

Who Researches Functional Literacy?

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Abstract

The purpose of our study was to discover who researches functional literacy. This study was situated within a larger systematic literature review. We searched seven electronic databases and identified 90 sources to answer our larger question regarding how functional literacy is defined and conceptualized as well as the specific question pertinent to this paper. An analytic template guided our data collection. The analysis was completed by using a spreadsheet to examine two levels of institutional affiliation: 1) the larger institution such as a university or government unit, and 2) the department, program, or division within the institution. Findings showed the 209 authors of these 90 sources represent a diverse set of fields. Further, it appears that multidisciplinary research is being conducted. We discuss implications of these findings and call for more interdisciplinary research.

Keywords: functional literacy, interdisciplinary research, adult literacy, workplace literacy, family literacy, health literacy

Many institutions and organizations have a vested interest in literacy. For example, a historical perspective from the 1940s to the 1960s show the Army, Census Bureau, and Office of Education all defined literacy. During World War II, the U.S. Army coined the term functional literacy to indicate adults' ability to use written instructions to adequately perform basic military functions (De Castell et al.). Thereafter, in 1947 and 1952 the Census Bureau identified a certain number of years of schooling as the equivalent of someone who is functionally literate. In 1960 the U.S. Office of Education increased the number of years of schooling to meet the definition. It was during this era that new military, technological, political, and scientific forces and developments propelled a national interest in literacy. Literacy was recognized to be more than an elementary skill; it was important for economic growth and national advancement.

In more recent times the U.S. government has continued to heavily influence our understanding of literacy through the National Literacy Act (NLA, 1991), National Adult Literacy Survey (NALS, 1992), and National Assessment of Adult Literacy (NAAL, 2003). Internationally, the Organization for Economic Co-operation

and Development (OECD), along with the United Nations, Educational, Scientific, and Cultural Organization (UNESCO) has provided definitions of what constitutes literacy. A current initiative by OECD, the Program for International Assessment of Adult Competencies (PIAAC), has assessed 10,000 US adults along with adults in 23 countries to better understand the cognitive and workplace skills adults need to perform in our global 21st-century society and economy. Thus our national society in particular and world society at large focus attention on literacy.

Four official definitions (NALS, 1992; NLA, 1991; OECD, 2000; UNESCO, 1978) most commonly are applied to the terms literacy and functional literacy. Because the definitions use both literacy and functional literacy to refer to the same construct, we use both terms in this manuscript. The four definitions have many similarities, and the wording of the NALS/NAAL definition and the National Literacy Act are identical in parts. NALS, the National Literacy Act, and UNESCO all use some form of the word *function* to describe the results of literate activity. Both the National Literacy Act and UNESCO specifically reference both reading and writing of text, as well as mathematical computations. All four definitions situate literacy within the individual and note that literacy is part of individual functioning and development. Interestingly, the two international definitions, OECD/IALS and UNESCO, specifically indicate that literacy is also necessary for functioning in communities and groups, while the two U.S. definitions, NALS and National Literacy Act, only define literacy as an individual ability. Despite definitional similarities, debate about what counts as literacy continues and many scholars have critiqued concepts related to FL (Bernardo; Ntiri). Without an effective definition that is used across contexts, there is a disconnect among researchers, policymakers, and educators.

Not only have institutions and organizations taken a vested interest, people and researchers across the country with specialties in various areas have also contributed to our understanding of literacy. “Workplace literacy” became a priority during the mid-1980s to mid-1990s as employers, labor unions, and policy makers described the essential skills, both individual and team skills, needed for employees to be successful. “Family literacy” is a concept that has changed in connotation. When first used in the 1980s by researchers, family literacy described the sociocultural interplay of literacy engagement between children, parents, and others. Later, family literacy was referred to programmatically; the most nationally known concept of “family literacy” provided basic literacy and parenting instruction for parents and education for the child (Hannon). A newer concept is “health literacy,” which focuses on the skills adults need to function in a health system. The term health literacy has meant different things to a variety of people, often causing confusion and debate (Berkman et al.).

Many organizations, fields, policy makers, and researchers have contributed to our understanding of literacy and related literacies, yet much misunderstanding and dispute arise. Functional literacy (hereafter FL) is complex with many players, but we don’t know who is researching FL and whether they are working together. Since literacy is a multidimensional phenomenon (Benson; Smith et al.; White), literacy researchers need to be methodical in their investigations and collaborations. The authors of this paper conducted a systematic literature review to better understand

essential questions for our field such as “How is functional literacy defined and conceptualized?” Situated within this larger literature review we asked a question pertinent to this particular paper, “Who is researching functional literacy?”

