & Taggart, 2002). Considering adult literacy levels in the United States, Sum et al. (2002) stated that “the overall U.S. performance is mediocre at best and that the U.S. is a world leader in the degree of inequality between the best and poorest performers” (p. 1). Since literacy is a factor in global competitiveness, the United States continues to be overshadowed by other wealthy nations whose higher literacy levels equate to greater economic independence per capita in technology-rich, information societies.

Arguably, it is difficult to compare different countries based only on the overall adult literacy scores and other factors should be considered. Not only was the PIAAC administered in the officially recognized language of the 33 participating nations, but demographic and migration factors of each nation can influence overall literacy scores. Thus, data from participating countries indicates that immigrants, on average, exhibit lower literacy scores, and since the United States had a higher percentage of immigrants (15%) than the average of participating countries (12%), the immigrant factor may negatively affect the overall adult literacy scores. It is additionally difficult to compare the average literacy scores of the U.S. to Japan, whose adult population was only 1% immigrant or to New Zealand, where nearly 30% of the study participants were immigrant (Hogan et al., 2016). Regardless, my study findings show the average literacy scores of American-born adults and immigrants in the U.S. (277 points and 239 points on a scale from 0-500) are still mediocre based on the PIAAC literacy assessment. Using a different measure, scores on the PIAAC assessment also placed participants in five levels (1 through 5). The average of the U.S. immigrants’ scores place them squarely in Level 2,

and the average scores of American-born adults just barely places the participants in Level 3. According to Batalova and Fix (2015), PIAAC's Level 2 is "basic" and Level 3 is "proficient" which should be concerning for a developed country like the United States.

My study contributes to the literature that emphasizes the importance of adult literacy for individuals and society. On a national level, nearly 43 million adults in the U.S. have low literacy skills (Mamedova & Pawlowski, 2019). Without even comparing the situation to other developed countries, data from my study suggests that we are falling behind as a nation. Research clearly indicates that literacy is a factor in job attainment, economic well-being, political involvement, and understanding health information (Artieda, 2017; Miller, McCardle, & Hernandez, 2010; Sum et al., 2002), and the data from my study highlighting the low literacy levels among the nation's adults likely indicates that a significant proportion of the population does not have equal access in American society due to their underperforming literacy scores.

The data in my study additionally indicates that immigrants in the U.S. are especially at a great disadvantage with respect to their literacy skills, and while numerous factors may contribute to this precarious situation, English-language deficiencies seem to be a decisive factor affecting success in other areas, such as level of education. The study supports existing research (Richwine, 2019) which indicates that gains in education are not sufficient enough to offset immigrants' language weaknesses, which ultimately brings down their collective literacy levels. My study is also consistent with previous research (Mattoo, Neagu, & Ozden, 2008) that suggests even well-educated immigrants are not on an equal playing field if they do not have advanced proficiency in English.

Adult Literacy and Education Level

Out of all the study's outcomes, the relationship between education and literacy is likely the most predictable, yet one thing that stood out in the data was the low high school completion rate for immigrants and the corresponding impact on literacy. Consistent with other research (McFarland, Rathbun, & Holmes, 2018; Stark & Noel, 2015; Zong & Batalova, 2019), my study confirmed that immigrants in the United States are far less likely to have a high school education. The data indicates that one fourth of the immigrants fell into the low level of education category, i.e., 25% of the immigrants reported not completing high school. This alarming statistic points to domestic and global inequities if immigrants do not have access to quality education in their home countries prior to immigration or are dropping out of school in the U.S. for various reasons (Kao, Vaquera, & Goyette, 2013).

Among participating countries in the PIAAC assessment, the U.S. is lagging behind in high school completions rates and literacy rates. Although not as alarming but still very worrisome, just over 12% of American-born adults in my study also did not finish high school. This, in itself, is troubling relative to other industrialized nations (Perry, 2013). The study findings clearly indicate the damaging effects that not finishing high school has on adults' literacy levels for both sets of participants. In addition, immigrants in the U.S. are especially disadvantaged when it comes to their literacy skills by faring far worse than immigrants in other developed nations (Sabatini, 2015). This can largely be attributed to the immigration patterns in recent decades in the U.S. with an influx of low-skilled workers who did not complete secondary school and perhaps experience the ongoing educational inequalities in the American public school system.

The lasting effects of a lack of quality education and limited proficiency in the English language make it increasingly difficult for the immigrant population to develop their literacy skills and find their footing in American society. According to OECD (2013), “The combination of poor initial education and lack of opportunities to further improve proficiency has the potential to evolve into a vicious cycle in which poor proficiency leads to fewer opportunities to further develop proficiency and vice versa” (p. 23). Although there are various contributing factors to not completing high school, the evidence is clear that failure to obtain a high school diploma has a devastating effect on an individual’s level of literacy.

Literacy Skills Development through Practice

My study **has contributed** to the field of adult literacy by providing a window into the everyday activities which help to enhance adult literacy skills. American-born and immigrant adults reported their frequency of engaging in certain literacy practices, such as reading newspapers and writing reports. As adult learners pursue literacy on their own or partake in adult education coursework, my study demonstrated a relationship between specific methods of practice and literacy levels, which supports the study’s orienting theoretical framework. Congruent with Bourdieu’s (1977; 1990) concept of acquiring capital in a field through practice, the participants in the study pursue a variety of literacy acts that have a positive **effect** on **increasing** their language capital, specifically their literacy levels. By reading and writing letters, memos, and mail, the America-born and immigrant participants in my study **demonstrated a positive correlation with their literacy skills** that correspond to possessing more language capital.

Additionally, level of education, as a form of capital, is positively correlated with adult literacy levels. Those who have access to quality education in American society benefit by

developing stronger literacy skills and subsequently have greater societal advantages via career opportunities, political participation, and healthcare services (ProLiteracy, 2019; Sum, Kirsch, & Yamamoto, 2004). My study makes clear that immigrants' lack of linguistic capital is inherently connected to their lack of formal schooling. The data from the study suggests that language difficulties may be a factor in the high dropout rates of immigrants in the United States, and the lack of schooling undoubtedly exacerbates the lack of language capital experienced among immigrants. Not only does the lack of exposure to the English language have devastating effects on educational attainment (Chiswick & Miller, 1995), but the corresponding lack of formal education equates to missed opportunities for language and literacy development among the study's immigrant participants.

Fortunately, immigrants who reported engagement in certain forms of social practice scored higher on the study's literacy assessment. The most beneficial forms of practice included filling in forms as well as reading and writing letters, memos, and mail. The resulting increase in language capital most likely results in enhanced human capital in the immigrants' host country, the United States (Dustmann & Fabbri, 2003). Moreover, the immigrants in my study who possess enhanced language and human capital have likely been able to more seamlessly integrate into American society (Adamuti-Trache, 2012).

