Executive Summary: Tutor-facilitated Digital Literacy Acquisition

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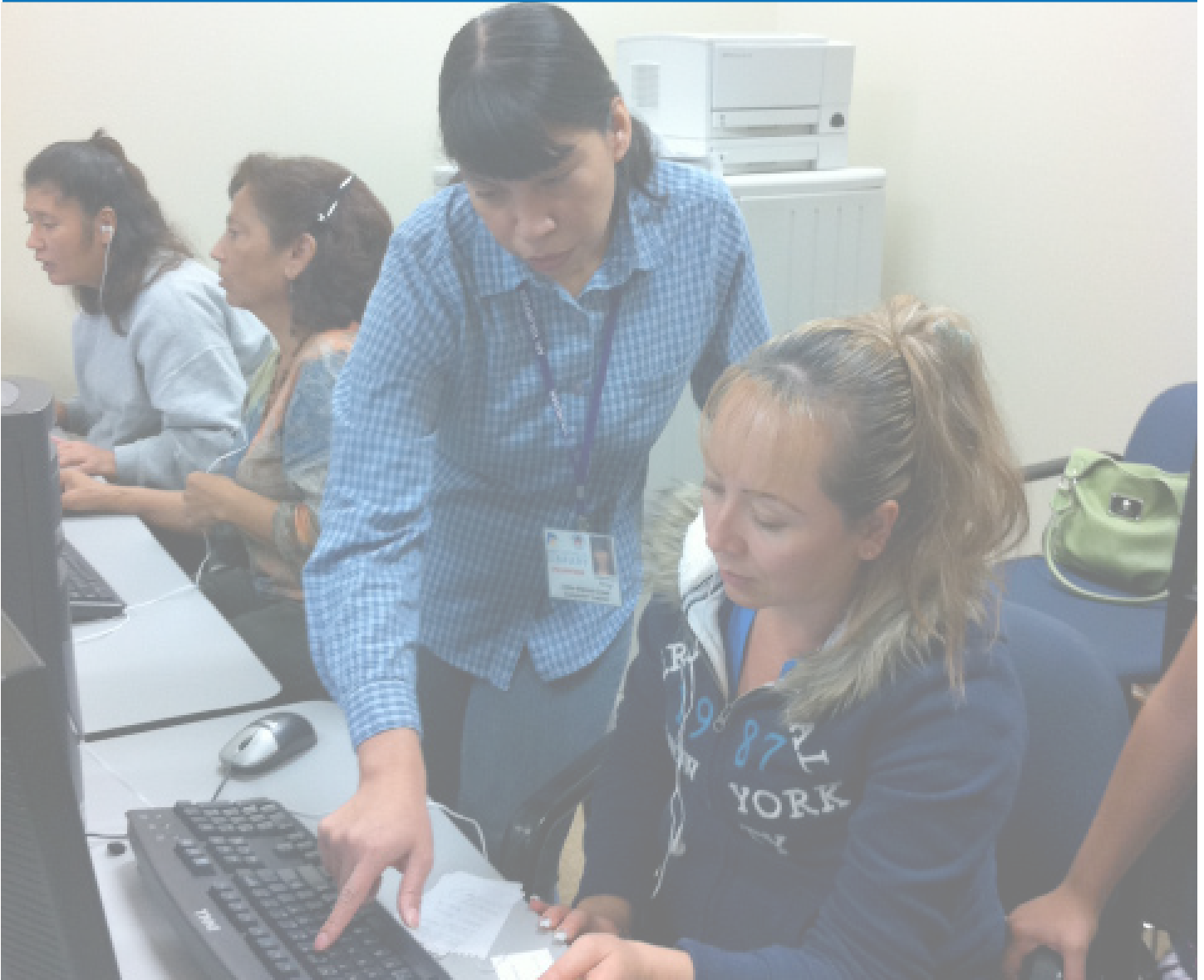
More information about the project, research findings, publications, and project data can be found in PDX Scholar at: http://pdxscholar.library.pdx.edu/digital_literacy_acquisition/

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Introduction

The Tutor-Facilitated Digital Literacy Acquisition in Hard-to-Serve Populations research project was supported by a National Leadership Grant from the Institute of Museum and Library Services (IMLS) grant. It was conducted over the course of 3 years in cooperation with five partners across the United States, which were participating in a project funded by the U.S. Department of Commerce's Broadband Opportunities Technology Program (BTOP). All phases of the research were guided by two national advisory groups made up of scholars and practitioners in the field of adult education and digital literacy.