Literature Review

The need for researchers from various disciplines to come together to address complex issues has received growing interest in the scientific community (Aboelela et al.; Lakhani et al.; Townsend et al.). This awareness could be due in part to the fact society has become interested “in holistic perspectives that do not reduce human experience to a single dimension of descriptors” (Aboelela et al. 330). Interdisciplinary thinking is becoming more common and popular than multidisciplinary (Townsend et al.).

Aboelela et al. completed a systematic literature review on interdisciplinary research and provided the following definition:

Interdisciplinary research is any study or group of studies undertaken by scholars from two or more distinct scientific disciplines. The research is based on a conceptual model that links or integrates theoretical frameworks from those disciplines, uses study design and methodology that is not limited to any one field, and requires the use of perspectives and skills of the involved disciplines throughout multiple phases of the research process. (341)

As noted in the definition, simply adding a researcher from a different discipline to a research study does not make research interdisciplinary. Interdisciplinary research results when disciplinary borders are crossed through the process of communication and analysis. The borders that are established by a discipline may be assumptions, theories, technology, methods, techniques, or tools. Interdisciplinary research differs from multidisciplinary research, in which “researchers of various disciplines work separately on different aspects of a broad problem” (Lakhani et al. E261). It is further explained that multidisciplinary researchers may work on solving similar problems in an isolated manner utilizing only that discipline’s tools; the borders among and between disciplines are not crossed (Townsend et al.). A three-phase process assists researchers in developing interdisciplinary communities (Siedlock et al.) The first phase allows individuals to explore possibilities and decide if they want further association. Phase two results in accommodating and engaging collaborative practices. The final phase is a deeper, lasting phase of sustained research. Staudinger wrote, “True interdisciplinarity can only arise if all contributing disciplines are respecting each other as equal partners” (335).

Interdisciplinary research is needed in the field of literacy since we draw upon multiple perspectives from various disciplines. For example, psychology and psycholinguistics contribute to a cognitive perspective. Cognitive frameworks “attempt to explain the internal workings of the mind as individuals engage in complex mental activities” (Tracey et al. 109). Due to the complexity of understanding the mind, numerous models and theories work together to explain

the varied processes of comprehension and decoding. Anthropology, sociology, and socio-linguistics influence sociocultural and critical perspectives. Sociocultural theories of literacy are “a collection of related theories that include significant emphases on the social and cultural contexts in which literacy is practiced” (Perry 51). Sociocultural perspectives, therefore, reflect beliefs that language (including literacy) “always comes fully attached to ‘other stuff’: to social relations, cultural models, power and politics, perspectives on experience, values and attitudes, as well as things and places in the world” (Gee *vii*). Critical literacy theories use a political lens to understand literacy and education, specifically the ways ideology and power relationships connect to literacy. In suggesting that literacy involves reading both the *word* and the *world*, Freire conceptualized literacy as the “relationship of learners to the world” (173). Recently, critical perspectives have extended to include issues of agency and identity (e.g., Lewis, Enciso, & Moje). Situated within the field of literacy we have varied disciplines and perspectives, yielding itself well to interdisciplinary research.

In sum we know three theoretical frames drawing upon multiple viewpoints typically guide adult literacy scholarship. Further, we are cognizant the field of adult literacy has numerous players and has been challenged by the lack of a consistent definition of functional literacy, which impacts research, policy, and practice. Research supports the importance and value of interdisciplinary research, yet we know little about interdisciplinary research being conducted in the field of adult literacy. Therefore, through a systematic literature review, we sought to discover who researches functional literacy.

Methodology

We searched seven electronic databases—Google Scholar, ERIC, PsychInfo, Academic Search, Education Full Text, JSTOR, and ProQuest—for the years 2000-2014 using a combination of terms: FL, functional illiteracy, adult basic literacy, adult basic literacy skills, workplace literacy, family literacy, health literacy, assessment, policy, and theory. This initial search resulted in 238 publications. We used several criteria to decide our inclusion of sources. First, we limited our sources to adults, or adolescents who left school, who have low levels of literacy, including English learners. Second, we selected sources that focused on the United States rather than international contexts. Third, we chose to include sources starting in 2000 to allow us to see the transition between two large-scale assessments (NALS and NAAL). Finally, we included peer-reviewed publications, reports from government agencies, and one book; we excluded dissertations, book reviews, and publications not peer-reviewed.