Implications and Recommendations for Practice

My study does suggest that a significant portion of adults in the U.S. have advanced literacy levels, yet there remains an abundance of adults at the low end of the spectrum. Similarly, reviewing the PIAAC data set, Sabatini (2015) argues that using literacy skills in real-life contexts is crucial to advance to the upper levels of literacy proficiency, yet he firmly believes that an entirely more traditional approach is necessary for low-literacy learners. On

adults who performed poorly in the literacy assessment, Sabatini stated that “basic skill development additionally may require direct skill instruction and practice applying nascent skills in exercises that build up fluency of application of those skills” (p. 34). With a direct instruction model, instructors deliver a guided, scaffolded lesson where learners work on phonics, word recognition, reading speed, comprehension, etc. (Antonacci, 2000). Therefore, it is important for educational and community settings to implement targeted forms of instructional intervention that result in literacy advancement of low-literacy adults.

Direct instruction and other instructional innovations must be considered for the immigrant adult population. As the data clearly indicates, immigrants are falling far behind in their literacy levels. Since the data additionally suggests that deficiencies in the English language directly contribute to low literacy levels, any literacy program that serves English language learners must also be supported by a curriculum which includes substantive practice in writing, listening, and speaking of the English language. Thus, educators must consider the learner’s needs holistically as it is not an option to separate the literacy weaknesses from an immigrant’s overall language-learning needs.

Inherently low literacy scores on the PIAAC assessment, especially among American-born participants, may point to a learning disability or other physical and mental challenges which adversely affect literacy attainment (Sabatini, 2015). Consequently, additional training may be necessary for program administrators and educators in adult education programs to not only recognize certain disabilities, but to also put forth a plan of action for adult learners with special learning needs.

Data on adult literacy practice for adults from the present study is useful for designing and refining intervention programs for adults with low literacy. Historically, program designers

have relied on research of school-age learners to develop adult literacy programs due to the limited number of applicable studies into adult literacy (Miller et al., 2010). Adult learners, especially low-literacy adults, typically require more time to develop their literacy skills than children, and accelerated intervention programs (less than 200 hours) are neither practical nor sufficient to work toward transformative change (Sabatini, 2015). Program developers should adjust their programs accordingly to allow for a more sustained investment in the literacy development of adult learners while also understanding that the rate of literacy development varies by person. For instance, my study shows that adults with different levels of education may benefit from different language and literacy development programs as there is a direct relationship between education level and literacy level. Adult education programs can act as a compensatory measure for individuals whose literacy abilities were hampered by their lack of formal schooling, but patience and longer-term commitments are necessary for the population of adult literacy learners.

With the insight gained from the present study, program directors and educators in adult literacy programs are reminded that the teaching and learning of adult students is more impactful when situated in the context of real-life scenarios. This is especially true when considering literacy development. Yankwit (2020) remarked that it is imperative to “ground curriculum and instruction in the real-life issues our students and their communities were confronting and connect learning in the classroom to action in the world” (p. 60). We must additionally approach our learners holistically as opposed to typecasting them as illiterate, uneducated individuals who need charity. Our job is to help adult learners develop their literacy skills for the purposes specific to their needs, whether they be personal, professional, or academic. My study findings

support this idea **by suggesting which forms of everyday skill practice have the strongest degree of positive correlation to literacy levels.**

Adult literacy programs rely on funding from private donors as well as support from state and federal entities (Yankwit, 2020). Forgoing standardized assessment and a standard-based curriculum is likely not an option altogether, and there are also many benefits to implementing a formidable, research-based curriculum. However, adult literacy programs must also offer an innovative, flexible curriculum to prepare adult learners for real life. This is where educators, whether volunteer or paid instructors, should experiment with instructional methodologies that closely mirror everyday literacy acts in the lives of the adults whom they serve. When the emphasis shifts from grant reporting to empowering learners, the door opens to true literacy development.

Now more than ever, many young learners and adult learners are falling through the cracks in the face of the global coronavirus pandemic (Boeren, Roumell, & Roessger, 2020; Dorn, Hancock, Sarakatsannis, & Viruleg, 2020). Digital, remote learning platforms were previously a convenient luxury. Now, they are a necessity. Digital literacy methodologies are especially useful to supplement classroom instruction and also offer learners the flexibility to practice their skills on their own time (Sabatini, 2015). While there are clear access issues to technology, adult learners who do have access to digital literacy platforms can greatly benefit from the flexibility that self-study offers when built upon in-person or remote classroom instruction. Research also indicates that student attendance in adult education courses can be intermittent depending on life circumstances, so the ability to partake in a supplementary digital program can promote a more consistent, long-term commitment to literacy development and lifelong learning (Sabatini, 2015).

Implications and Recommendations for Policy

For adult learners, namely those educated in the United States, it is important to examine and question the quality of literacy instruction in their school-age years considering the carry-over effect into adulthood. We must also look into the effects of policy at the local, state, and national level as it pertains to curriculum and instruction. To begin with, it is possibly time to revisit the existing No Child Left Behind (NCLB) legislation from the administration of George W. Bush and bring education reform back to the forefront of national discourse. Moving beyond the Bush years, Vinovskis (2015) emphasized the following: “Indeed, the lack of attention to education reform in the 2008 presidential and congressional primaries cautions us not to expect that education reforms will continue to be a primary concern among the electorate in future elections” (p. 5). Maranto, McShane, and Rhinesmith (2016) conversely believe that President Obama remained focused on education policy at the national level, yet NCLB remained largely intact, including the focus on evaluating teachers based on student test scores. Additionally, the Trump years have been characterized by a focus on for-profit education, but there has been little change to emphasis on standardized assessment (Spring, 2020).

As the United States enters its third decade of the NCLB policy (passed in 2001), which ties school funding to student test scores on high-stakes, standardized testing, many students are not developing the necessary literacy abilities that modern society demands. According to Rivera (2008), the U.S. is failing to meet the educational needs of school-age children who come from low-income and minority families because of the standardized testing culture coupled with inequalities in education and society at-large. Wendt (2013) argues that one of the unintended consequences of No Child Left Behind is instructional neglect of literacy development at the middle school and high school level. Because of the narrow focus on content areas, such as math

and science, in the current educational climate, students are not given enough opportunities for critical engagement with written texts or other opportunities that allow for dynamic literacy development. Instead, a great deal of teaching and learning has become mechanical to prepare students for standardized testing. Undoubtedly, the effects of this national legislation do not bode well for individuals' literacy levels throughout their school-age years and into adulthood.