Purpose of the Research

Digital literacy is fundamental to participation in today's digital world (U.S. Department of Education, 2010). It encompasses the cognitive and technical abilities needed to use digital technologies for finding, evaluating, creating, and communicating information (American Library Association, 2012). This ever-developing skillset requires cognitive flexibility as the digital technologies and the literacies needed to navigate them constantly evolve (Leu, Kinzer, Coiro, Castek, & Henry, 2013). Being digitally literate plays a central role in the workplace and within social lives. Being online connects individuals to educational and employment opportunities, public services, healthcare, civic participation, and entertainment. It allows individuals to stay connected in a world where interactions among friends, family and acquaintances are often sustained digitally.

Because so many aspects of work and social life depend on digital participation, adults who lack fundamental digital literacy skills are marginalized in terms of limited opportunities to take part in participatory democracy. Also limited are abilities to engage in educational experiences, find and use health care, find and use online information, find and keep a job, and engage with family, friends, and the community (Jimoyiannis & Gravani, 2010). Those who are low income, seniors, English language learners, immigrants, incarcerated, or who have limited educational experience are often those who lack digital skills (Wei & Hindman, 2011) and are particularly vulnerable to social exclusion (Zickuhr, 2013).

Given the high needs of this population, the research was developed in order to investigate the learning processes underlying tutor-facilitated digital literacy development among underserved adult participants. The purpose of the research was to help public libraries and other community-based organizations better meet the digital learning needs of underserved populations so that these individuals can acquire acquire the knowledge, skills, and attitudes needed for personal, social, and economic success in the wired world of the 21st century.

Scope of the Research

The partners used Learner Web technology, an online learning platform designed specifically for adult learners, in conjunction with in-person paid or volunteer tutors within computer labs. Labs were located within public libraries, adult basic education programs, social service agencies, workforce development centers, and other community-based organizations. Online materials were available in English and Spanish, and most labs had bilingual tutors available. Participation in the project included over 12,000 learners and over 500 tutors. Tutors (volunteer and paid staff) logged over 50,000 hours in over 120 different computer labs. Learners who participated in the program completed over 37,000 learning plans within the Learner Web system.

Methodology

A mixed methods approach was used for data collection and analysis. The Learner Web system provided data in the learners' and tutors' interactions with the learning plans and online resources. The research team also conducted lab observations and in-depth interviews with learners (N = 28), learner case studies (N = 6), tutors (N = 29), and key stakeholders (N = 14). A purposive sampling approach was used for selecting learners for interviewing. The case study learners were interviewed three times: the initial interview when they were participating in the program and again 1 month and 3 months after they completed the digital literacy program. The interviews were transcribed and analyzed using inductive coding consistent with grounded theory, thus allowing the findings to arise from the data. Emerging qualitative and quantitative findings were used to develop three elements we identified as being central to learner success: goal oriented learning, engagement, and use of knowledge checks. A step-wise regression analysis was used to explore what learner characteristics predict a learner's ability to succeed in these areas, and a parallel analysis was conducted at the lab level.