The sources also represented a variety of fields in which researchers have interest in functional literacy, including: (a) literacy/adult literacy/adult basic education, (b) health literacy, (c) workplace literacy, (d) family literacy, (e) assessment, and (f) literacy theory and policy. These categories are not mutually exclusive, however, as one source might represent more than one category, e.g. health literacy and assessment. Our final sample of 90 sources included 82 journal publications, 7 governmental reports, and one book monograph. These sources

comprised 41 empirical studies (46%), four reviews (4%), and 31 theoretical or position pieces (34%). The 15 “other” sources (17%) represented (a) overviews of a particular topic, such as workplace literacy, (b) editorial introductions to special journal issues, (c) essays, or (d) governmental (i.e., not peer-reviewed) reports of research. Also included in this category was White’s (2011b) book, which compiled several related empirical studies. Table 1 lists the 90 sources and their key topics. To view Table 1, please visit goo.gl/vLv3uy.

The first step of our analysis process was to create a template. Based upon the work of Rogers and Shaenen (2013) and Compton-Lilly, Rogers, and Lewis (2012) we developed an analytical template to use with each source. The template addressed all our research questions in the larger study; in this particular analysis, we target the findings from only one part of the template. To refine the draft template, each co-author completed the template with an individually-selected source, then the group met to discuss areas that needed to be clarified. After two rounds of template development, we finalized decisions about what types of information to include or exclude in certain situations. Thereafter, all four authors read the same four sources per week, with one author assigned to complete the template for a given source. All authors then discussed each source during our weekly research meetings, reviewed its template, and reached consensus about suggested changes. All four authors were actively involved in all phases of research including conceptualization, data collection, and analysis.

We examined two levels of institutional affiliation: (a) the larger institution, such as a university or government unit, and (b) the department, program, or division within the institution. Both levels were important because information at one level sometimes was missing. This information from the template was entered into an Excel spreadsheet, which began the second step of our analysis process. The spreadsheet includes one row per author for each article; thus, an article with one author would have one row, while an article with three authors would have three rows. Next, we included a column for “notes,” where we entered information about each article.

One dilemma occurred when an author’s affiliation was unlisted, but known to us by professional reputation, inclusion on a different source, or through personal knowledge. Was this author’s affiliation therefore truly unknown? After considering (a) using the data as they were provided by each source, (b) adding affiliations where they were known, and (c) doing a broader internet search to fill in the missing data, we chose the first option, as this aligned with other decisions we made regarding information in the templates and spreadsheet.

We created broad categories for affiliations. Education-related fields included “Education/literacy” (literacy programs, curriculum and instruction departments, etc.), “Education/general” (other areas of education, possibly including literacy researchers if this was not clearly identified), and “Psychology” (including Educational Psychology). All healthcare-related fields, including medicine, public health, and pharmacy comprised one category. Authors who were at governmental institutions (e.g., National Center for Education Research, UNESCO) and those who worked for outside organizations, e.g., American Institutes for Research,

ETS, Weststat, were included in the category of “Statistics/research organizations/government.” Affiliation categories included:

- Administrative leadership
- Agriculture
- Education/general
- Education/literacy
- Human resources/workforce development
- Librarians
- Marketing/business
- Medicine/health care
- Psychology/ed psych
- Statistics/research organizations/government
- Other
- Unknown

If researchers’ affiliations were unknown, they went together into one category. We also identified sources for which there was no author affiliated with literacy or education whatsoever.

It is important to note that an individual author may have multiple sources represented in our analysis. Thus, although there are 209 authors in our analysis, some of these authors are repeated. Similarly, the same author might be represented in different categories, since journals may report affiliations in different ways, or an author who has more than one source may have changed institutions between publications.

We performed this analysis for all of the articles together, and then by our broad topic categories, e.g. health literacy, workplace literacy. For each topic, we reported the counts of different affiliations. Since some articles had combinations of authors in which some affiliations were known and others were not, we also counted the number of articles for that topic for which all of the authors were unknown—this was typically where the journal doesn’t note that sort of information. We also counted the number of articles for which there was no author affiliated with literacy or education whatsoever.

Findings: Who Researches FL?

The 209 authors of the 90 sources in our analysis represent a diverse set of fields. Table 2 provides an overview of the institutional affiliations of authors who have written about FL. Medicine and healthcare-related fields have the largest number of authors (47, or 22%). Those working in statistics, independent research organizations, and for the government (39 authors, or 19%) comprised the next largest category. Authors who were generally in education (27, or 13%) and specifically in literacy education (25, or 12%) also represented a large portion of those writing about FL. Other authorial affiliations were less common: eight authors (4%) came from psychology or educational psychology, seven (3%) were from marketing or business departments, four (2%) were in agriculture, and two each were in administrative leadership or academic libraries (1%, respectively). Academics in “other” categories comprised 11 authors; these fields included sociology/survey methods, English, information design, science/technology, Africana studies, writing and rhetoric, and economics.