Moreover, Harper, de Jong, and Platt (2008) explored the effects of No Child Left Behind on the teaching of ELLs and found that the “accountability pressures” (p. 277) stemming from NCLB are especially harmful for non-native English speaking youth. ELL students have to take the same standardized reading exams in English as their native-English speaking peers, yet there is typically no specialty instruction or consideration for the linguistic needs of non-native English speaking students. Additionally, because of the focus on preparing the students for standardized testing, less instructional time is devoted to developing the students' other language skills (writing, listening, and speaking).

Many underperforming students, native and non-native English speaking, are eventually pushed through to high school graduation without having basic literacy skills while others drop out of school for various reasons. Miller et al. (2010) argue that it is safe to assume that literacy is indeed a strong factor in high school dropouts. When native and non-native English speakers drop out of high school because of literacy issues and other factors, they consequently are very likely to be part of subsequent generations of low-literacy adults.

As a result, many young adults end up in adult literacy education courses because they have reached adulthood without basic literacy skills (Hayes, 2000; Barton, 2005). Mortrude (2020) posited that “adult education participants are generally those failed by their public education system, whether here in the United States, in a home country, or in displacement” (p.

54). To truly address the literacy deficiencies of adults in the U.S., intervention is necessary when individuals are still in their school-age years. Of course, No Child Left Behind is only one of the many factors contributing to the nation's literacy ills, but federal initiatives to tackle the problem need to reenter the public discourse.

From a legislative perspective, not only must school performance tied to standardized testing be reconsidered, but literacy of even the nation's youngest learners should be prioritized. Furthermore, prevention of high school dropouts and language development for non-native English speakers must be part of the legislative agenda at federal, state, and local levels. In addition to prioritizing literacy instruction in K-12, adequate funding for adult literacy initiatives must also be a legislative priority to tackle to challenge at both ends of the spectrum.

In 2010, the National Institute for Literacy (NIFL) closed its doors (Miller, 2010) during the Obama administration. The NIFL was founded and funded by 1991's National Literacy Act under the administration of George H.W. Bush and was later reauthorized by 1998's Workforce Investment Act. The NIFL additionally fell under the umbrella of the No Child Left Behind legislation and was designed to coordinate federal, state, and local efforts to offer services and funding to increase the literacy levels of children and adults in the U.S (Federal Register, n.d.).

Fast forward to 2020, a decade after the dissolution of the National Institute for Literacy, and most adult education programs that receive federal funding are wholly or partially subsidized by the Workforce Innovation and Opportunity Act (WIOA) (Reder, 2020). According to Reder (2020), programs must adhere to strict assessment and accountability standards in order to secure and maintain funding from the WIOA, and the programs are meant "to help adult students increase their standardized test scores, obtain high school equivalency, find employment or enter vocational training or postsecondary education" (pp. 48-49). Reder

argues that WIOA-funded adult education programs are mostly representative of a neoliberalist framework and do not actually promote lifelong learning or address the needs of all learners.

Despite Reder's criticism that federally funded adult education programs primarily serve human capital interests for the benefit of employers instead of a focus on social justice and human rights, the programs do function as a necessary intervention in the lives of adults with low literacy. As can be expected, funding for adult education programs is competitive and scarce. Yankwitt (2020) estimates that adult education programs serve less than 5% of adults in need.

Future Research

The PIAAC data has given us much-needed insight into the literacy practices of adult learners. We now have a greater understanding of routine activities that contribute to the literacy development for various subgroups in American society. Purcell-Gate (2007) suggests, however, that perhaps part of the equation is missing. The researcher has theorized that there is often a concrete connection between classroom learning and literacy practices in adulthood. Purcell-Gates claimed the following:

I believe that this relationship between in-school and out-of-school literacy practice must also be examined from the other side—that of instruction. Surely, school-based reading and writing instruction affects individuals' literacy practice beyond providing the skills needed to engage in those currently in play. (p. 15)

While such research would likely need to be conducted via an extended longitudinal study that follows participants over several years, little is known about the relationship between academic literacy practices and the practices that individuals experiment with in their adult lives.

Data from this type of longitudinal research could inform practice in secondary and post-secondary education as well as literacy programs for adults. Are there less-traditional literacy

practices that educators can model and teach? Instructors can possibly have learners work with material that is less common in academic contexts yet more representative of material that adults use in their everyday lives. For example, students at the high school level can analyze financial statements, and students in an adult literacy program can review reports on the potential side effects of a new pharmaceutical. Additional research can offer educators targeted approaches to help learners develop literacy practices that are actually representative of the practices that adults use to become more literate.

The PIAAC study scratched the surface of quantitative research of low-literacy adults. Clearly, this area needs further exploration, also in the form of an extended, longitudinal study. Reder (2020) argues that the current model of assessing adult literacy does not necessarily yield accurate results. The impacts of an adult education program on an individual's literacy skills may take several years to materialize, as can the effects on employment and earnings. The focus on short-term gains via a reading test is no substitute for a more in-depth, nuanced overview of an adult learner's progress over time. To truly determine if lifelong learning is taking place and real change is transpiring, it is necessary to follow up with learners using a qualitative approach that involves home visits, phone interviews, focus groups, or other means of data collection. A mixed methods study which also includes periodic literacy assessments would offer a more comprehensive perspective of learners' development over time.

Similarly, Miller et. al (2010) emphasized the diverse nature of the adult learner population in the United States. Different learners have different needs, and we are only beginning to understand how various groups of adults use literacy in their daily lives in a rapidly evolving 21st century where the pace of technological change can be overwhelming.

A specific area of research that still merits further exploration is the gender divide in literacy levels in the United States. Existing research offers many contradictions in regards to which gender fares better with literacy. If females are indeed expected to be more studious in their school-age years and are also stereotyped as having better language skills, then why have males performed better on the literacy assessment in the PIAAC study? The situation is undoubtedly complex, hence the need for more research to close the gender gap in policy and practice.

Lastly, there is a crucial need for more research into the largest group of low literacy adults, non-native English speakers. In future literacy research which includes a significant number of non-native English speakers, Artieda (2017) calls for the L1 (first language) literacy level to be added as a variable along with the L2 (second language) literacy level, echoing the sentiments of Bigelow and Schwarz (2010). Artieda's (2017) study of adult literacy among ELLs in Spain did include L1 and L2 literacy levels as variables, and the researcher found that students who had weak literacy levels in their first language were more likely to have difficulties with literacy in English. The researcher also found that participants who had effective reading habits in their first language were more adept at acquisition of the English language.

Similar studies to that of Artieda's (2017) research need to be conducted in the United States to explore literacy in the unique landscape of the U.S. There is great diversity among the non-native English-speaking population of immigrants in the nation (Miller et al., 2010), and understanding the correlation between literacy in the mother tongue relative to English literacy is of utmost importance for research and practice. Finally, we are just beginning to understand how to appropriately serve low literacy adults in United States. To emphasize the work of Miller et al. (2010), much more research is needed to comprehend how these learners can develop their

literacy skills, how they are motivated, and how to effectively design intervention programs that promote lifelong learning and literacy advancement.