Pivotal Moments within the Learner Path

Engagement in digital literacy acquisition was built and sustained through the process of goal setting and discovery. Some learners entered the program with a set of specific goals, and others entered with a vague sense that they needed to learn more about computers and the Internet. Once initial goals were achieved, individuals, with the support of tutors, moved into a phase of discovery, which lead to the setting of new goals. This recursive cycle of discovery and goal setting served to build and sustain learner engagement. Further analysis of the learner path revealed that learner engagement was built and sustained when the learners moved through three pivotal moments in the learning path: (a) overcoming fear of computers and the internet, (b) seeing the relevance of digital technology in their lives, and (c) developing a sense of confidence in their abilities to learn. The importance of each of these pivotal moments in building and sustaining learner engagement varied according to learning context and characteristics of the learners. Learner goals, including those not directly related to digital skills, motivated learners to persist in the program and move through the learning path. For learners seeking employment, the pivotal moment of recognizing the relevance of digital skills was significant for propelling them forward in their learning. For learners in the correctional/reentry setting, the impact of the program on their growing sense of confidence and independence was especially meaningful. Learners also described their desire to demonstrate determination and their desire to learn to themselves, family members, and peers.

The Role of Learner Characteristics

Learner characteristics contributed to how or why a learner was introduced to the program. While some of these characteristics did appear to shape learners' experience, none of them were determined to be strong predictors of learners' success. Learners with nearly every combination of these characteristics demonstrated success and reported positive outcomes from participation. Learner characteristics could affect learners' perspectives of the relevance of digital literacy in their lives, their motivation to learn digital literacy skills, and their engagement in the learning plans. More specifically, the data show that learners were drawn to skills, lessons, examples and resources that they see as being connected to goals they have. One of the most striking examples of this was the context of job-seeking learners. Individuals who are unemployed, especially after having worked for many years, tended to be driven by the need to find employment and thus struggled to see the relevance of learning digital literacy skills. Tutors were essential in helping job-seeking learners understand the relevance of digital literacy in their lives and job search.

Learners in the incarcerated setting also represented a population with unique needs and outcomes. These individuals had a high rate of goal completion, and this may be related to the highly structured environment in which they were using the program as well as the intense but time-limited nature of the program.

Analysis of the interview data indicated that for incarcerated individuals the learning experience was about more than learning a discrete and measurable set of skills. Our data indicate it was also about constructing a new identity. Through successes experienced using the Learner Web and with the support of mentors, the learners were able to see that they are capable of learning and using computers and the Internet, which helped them see themselves as competent individuals with potential.

The Importance of the Tutor/Learner Relationship

Tutors were essential to the success of learners. They worked to make learners feel encouraged and comfortable enough to learn new skills, and used strategies to personalize the experience and build relevance for the learners. When the learners wanted to learn something new, the tutors were able to provide guidance. These relationship impacted learners on a personal level as well. Learners said they appreciated tutors as a valuable resource from which they can draw instruction and support. They engaged tutors directly with questions, and relied on tutors' perceptive attention to their skills, struggles and interests. Tutors were key for helping learners through moments of frustration. Tutors let learners know that it is not expected that they "get it" the first time. Tutors encouraged practice and let learners know that repetition is acceptable and even desirable. The presence of the tutors allowed learners to build and sustain engagement through moments that might otherwise have caused a learner to quit. Experienced tutors were attentive to cues from learners about important facets of their lives and continuously adapted their support to suit the learner. Through repeated interactions with the same learner, tutors gained an understanding of their skill level and encouraged them to try things they knew the learner was capable of on their own.

Tutors worked to ensure morale was high by fostering personal connections with learners, acknowledging the challenges they were experiencing and offering encouragement. They supported learners in three primary ways. First, tutors acknowledged the real and urgent needs of the learners. Second, tutors responded to the varying levels of engagement that learners exhibited often corresponding with whether they were participating in the program voluntarily or mandatorily. Finally, tutors employed support strategies specific to the needs of the learners.

Interactions between tutors and learners who were also English Language Learners had unique qualities. The interaction between English language learners and their tutors was interwoven with a complex negotiation of language skill, preference and experience. English Language Learners also reported preferring to work with a bilingual tutor, even if the tutor didn't know the learner's first language. This finding indicates that bilingual tutors may have a set of skills that made them well suited for working with language learners.