In addition to counting authors’ affiliations, we also accounted for (a) sources in which no affiliations were indicated, and (b) sources in which no literacy or education experts were included among the authors. In many cases, unknown authorial affiliations were due to the fact that journals did not indicate affiliations; however, in some cases, affiliations were indicated for some authors but not others on the same publication. Across all sources, 32 authors’ affiliations (15%) were unknown, and 15 sources did not list affiliations for any authors (17%). An astonishing 31 out of 90 sources (34%) listed no literacy or education expert among the authors – and these 31 articles represented only the articles where the authors’ affiliations were known! It is, therefore, possible (indeed, even likely) that the percentage of articles with no literacy or education authorship would increase if we included all of the unknown affiliations.

Table 2.

Institutional/Departmental Affiliations of Authors Writing about FL by Topic Area

		All sources	Functional literacy/ABS	Family literacy	Health literacy	Workplace lit.	Assessment	Theory	Policy
Distribution of authors across disciplines/fields	Other	11 (5%)	4 (3%)	0	0	2 (9%)	1 (1%)	0	1 (7%)
	Stats/research/ gov't org	39 (19%)	27 (22%)	0	9 (13%)	0	23 (29%)	1 (17%)	2 (14%)
	Psychology/ ed psych	8 (4%)	5 (4%)	0	1 (1%)	0	3 (4%)	0	0
	Medicine/ healthcare	47 (22%)	17 (14%)	0	44 (66%)	0	27 (35%)	0	0
	Marketing/ business	7 (3%)	7 (5%)	0	2 (3%)	0	0	0	0
	Librarians	2 (1%)	0	0	2 (3%)	0	0	0	0
	Human resources/ workforce	2 (1%)	0	0	0	2 (9%)	2 (3%)	0	0
	Education (literacy)	25 (12%)	19 (16%)	2 (25%)	5 (7%)	2 (9%)	6 (8%)	2 (33%)	3 (21%)
	Education (general)	27 (13%)	20 (17%)	6 (50%)	1 (1.5%)	4 (18%)	5 (6%)	3 (50%)	6 (43%)
	Agriculture	4 (2%)	4 (3%)	0	0	0	4 (5%)	0	0
	Admin. leadership	2 (1%)	0	0	0	2 (9%)	0	0	2 (14%)
Overview of authorship	Articles w/ no literacy expert	31 (34%)	14 (12%)	0	15 (75%)	4 (29%)	9 (35%)	0	2 (22%)
	Total # of authors	209	121	12	67	22	78	6	14
	Sources w/ unknown affiliations	15 (17%)	7 (14%)	3 (38%)	1 (5%)	5 (36%)	1 (4%)	0	0
	# of sources	90	51	8	20	14	26	3	9

As Table 2 indicates, we also examined the authorship according to our keyword topics, e.g. health literacy, workplace literacy, assessment, etc.. The 51 sources in our sample that focused upon FL, functional illiteracy, and/or adult basic skills represent 121 authors. The most represented affiliation was statistics, research organizations, and the government, with 27 authors (22%). General education and literacy education affiliations were closely represented, with 20 authors (17%) and 19 authors (16%) respectively. Medical or healthcare fields represented 17 authors (14%). Other fields had fewer than 10 authors each; business and marketing represented seven authors, psychology and educational psychology represented five authors, agriculture represented four authors. Authors in “other” categories included English (2), Africana studies (1), and writing and rhetoric (1). We could not determine the affiliations for 17 authors (14%). Of the 51 sources in this category, 14 (12%) had no literacy or education expert listed among the authors. The trends in findings for the topic of FL and adult basic skills reflect the trends from the overall analysis, with the exception that the proportion of healthcare authors has decreased. These findings suggest that researchers in a wide variety of fields – medicine, business, agriculture, etc. – are interested in adult literacy.

Health Literacy

The 20 sources in this category represented 67 authors. Although medical and healthcare fields dominated the authorship (44 authors, or 66%), the remaining authors were in diverse fields. However, no institutional category had more than 10 authors. Nine authors were in statistical, research, or governmental organizations; five were in literacy education; two each were in business/marketing and academic libraries, and general education and psychology or educational psychology had one each. One important finding for this category is that 15 of the 20 sources (75%) included no literacy or education expert whatsoever.