Limitations of the Study

Several limitations of the study can be identified. The present study uses a dataset from the international PIAAC database to explore literacy levels and practices of adults in the United States. While using the PIAAC data can help shed light on specific approaches which have resulted in raising immigrants' literacy levels, there are some potential shortcomings with the PIAAC study. Batalova and Fix (2015) highlighted one such shortcoming of the PIAAC survey tool in the U.S. Although the comprehensive background questionnaire was available in English or Spanish, the proficiency tests were only administered in English, so the depiction of a non-native English-speaking subject's cognitive skills may not be entirely accurate.

Another potential drawback is the actual nature and context of literacy assessment for adults. Hauser et al. (2005) argued that taking a literacy assessment alone is not necessarily representative of how much adults use literacy in daily life, as adults often "engage in literacy tasks jointly or in collaboration" (p. 20) at home, work, or possibly at their respective religious institutions. Hauser et al. (2005) further posited that large-scale literacy assessments are quick to cast individuals as being illiterate. However, immigrants and refugees may be highly literate in the first language but simply have not developed adequate literacy skills in English in order to do well on a standardized literacy assessment in a second language.

The scope of the participants' reported literacy practices is another possible limitation of the study. Although the literacy scores are based on a standardized test, the predictors related to literacy acts are self-reported, and are based on respondents' estimation of the frequency they engaged in specific practices that may not be totally accurate. Even though the data offers

constructive insight into adult literacy practices, some of the findings that appear counter-intuitive deserve further exploration. Additionally, the PIAAC assessment includes information on the frequency of engaging in certain literacy acts but does not provide details on the extent of language skills development. In other words, while a respondent might report reading the news every day, it is not clear if the respondent simply skims headlines online or is reading numerous articles in-depth on a daily basis. Another noteworthy factor is the sheer variety and different genres of material that may be included in each predictor grouping. The respondent may be reviewing sports or entertainment articles, or he or she may be reading about global affairs, scientific breakthroughs, and economic trends.

In addition, the large-scale, quantitative aspect of my study does provide opportunities for analysis and exploration into the factors that influence adult literacy in the United States. However, my study cannot definitively establish causality between certain literacy practices and literacy scores, especially given the self-reported aspect of the practice which occurs outside of a classroom setting. Nevertheless, the study does suggest regular practice in certain areas (reading mail and writing memos) should be used as an indicator of higher literacy levels for American-born adults and immigrants.

Another limitation of the study could be attributed to the inability of survey data to capture the complexity of a phenomenon and explain why some patterns have been observed. For instance, certain results from the study are a bit perplexing as some reported literacy practices seemed to have an adverse effect on literacy scores. For example, *reading manuals or reference materials* was associated with a decrease in literacy scores for immigrants and American-born participants in the study. *Writing articles* negatively impacted the literacy scores of American-born adults and *reading professional journals or publications* also had a negative

effect on immigrants. It is somewhat counterintuitive that an activity such as reading professional journals would correspond to a decreased literacy level, and this may point to a potential flaw in the data or the study design. Although it does not necessarily invalidate the study's findings, such situations suggest the limits of research based only on survey data.

Finally, a delimitation of my study includes exploring only the skill use in everyday life and not exploring the relationship between literacy levels and employment. Such analysis would have limited the research sample only to adults participating in the workforce but would have extended the social practice to different real-life contexts (work, home, consumer decision-making, health, etc.), which was beyond the scope of my study.

Significance of the Study

The study significantly helps to fill the research void of adult literacy in the United States since little is known about the full extent of literacy deficiencies among the working-age population. Miller et al. (2010) posit that the scope and magnitude of America's literacy problem is far greater than researchers realize, and data from my study highlights not only the severity of the issue but also offers a comprehensive depiction of adult literacy practice in daily life. My study moreover offers a broader and more accurate representation of the literacy skills of the adult population in the United States than previous studies. Accordingly, the study seeks to inform educators, employers, policy makers, and community organizations about daily literacy challenges in the nation along with realistic approaches to literacy skill development which can be undertaken in different contexts.

As the needs of adult learners are unique, the study also provides crucial insight for instructors and administrators in adult education programs. Literacy must be situated in the context of adult students' lives, and as Papen (2005) indicated, "teachers and curriculum

developers have much to gain from understanding the role of literacy in learners' lives, in relation to such central aspects as their families, their social networks, and their jobs" (p. 2). Adult learners have practical literacy needs that go beyond those of classroom assessment, requiring adult education personnel to integrate tangible and meaningful instruction into the classroom as informed by the present study. In response, my study subsequently draws attention to literacy development approaches that adults have used in a variety of contexts, both academic and non-academic. While developing literacy skills is often a daunting task for both immigrant and American-born adults, greater literacy proficiency can be achieved by pursuing targeted and effective methods of practice.

Another important concern revealed by my study is the apparent low level of education of many immigrants that translates into low literacy levels in their native language. Existing research indicates that adult immigrants who are illiterate in the first language and lack formal education may very well need to be placed in separate ESL courses from other beginning language learners (Burt, Peyton, & Schaezel, 2008; Bigelow & Schwarz, 2010). The instructional needs of this specific immigrant population are more acute, creating different challenges and opportunities for language instructors and program administrators. For immigrants who are deemed print-illiterate in the first language, programs must adapt accordingly, and instructors likely require advanced training. Therefore, my study effectively highlights the importance of targeted, specialized instruction to help immigrants develop literacy skills in English and their first language, where necessary.

Additionally, the present study has filled a research gap of adult English-language learners in a non-academic setting. Most research has focused on individuals in a higher education environment (i.e., community colleges and universities), yet little is known regarding

the depth and efficacy of literacy development approaches undertaken by the immigrant population (Mathews-Aydinli, 2008) as well as American-born adults in everyday contexts outside of a formal classroom setting. My study has added another dimension to existing research to help us understand how to better serve low literacy adults whose literacy skills are underdeveloped.

Finally, the study is also relevant because it makes use of large-scale data to examine adult literacy issues. The magnitude of the data and the method of collection set the PIAAC study apart from previous data sources, allowing for a comprehensive analysis of adult literacy. Over 7,700 participants were included in the U.S. portion of the PIAAC, and the information on literacy skills is based on scores from a literacy test as opposed to self-reported proficiency level. The study is also significant to research on adult immigrants because the PIAAC data includes a sample of about 1,100 respondents, which is representative for the immigrant population. Hauser et al. (2005) stated that “conducting regular and periodic large-scale assessments of adult literacy provides a means for determining what literacy hurdles this country has overcome and which hurdles still lie ahead” (p. 182). Through quantitative analysis of the PIAAC data, reliable implications can be drawn to offer an authoritative framework for policy and practice related to the transformation of adult literacy for immigrants and American-born adults.