The corrections setting was unique in that tutors were recruited from the ranks of incarcerated individuals and were called mentors rather than tutors. These mentors were identified as having the skills, knowledge, and dispositions necessary to successfully work with other incarcerated men. The fact that the mentors shared the same life context as the learners served to build a sense of community and supported the reentry program philosophy of "I am my brother's keeper." With that philosophy guiding the implementation of the digital literacy acquisition program, the learners also were seated in ways that encourage peer learning.

The Experiences of English Language Learners

An important aspect of the structured online platform for English Language Learners was the availability of Spanish content and a toggle feature which gave learners the ability to switch back and forth between Spanish and English content as they wished. Although the toggle feature was not used frequently, the ability to choose between English or Spanish online materials allowed learners and tutors to select the material that best fit the needs of the learners. Out of 12,127 learners, roughly 17% of learners used the language toggle at least once. This is approximately the number of learners who indicated that their preferred language was Spanish (2,213 of the total 12,127), indicating that many learners were at least curious to see what the content looked in the other language. System data indicate 220 learners used the language toggle four or more times.

Some tutors advised learners whose first language was Spanish to work through the curriculum in Spanish. However, some of these learners wanted to learn in English. Thus, there appeared to be a tension between tutor intent and learner desire for autonomy. Because of the dominance of English on the Internet, some tutors who were bilingual worked with learners to teach them the language of the Internet in both Spanish and English.

Within the group of English Language Learners and Spanish speakers, there was a variety of linguistic experiences, skills, and preferences. Some learners spoke only Spanish. Others, whose native language was Spanish, identified English as their preferred language. For others, language preference was complicated by a mismatch of their dialect to the Spanish used within the learning plans. For some, the English resources accompanied by multimodal presentations of content were more accessible than Spanish resources that used more formal language.
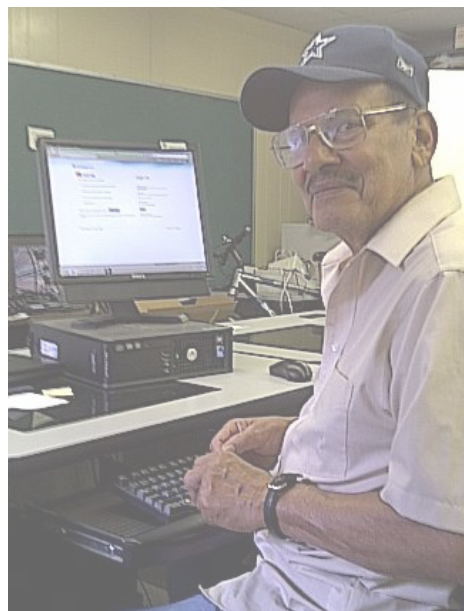
The Role of Self-paced, Online Materials

The Learner Web allowed learners to select individual learning plans that aligned with their personal goals. These learning plans provided engaging multimodal content, links to outside resources, and the ability to perform knowledge checks as well as review and repeat content freely. Listening to audio and watching videos helped learners understand content and stay engaged in the acquisition process; this was especially true of learners with lower literacy skills. Games provided practice for important skills, especially mousing and typing. Additionally, the ability to choose between English or Spanish online materials (using a language toggle) allowed learners and tutors to select the material that best fit the needs of the learners.

The self-paced learning model provided an alternative learning environment that reduced fear and anxiety. Learners repeatedly reported that the self-paced aspect of the learning model reduced the pressure on them and increased their comfort. Additionally, the self-paced feature provided the individual learner flexibility in how they engaged with material. For low skilled and ESL learners, self-paced learning allowed for more time processing the content and as much review as desired. It should be noted that quantitative analyses showed that review and practice was negatively associated with goal achievement. This may be because learners who spend a time reviewing material and practicing skills rather than moving on to new material.

Quantitative and qualitative analysis indicated that learner engagement with the online material should not be measured solely using results of standardized tests that compare all learners on the same metric; thus we developed two approaches to understanding engagement. First, engagement was quantitatively defined in terms of use of online resources. Second, qualitative understandings of engagement were developed based on those aspects of the program learners indicated were key to building and sustaining their continued interest in the digital literacy program.