In addition, analysis of the study’s data from does not merely offer a surface-level depiction of the number of American adults who can read or write; we have now have a clearer vision of certain literacy practices which parlay into higher literacy levels. Finally, the gender disparity of literacy levels evident in the data highlights the need for more inclusive learning environments and a renewed emphasis of underserved populations in the nation’s education system.

Conclusion

The present study opens the door for more research to connect classroom activities to everyday literacy practices which **have demonstrated a positive correlation with adult literacy levels**. Continued exploration of how factors such as gender, low literacy, and language abilities can be leveraged to inform appropriate instructional interventions **is also necessary to better serve the population of adult literacy learners in the United States**.

At the policy level, the low literacy levels and high school completion rate in the United States are a cause for alarm. Legislation and governmental funding are crucial to address the educational inequalities and literacy deficiencies in American society in an effort to support those who are excluded from quality education, the workforce, and civic life.

The present global pandemic has exasperated the educational and economic challenges of many working class American-born adults and immigrants in the U.S. The situation is particularly critical for working-class immigrant families due to disruptions in education and work as well as the lack of access to remote learning technology (Sugarman & Lazarin, 2020).

Fortunately, there is still reason for hope in the long-term, especially for immigrants, who occupy the largest segment of low literacy adults in the U.S. Research does indicate that immigrants with stronger literacy skills are more able to actively participate in the labor market, obtain skilled labor, and achieve higher wages (Sum, Kirsch, & Yamamoto, 2004). Higher literacy levels and greater proficiency in the English language also equate to more economic independence. On a final note, immigrants who become lifelong learners and maintain more developed literacy skills also benefit from better civic engagement and have more opportunities to become actively involved in their local communities (Sum, Kirsch, & Yamamoto, 2004). The

resulting effect is greater inclusion of the immigrant population in American society and a voice for those who need to be heard.

References

- Adamuti-Trache, M. (2012). Language acquisition among adult immigrants in Canada: The effect of premigration language capital. *Adult Education Quarterly*, 63(2), 103-126.
- Adamuti-Trache, M., Anisef, P., & Sweet, R. (2018). Differences in language proficiency and learning strategies among immigrant women to Canada. *Journal of Language, Identity & Education*, 1-18.
- Adamuti-Trache, M., & Sweet, R. (2010). Adult immigrants' participation in Canadian education and training. *Canadian Journal for the Study of Adult Education*, 22(2), 1-26.
- Appleby, Y., & Hamilton, M. (2006). Literacy as social practice travelling between the everyday and other forms of learning. In Crowther, J., & Sutherland, P. (Eds.), *Lifelong learning: concepts and contexts* (pp. 196-206). New York, NY: Routledge.
- Antonacci, P. A. (2000). Reading in the zone of proximal development: Mediating literacy development in beginner readers through guided reading. *Reading Horizons: A Journal of Literacy and Language Arts*, 41(1), 2.
- Artieda, G. (2017). The role of L1 literacy and reading habits on the L2 achievement of adult learners of English as a foreign language. *System*, 66, 168-176.
- Barrett, G. F., & Riddell, W. C. (2019). Ageing and skills: The case of literacy skills. *European Journal of Education*, 54(1), 60-71.
- Barton, D. (1994). *Literacy – An Introduction to the Ecology of Written Language*. London: Blackwell.
- Barton, P. (2005). *One-Third of a Nation: Rising Dropout Rates and Declining Opportunities. Policy Information Report*. Princeton, NJ: Educational Testing Service.

- Barton, D. & Hamilton, M. (2000). Literacy Practices. In D. Barton, M. Hamilton, & R. Ianic (Eds.), *Situated Literacies: Reading and Writing in Context* (pp. 8-10). London and New York: Routledge.
- Barton, D., Ivanic, R., Appleby, Y., Hodge, R., & Tusting, K. (2007). *Literacy, lives and learning*. New York, NY: Routledge.
- Batalova, J., Blizzard, B., & Bolter, J. (2020). *Frequently Requested Statistics on Immigrants and Immigration in the United States*. Washington, DC: Migration Policy Institute. Retrieved from <http://www.migrationpolicy.org>.
- Batalova, J., & Fix, M. (2015). *Through an immigrant lens: PIAAC assessment of the competencies of adults in the United States*. Washington, DC: Migration Policy Institute. Retrieved from <http://www.migrationpolicy.org>.
- Batalova, J., Shymonyak, A., & Mittelstadt, M. (2018). *Immigration: Data Matters*. Washington, DC: Migration Policy Institute.
- Berg, G. (2010). *Low-Income Students and the Perpetuation of Inequality*. London: Routledge.
- Bigelow, M., & Schwarz, R. L. (2010). *Adult English language learners with limited literacy*. Washington, DC: National Institute for Literacy.
- Bluman, A. G. (2009). *Elementary statistics: A step by step approach, 7th edition*. New York, NY: McGraw-Hill.
- Boeren, E., Roumell, E. A., & Roessger, K. M. (2020). COVID-19 and the future of adult education: An editorial. *Adult Education Quarterly*, 70(3), 201–204.
- Bourdieu, P. (1977). *Outline of a theory of practice*. Cambridge, England: University Press.
- Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.) *Handbook of theory and research for the sociology of education*, (pp. 241-258). New York, NY: Greenwood.

- Bourdieu, P. (1990). *The logic of practice*. Stanford, CA: Stanford University Press.
- Bourdieu, P. (1991). *Language and symbolic power*. Harvard University Press.
- Bourdieu, P. (1993). Some properties of fields. In P. Bourdieu (Ed.), *Sociology in question* (pp. 72-77). London, England: Sage.
- Brandt, D., & Clinton, K. (2002). Limits of the local: Expanding perspectives on literacy as a social practice. *Journal of Literacy Research, 34*(3), 337–356.
- Brandt, D., (2001). *Literacy in American lives*. Cambridge University Press.
- Burt, M., Peyton, J. K., & Schaetzel, K. (2008). *Working with adult English language learners with limited literacy: Research, practice, and professional development*. Washington, DC: Center for Applied Linguistics
- Calero, J., Murillo Huertas, I. P., & Raymond Bara, J. L. (2019). Education, age and skills: An analysis using PIAAC data. *European Journal of Education, 54*(1), 72-92.
- Campano, G. (2007). *Immigrant students and literacy: Reading, writing, and remembering*. New York, NY: Teachers College Press.
- Canadian Council on Learning. (2007). *State of learning in Canada: No time for complacency*. Ottawa: Canadian Council on Learning.
- Casey, T., & Dustmann, C. (2008). Intergenerational transmission of language capital and economic outcomes. *Journal of Human Resources, 43*(3), 660-687.
- Cheong, P. H., Edwards, R., Goulbourne, H., & Solomos, J. (2007). Immigration, social cohesion and social capital: A critical review. *Critical Social Policy, 27*(1), 24-49.
- Chiswick, B. R., & Miller, P. W. (1995). The endogeneity between language and earnings: International analyses. *Journal of Labor Economics, 13*(2), 246-288.

- Chiswick, B. R., & Miller, P. W. (2002). Immigrant earnings: Language skills, linguistic concentrations and the business cycle. *Journal of Population Economics*, 15(1), 31-57.
- Chiswick, B. R., & Miller, P. W. (2003). The complementarity of language and other human capital: immigrant earnings in Canada. *Economics of Education review*, 22(5), 469-480.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.
- Clark, A. (2007). *2007 national survey of Latinos: As illegal immigration issue heats up, Hispanics feel a chill*. Pew Hispanic Center.
- Compton-Lilly, C., & Lilly, T. K. (2004). *Confronting racism, poverty, and power: Classroom strategies to change the world*. Portsmouth, NH: Heinemann
- Daly, M., & Silver, H. (2008). Social exclusion and social capital: A comparison and critique. *Theory and society*, 37(6), 537-566.
- D'Amico, D. (2004). Race, class, gender, and sexual orientation in adult literacy: Power, pedagogy, and programs. *Review of adult learning and literacy*, 4, 17-69.
- Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2020). COVID-19 and student learning in the United States: The hurt could last a lifetime. *McKinsey & Company*. Retrieved from https://www.childrensinstitute.net/sites/default/files/documents/COVID-19-and-student-learning-in-the-United-States_FINAL.pdf
- Department for Education and Skills (2004). *Skills for life : the national strategy for improving adult literacy and numeracy skills : delivering the vision 2001-2004*. London, England.
- Dumais, S.A. (2002). Cultural capital, gender, and school success: The role of habitus. *Sociology of Education*, 75(1), 44-68.

- Dustmann, C. & Fabbri, F. (2003). Language proficiency and labor market performance of immigrants in the U.K. *The Economic Journal*, *113*, 695-717.
- Evans, K., Waite, E., & Admasachew, L. (2008). Enhancing “skills for life”?: Workplace learning and adult basic skills. In Reder, S. M., & Bynner, J. M. (Eds.), *Tracking adult literacy and numeracy skills: Findings from longitudinal research* (pp. 262-280). New York, NY: Routledge.
- Farkas, G. (2003). Cognitive skills and noncognitive traits and behaviors in stratification processes. *Annual review of sociology*, *29*(1), 541-562.
- Federal Register (n.d.) *National institute for literacy*. Retrieved from <https://www.federalregister.gov/agencies/national-institute-for-literacy>
- Fennelly, K., & Palasz, N. (2003). English language proficiency of immigrants and refugees in the Twin Cities metropolitan area. *International Migration*, *41*(5), 93-125.
- Ferrer, A., Green, D. A., & Riddell, W. C. (2006). The effect of literacy on immigrant earnings. *Journal of Human Resources*, *41*(2), 380-410.
- Gee, G. C., & Ponce, N. (2010). Associations between racial discrimination, limited English proficiency, and health-related quality of life among 6 Asian ethnic groups in California. *American Journal of Public Health*, *100*(5), 888-895.
- Gee, G. C., Walsemann, K. M., & Takeuchi, D. T. (2010). English proficiency and language preference: testing the equivalence of two measures. *American Journal of Public Health*, *100*(3), 563-569.
- Gentsch, K., & Massey, D. S. (2011). Labor market outcomes for legal Mexican immigrants under the new regime of immigration enforcement. *Social Science Quarterly*, *92*(3), 875-893.

- Goodman, M., Finnegan, R., Mohadjer, L., Krenzke, T., & Hogan, J. (2013). *Literacy, Numeracy, and Problem Solving in Technology-Rich Environments among US Adults: Results from the Program for the International Assessment of Adult Competencies 2012. First Look*. NCES 2014-008. Washington, DC: National Center for Education Statistics.
- Greenberg, D., & Feinberg, I. Z. (2019). Adult literacy: A perspective from the United States. *Zeitschrift Für Erziehungswissenschaft*, 22(1), 105-121.
- Greenberg, D., Pae, H. K., Morris, R. D., Calhoun, M. B., & Nanda, A. O. (2009). Measuring adult literacy students' reading skills using the Gray Oral Reading Test. *Annals of Dyslexia*, 59(2), 133–149.
- Hanushek, E. A., Schwerdt, G., Wiederhold, S., & Woessmann, L. (2015). Returns to skills around the world: Evidence from PIAAC. *European Economic Review*, 73, 103-130.
- Hanushek, E. A., Schwerdt, G., Woessmann, L., & Zhang, L. (2016). General education, vocational education, and labor-market outcomes over the lifecycle. *Journal of Human Resources*, 52(1), 48-87.
- Harper, C. A., De Jong, E. J., & Platt, E. J. (2008). Marginalizing English as a second language teacher expertise: The exclusionary consequence of No Child Left Behind. *Language Policy*, 7(3), 267-284.
- Hauser, R. M., Edley Jr, C. F., Koenig, J. A., & Elliott, S. W. (2005). *Measuring literacy: Performance levels for adults*. Washington, DC: National Academies Press.
- Hayes, E. (2000). Youth in adult literacy education programs. In J. Comings, B. Garner, C. Smith (Eds.), *Annual Review of Adult Learning and Literacy, Volume 1*. (pp. 74-110). San Francisco: Jossey-Bass.

- Hogan, J., Thornton, N., Diaz-Hoffmann, L., Mohadjer, L., Krenzke, T., Li, J., & Khorramdel, L. (2016). *US Program for the International Assessment of Adult Competencies (PIAAC) 2012/2014: Main study and national supplement technical report*. Washington, DC: US Department of Education.
- Kaestle, C. F., Campbell, A., Finn, J. D., Johnson, S. T., & Mikulecky, L. J. (2001). Adult literacy and education in America: four studies based on the national adult literacy survey. Washington, DC: US Department of Education. *National Center for Education Statistics*, 2001-534.
- Kao, G., Vaquera, E., & Goyette, K. (2013). *Education and immigration*. Malden, MA: Polity Press.
- Kerbo, H.R. (2012). *Social stratification and inequality: Class conflict in historical, comparative, and global perspective*. (8th ed.). New York, NY: McGraw Hills Companies Inc.
- Kim, E.-Y., & Díaz, J. (2013). *Immigrant students and higher education*. Hoboken, N.J: Wiley Periodicals Inc.
- Kirsch, I. S. (1993). *Adult literacy in America: A first look at the results of the National Adult Literacy Survey*. US Government Printing Office, Superintendent of Documents, Washington, D.C.
- Kirsch, I. S. (2001). The international adult literacy survey (IALS): Understanding what was measured. *ETS Research Report Series*, 2001(2), i-61.
- Kirsch, I., & Lennon, M. L. (2017). PIAAC: a new design for a new era. *Large-scale Assessments in Education*, 5(1), 11.
- Kutner, M., Greenberg, E., & Baer, J. (2006). *A First Look at the Literacy of America's Adults in the 21st Century*. Washington, DC: U.S. Department of Education, NCES.