Quantitative analysis indicated that the number of sessions was positively associated with engagement (defined as the number of online resources visited). In other words, it takes time to engage, and the more time the learner spent exploring the resources, the more engaged they were. Level of educational attainment was also positively associated with engagement.

Learners who had multiple learning plans open at a given time were less likely to spend time exploring resources within a learning plan. There were two sites, South Texas and New Orleans, that were positively associated with engagement. The quantitative analysis does not indicate the causality for this positive association; however, the qualitative data suggest that the compressed time nature of the programs within the correctional setting in New Orleans and the cohort model used by South Texas may have been a contributing factor. Additional research into these variables is needed to better understand the nature of engagement in time-bounded programs.

The online learning platform and curriculum also helped maintain tutor engagement by allowing the tutor to focus on the affective needs of the learner rather than coming up with content. However, the flexible nature of the program let those tutors who had the knowledge and desire to supplement the learning experience with resources outside the provided platform. Thus, tutors had a level of autonomy in how they worked with learners.

The Role of Lab Structure and Organizational Strategies

Learner engagement was sustained in part by lab design and how tutors organized learning. For example, tutors developed a standardized yet personal approach for running sessions in classroom settings. This included getting new learners or new groups of learners started and then differentiating support as the learners worked independently. Within the structure of the lab, clear learner expectations were established. For those learners with little experience in educational settings, tutors might have taught learners how to ask for help or strategies for note taking, and lab coordinators might have provided notebooks and storage for those notebooks. These organizational strategies helped learners build a sense of ownership over their learning and contributed to sustained engagement.

Impact of the Program on Learners

Learners and tutors indicated that the impact of the program went beyond the concrete digital skills acquired. The data indicate that building digital literacy helps sustain critical social connections and opens learners up to an entire new universe of information, interaction, and entertainment. Learners were able to learn how to digitally interact to sustain relationships. In addition, some were able to create new economic opportunities for themselves by broadening their awareness of the digital world. For some learners, success in learning digital literacy skills was their first positive learning experience, and some began thinking about pursuing additional educational opportunities. As one learner said, "It's like opening a door. Imagine living in an apartment with no windows, and then somebody comes and puts windows in. It's about that different."

Sustaining Volunteer Tutors

Volunteer tutor engagement was sustained through (a) the tutors' relationship with the learners, (b) the relationship of the tutors with the lab coordinator and included the actions the lab coordinator took to support tutors, (c) the connection of the program to the community, (d) the program design or way the lab was organized, (e) the online learning platform and resources, and, (f) opportunities for tutor growth Tutors were able to stay motivated when they could tangibly see that their contribution led to learners' growth; for example, tutors reported feeling a sense of satisfaction from observing a learner helping another learner. Other tutors discussed moments when learners reported successes back to them as being personally satisfying.

A key to building and sustaining volunteer tutor engagement was the relationship of the lab coordinator to the tutors. First, the constancy of a lab coordinator helped tutors feel connected to the program. It was through the attention and actions of the lab coordinator that tutors felt they were valuable members of the lab. Furthermore, coordinators acknowledged the challenges of volunteering and provided the training volunteers need to be successful and organized the schedule with the needs of the tutor in mind. They also checked with tutors regularly to ask for input about program and learner and tutor needs. Finally, coordinators found unique ways to encourage tutors and show that they were appreciated.

Volunteers are brought into and sustained in the tutor-facilitated digital literacy acquisition process by virtue of community connections and a sense of community and belonging. Tutors who had initially been learners often felt a desire to give back to the community and being a tutor allowed them to do so.

The ways the overall program was designed and the ways labs were organized also played a role in building and sustaining volunteer tutor engagement. Flexible scheduling, time for tutors to explore learning plans, a forum for asking questions, and in some cases lab coordinators or other tutors working alongside others helped tutors develop a set of flexible skills.