- Li, G. (2003). Literacy, culture, and politics of schooling: Counternarratives of a Chinese Canadian family. *Anthropology & Education Quarterly*, 34(2), 182-204.
- Lum, L. (2015). Enhancing the academic literacy skills of ESL higher education students in Canada. *Medical Research Archives*, 2(2).
- MacArthur, C. A., Konold, T. R., Glutting, J. J., & Alamprese, J. A. (2010). Reading component skills of learners in adult basic education. *Journal of learning disabilities*, 43(2), 108-121.
- Mamedova, S., & Pawlowski, E. (2019). Adult Literacy in the United States. Data Point. NCES 2019-179. *National Center for Education Statistics*.
- Maranto, R., McShane, M. Q., & Rhinesmith, E. (2016). *Education reform in the Obama era: The second term and the 2016 election*. New York, NY: Springer
- Mathews-Aydinli, J. (2008). Overlooked and understudied? A survey of current trends in research on adult English language learners. *Adult Education Quarterly*, 58(3), 198-213.
- Mattoo, A., Neagu, I. C., & Özden, Ç. (2008). Brain waste? Educated immigrants in the US labor market. *Journal of Development Economics*, 87(2), 255-269.
- McCaffery, J., Merrifield, J., & Millican, J. (2007). *Developing adult literacy: Approaches to planning, implementing, and delivering literacy initiatives*. Oxford: Oxfam GG
- McFarland, J., Cui, J., Rathbun, A., & Holmes, J. (2018). Trends in high school dropout and completion rates in the United States: 2018. Compendium Report. NCES 2019-117. *National Center for Education Statistics*.
- McHugh, M., & Morawski, M. (2015). *Immigrants and WIOA services*. Washington, DC: Migration Policy Institute. Retrieved from www.migrationpolicy.org
- Mellard, D. F. (2013). Observations about providing effective instruction to adults with low literacy. *Perspectives on Language and Literacy*, 39(2), 13-16.

Migration Policy Institute (2016). *Largest U.S. immigrant groups over time, 1960-present*.

Washington, DC: Migration Policy Institute. Retrieved from www.migrationpolicy.org

Miller (2010). *Update on national institute for literacy closing*. West Virginia Department of

Education. Retrieved from

<https://wvde.state.wv.us/abe/documents/UpdateonNationalInstituteForLiteracyClosing.pdf>

Miller, B., McCardle, P., & Hernandez, R. (2010). Advances and remaining challenges in adult

literacy research. *Journal of Learning Disabilities*, 43(2), 101-107.

Moore, S. C., Fee, M., Ee, J., Wiley, T. G., & Arias, M. B. (2014). Exploring bilingualism,

literacy, employability and income levels among Latinos in the United States. In R.

Callahan & P. Gándara (Eds.), *The bilingual advantage language, literacy and the US*

labor market (pp. 45-80). Clevedon, UK: Multilingual Matters.

Morrow, L., Rueda, R., & Lapp, D. (2009). *Handbook of research on literacy and diversity*. New

York: Guilford Press.

Mortrude, J. (2020). Examining the role of federal adult education funding in adult literacy

education. Forum: Broadening the lens on adult literacy education outcomes [Part 2 of

3]. *Adult Literacy Education*, 2(1), 54-57.

National Center for Education Statistics. (2018). *Education demographic and geographic*

estimates. Washington, DC: U.S. Department of Education. Retrieved from

<https://nces.ed.gov/programs/EDGE/>

National Center for Education Statistics. (n.d.). *Program for the international assessment of*

adult competencies (PIAAC) computer-based assessment (CBA).

Washington, DC: U.S. Department of Education. Retrieved from

<https://nces.ed.gov/surveys/piaac/cba.asp?more=5>

- National Council for Adult Learning (2015). *Adult education facts that demand priority attention*. New York, NY: National Council for Adult Learning. Retrieved from www.ncalamerica.org
- National Research Council (2012). *Improving adult literacy instruction: Options for practice and research*. Washington D.C.: National Academies Press.
- Nee, V., & Sanders, J. (2001). Understanding the diversity of immigrant incorporation: a forms-of-capital model. *Ethnic and racial studies*, 24(3), 386-411.
- Newman, A. P., & Beverstock, C. (1990). *Adult literacy: Contexts & challenges*. Newark, DE: International Reading Association.
- Ortiz-Ospina, E. & Beltekian, D. (June 8, 2018). *How is literacy measured?* Our World in Data. <https://ourworldindata.org/how-is-literacy-measured>
- Organisation for Economic Co-operation and Development (OECD). (1997). *Literacy skills for the knowledge society: Further results from the international adult literacy survey*. Paris: OECD.
- Organisation for Economic Co-operation and Development (OECD). (2002). *Education at a glance: OECD indicators 2002*. Paris: OECD.
- Organization for Economic Cooperation and Development (OECD) (2013). *OECD skills outlook 2013: First results from the survey of adult skills*. Paris: OECD Publishing. Retrieved from <http://dx.doi.org/10.1787/9789264204256-en>.
- Organisation for Economic Co-operation and Development. (2014). *PISA 2012 Results: What Students Know and Can Do. Student Performance in Mathematics, Reading and Science*. Paris: OECD.

- Organisation for Economic Co-operation and Development (OECD). (2020), *Education at a Glance 2020: OECD Indicators*, OECD Publishing, Paris,
<https://doi.org/10.1787/69096873-en>.
- Organisation for Economic Co-operation and Development (OECD). (n.d.). *About PIAAC*. Retrieved from <https://www.oecd.org/skills/piaac/about/#d.en.481111>
- Papen, U. (2005). *Adult literacy as social practice: More than skills*. London: Routledge.
- Perry, K. H. (2013). Becoming qualified to teach low-literate Refugees: A case study of one volunteer instructor. *Community Literacy Journal*, 7(2), 21-38.
- ProLiteracy (2019). *U.S. adult literacy facts*. Retrieved from: www.proliteracy.org
- Purcell-Gates, V. (Ed.). (2020). *Cultural practices of literacy: Case studies of language, literacy, social practice, and power*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Reder, S. (2009). The development of literacy and numeracy in adult life. In Reder, S. M., & Bynner, J. M. (Eds.), *Tracking adult literacy and numeracy skills: Findings from longitudinal research*. New York, NY: Routledge.
- Reder, S. M., & Bynner, J. M. (Eds.). (2009). *Tracking adult literacy and numeracy skills: Findings from longitudinal research*. New York, NY: Routledge.
- Reder, S. (2020). A lifelong and life-wide framework for adult literacy education. Forum: Broadening the lens on adult literacy education outcomes [Part 1 of 3]. *Adult Literacy Education*, 2(1), 48-53.
- Richwine, J. (2019). *Foreign-Educated Immigrants Are Less Skilled Than US Degree*. Washington, DC: Center for Immigration Studies. Retrieved from <https://cis.org/sites/default/files/2019-02/richwine-skills-mismatch-2-19.pdf>

- Rivera, Lorna. (2008). *Laboring to learn: Women's literacy and poverty in the post-welfare era*. Chicago, IL: University of Illinois Press.
- Rogers, R. (2011). Understanding literacy development “Lifelong and life wide”. *Reading Research Quarterly*, 46(1), 86-96.
- Roter, D. L., Rudd, R. E., & Comings, J. (1998). Patient literacy. A barrier to quality of care. *Journal of General Internal Medicine*, 13(12), 850–851.
- Rychen, D. S., & Murray, T. S. (2005). Conceptual frameworks for understanding and assessing adult literacy and life skills. In Murray, T. S., Clermont, Y., & Binkley, M. (Eds.), *Measuring Adult Literacy and Life Skills: New Frameworks for Assessment* (pp. 28-45). Ottawa, Canada: Statistics Canada.
- Sabatini, J. (2015). *Understanding the basic reading skills of adults: reading components in the PIAAC Literacy Survey*. Princeton, NJ : Educational Testing Service
- Satherley, P., Lawes, E., & Sok, S. (2008). *The adult literacy and life skills (ALL) survey: Overview and international comparisons*. Comparative Education Research Unit, Research Division, Ministry of Education.
- Schleicher, A. (2008). PIAAC: A new strategy for assessing adult competencies. *International Review of Education*, 54(5-6), 627-650.
- Smith, M. C. (1996). Differences in adults' reading practices and literacy proficiencies. *Reading Research Quarterly*, 31(2), 196-219.
- Smith, W. C., & Fernandez, F. (2015). Education and wage gaps: A comparative study of immigrant and native employees in the United States and Canada. *International Migration*, 55(3), 57-73.
- Spring, J. (2020). *American education* (19th ed.). New York, NY: Routledge.

- Stark, P., & Noel, A. M. (2015). Trends in high school dropout and completion rates in the United States: 1972-2012. Compendium Report. NCES 2015-015. *National Center for Education Statistics*.
- Stein, S. G. (1997). *Equipped for the future. A reform agenda for adult literacy and lifelong learning*. Washington, DC: National Institute for Literacy.
- Sticht, T. G. (2002). The Rise of the Adult Education and Literacy System in the United States: 1600-2000. *Office of Educational Research and Improvement*.
- Stromquist, N. P. (2014). Freire, literacy and emancipatory gender learning. *International review of education*, 60(4), 545-558.
- Street, B. (2016). Learning to read from a social practice view: Ethnography, schooling and adult learning. *Prospects*, 46(3-4), 335-344.
- Sugarman J., & Lazarin, M. (2020). *Educating English Learners during the COVID-19 Pandemic*. Washington, DC: Migration Policy Institute. Retrieved from file:///C:/Users/adam1/Downloads/Educating-ELLs-during-Covid.pdf
- Sum, A., Kirsch, I., & Taggart, R. (2002). *The Twin Challenges of Mediocrity and Inequality: Literacy in the US from an International Perspective*. Princeton, NJ, USA: Policy Information Center, Educational Testing Service.
- Sum, A., Kirsch, I. S., & Yamamoto, K. (2004). *A human capital concern: The literacy proficiency of US immigrants*. Princeton, NJ, USA: Policy Information Center, Educational Testing Service.
- Sum, A. (2007). *Forces changing our nation's future: the comparative performance of US adults and youth on international literacy assessments, the importance of literacy/numeracy*

- proficiencies for labor market success, and the projected outlook for literacy proficiencies of US adults.* New York, NY: National Commission on Adult Literacy.
- Sweetman, A. and K. Truong (2018). The United States and Canada: Intergenerational social mobility among immigrants and their native-born children. *Catching Up? Country Studies on Intergenerational Mobility and Children of Immigrants.* Paris: OECD Publishing.
- Trueba, H. T. (2002). Multiple ethnic, racial, and cultural identities in action: From marginality to a new cultural capital in modern society. *Journal of Latinos and Education, 1*(1), 7-28.
- Venezky, R. L., & Sabatini, J. P. (2002). Introduction to this special issue: Reading development in adults. *Scientific Studies of Reading, 6*(3), 217-220.
- Vinovskis, M. (2015). *From A Nation at Risk to No Child Left Behind: National education goals and the creation of federal education policy.* New York, NY: Teachers College Press.
- Wendt, J. (2013). Combating the crisis in adolescent literacy: Exploring literacy in the secondary classroom. *American secondary education, 41*(2), 38-48.
- White, S., Chen, J., & Forsyth, B. (2010). Reading-related literacy activities of American adults: Time spent, task types, and cognitive skills used. *Journal of Literacy Research, 42*(3), 276-307.
- Wonacott, M. E. (2000). *Preparing limited English proficient persons for the workplace.* ERIC Clearinghouse on Adult, Career, and Vocational Education, Center on Education and Training for Employment, College of Education, the Ohio State University.

- Wrigley, H. S., Chen, J., White, S., & Soroui, J. (2009). Assessing the literacy skills of adult immigrants and adult English language learners. *New Directions for Adult and Continuing Education*, 2009(121), 5-24.
- Yankwitt, I. (2020). Toward a vision of movement building in adult literacy education. Forum: Broadening the lens on adult Literacy education outcomes [Part 3 of 3]. *Adult Literacy Education*, 2(1), 58-62.
- Yakushko, O., Backhaus, A., Watson, M., Ngaruiya, K., & Gonzalez, J. (2008). Career development concerns of recent immigrants and refugees. *Journal of Career Development*, 34(4), 362–396.
- Young, D. S. (2018). *Handbook of regression methods*. London: CRC Press.
- Zong, J., & Batalova, J. (2019). *How many unauthorized immigrants graduate from US high schools annually?* Washington, DC: Migration Policy Institute.