The active recruitment of successful learners to become tutors also sustained volunteer tutors. These individuals understood the challenges of being new to digital literacy and often shared many of the life contexts of the other learners. Thus they had a personal connection to the learners and were committed to helping learners. The learners who became tutors were further supported by the lab coordinator and their own tutor who expressed confidence in the ability of the individual to tutor.

Personal satisfaction also helped tutors maintain motivation. Specifically, tutors experienced knowledge growth and were able to develop skills as they worked with learners. Some tutors were motivated to sustain engagement with the program for professional reasons. Tutoring was perceived as valuable for one's resume and job seeking.

Differing Roles for Volunteer Tutors and Paid Staff

There do not appear to be any significant differences in outcomes and learning processes associated with the use of paid staff versus volunteer tutors; however, there appears to be a difference in the logistics of how lab that use volunteer tutors versus paid tutors are run and what the expectations are for tutors. For example, in South Texas, the paid tutors played an active role in recruiting participants and reaching out to new partners. For labs staffed by volunteer tutors, lab coordinators did not expect involvement in day-to-day operations; however, in many cases tutors were expected to make a commitment to tutor for a set period of time (often 6 months).

In a few cases, after volunteer tutors demonstrated exceptional ability, they were hired as paid tutors. In other cases, some learners were recruited to be volunteer tutors, and these learner-to-tutors demonstrated exceptional skills in being patient, building relationships with the learners, and assisting learners in over-coming fears and seeing the relevance of digital literacy skills in their lives.

The Role of Community Connections

Examination of a workforce setting showed the importance of community connections in fostering the health and sustainability of a digital literacy acquisition program within that setting. Five levels of connections were identified: formal top-level partnerships, local connections, library/workforce partnership, school/workforce connections, informal community connections, and lab coordinator/tutor/learner connections. Although these findings should not be generalized to all settings, the data from the other research sites indicate that building formal and informal connections and partnerships across institutions within the community is key to building and sustaining a program.

Conclusions, Implications, and Recommendations

- Implementation of a digital literacy acquisition program needs to be specific to the context in which it occurs. There is no one set of best practices. Rather there is evidence that learners move through a learning process that requires a great deal of cognitive and affective change. As such, the learning environment should take the unique needs of the learners and the learning context into consideration.

- Success should be defined in ways that go beyond scores on standardized test and take into account the attainment of learners' goals and level of engagement in the learning materials.

- Impact on learners should be seen as being multifaceted and include areas beyond the attainment of employment or educational credentials. Impact may extend to an individual's ability to achieve self-identified levels of satisfaction with their life.

- Each type of setting serves a unique set of learners. Findings from this research argue for continued funding of programs such as the Broadband Technology Opportunity Program within a variety of settings.

- Lab coordinators should look to learners as a source of tutors. The research indicated that learners who became tutors are especially effective at making connections with the learners because they understand what the learner is feeling.

- Training programs for tutors should address the affective needs of the learners as well as the content needs.

- Tutor training should include awareness of the unique needs of the different types of learners as well as the inclusion of strategies for building relevance while meeting the immediate needs of the learners.

- Tutors training should include awareness of variation within a language so that they can select resources based on the knowledge the learner has rather than trying to address a perceived language deficit. This could include the use of multimodal resources or simplified English.

- Policy makers and other key stakeholders may benefit from recognizing and building on the ways people in the field marshall formal and informal resources to create and sustain vibrant programs.

- Policymakers should give consideration to allowing some access to the world of digital technology to incarcerated individuals who have demonstrated readiness to learn so that they can develop the skills and responsibility that accompanies access to the digital world. Such programs should occur within the larger context of a comprehensive reentry process that includes wrap-around services that support the learners holistically.

Acknowledgements & Further Information

More information about the project, research findings, publications, and project data can be found in PDX Scholar at:
http://pdxscholar.library.pdx.edu/digital_literacy_acquisition/

Materials include 17 research briefs providing in-depth exploration of Language Learners, Program Design, Tutors, and Learners; 3 case studies of different settings, and 1 policy brief on the role of community connections.

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