Workplace Literacy

A total of 14 sources addressed workplace literacy, representing 22 authors: four in general education, and two each in literacy education, human resources and workforce development, and administrative leadership. Other fields included one each in economics and writing and rhetoric. We were surprised that of the 22 authors, 10 authors’ affiliations, (or 45%) were unknown. Workplace literacy was the only topic category where “unknown” was the most common affiliation, perhaps reflecting the nature of the journals that commonly publish workplace literacy topics. Over a quarter of the sources (4 out of 14, or 29%) had no education or literacy expertise among the authors.

Family Literacy

The eight sources on the topic of family literacy represented 12 authors. Eight of these authors were in general education (6, or 50%) or literacy education (2, or 25%), while four authors’ affiliations (25%) were unknown. Three sources did not indicate author affiliations, most likely due to the nature of the journals in which this topic

was published. All of the remaining sources included at least one education or literacy expert. Unlike other topics, all of the sources with known authorship were written by scholars of education. This finding may be due to the fact that the majority of family literacy scholarship tends to focus on children in a family rather than adult literacy; this is something that family literacy and adult literacy researchers may need to attend more to.

Assessment

Our analysis included 26 sources, representing 78 authors, on the topic of assessment. This scholarship occurred in a variety of fields, with healthcare (27 authors, or 35%) and statisticians, independent researchers, and government authors (23 authors, or 29%) being most common. Other fields included fewer than 10 authors; six authors in literacy education, five in general education, four in agriculture, three in psychology or educational psychology, two in human resources and workforce development, and one in economics. Only five authors' affiliations were unknown, and nine of the 26 sources (35%) included no literacy or education expert.

Theory and Policy

Six authors wrote about FL theory; three of these were in general education, two were in literacy education, and one was a statistician. The policy sources represented 14 authors; six in general education fields, three in literacy education, two from statistics or government agencies, two in administrative leadership, and one in Africana studies. All theory sources, and all but two policy sources, included at least one education or literacy expert as an author. Thus, policy and the limited theory sources emerge from educational experts. One surprise was that only two of the policy authors were affiliated with governmental agencies.

Discussion

Literacy is an applied phenomenon as people practice literacy in order to attain goals in different domains of their lives. The burgeoning interest in FL among non-literacy scholars shows that other fields recognize the importance of adult literacy. This is great news! Less encouraging, however, is the finding that one-third of our sources included no literacy or education expertise among the authorship, although this differed widely across applied contexts. Lack of literacy expertise was particularly glaring in the fields of health literacy and assessment, while family literacy was almost entirely dominated by literacy researchers.

We mention here that we recognize a limitation of our study. Our analysis was based on the broad institution as well as the department or division of employment. This does not necessarily reflect the educational background of the authors; there may be education or literacy experts working in various fields. Without further inquiry to the authors' training and expertise, our findings report the assumption that their training is most associated with their current placement. That said, even if our findings are estimates and the education/literacy expertise is higher than accounted for, we notice a need for greater collaboration.

As it currently appears, multidisciplinary research in functional literacy is being conducted, which keeps the assumptions, theories, and tools of health literacy, workplace literacy, family literacy and more within each discipline. Scholars appear to be working in their own isolated disciplinary towers, perhaps contributing to disparities of literacy definitions, conceptualizations, and theories. Such disciplinary isolation, however, likely has stunted the development of our knowledge of literacy, particularly as applied in context(s). Our findings raise important implications about who is considering and thus defining FL.

One major implication is that functional literacy has significant consequences for adults' lives, and our work matters not only in educational settings, but also in families, communities, workplaces, health care settings, and other life contexts. For example, individuals with low literacy have difficulty following directions for prescriptions or medical treatment (Mikulecky, Smith-Burke, & Beatty; Parker & Schwartzberg; Witte). Also, adults with low literacy levels are more likely to be un- or under-employed, earn lower salaries when they are employed, or require public assistance (Kutner et al., 2007). If we view literacy as a multidimensional phenomenon that has cognitive, sociocultural, and critical aspects, then we need to have research teams that reflect all those aspects. Similarly, because literacy/education are applied fields, we need to have research teams that reflect expertise in theory, research, and applied work.

Another implication is that FL is a field ripe for collaboration across disciplines, and literacy researchers may need to more actively reach out to other fields. For example, literacy researchers could help health care researchers better theorize their construct of functional health literacy. Individuals do not possess all the expertise needed to solve problems (Lakhani et al.). Collaboration is a two-way street, and literacy scholars can gain additional theoretical perspectives and methodological approaches from other disciplines and fields. For example, Schneider's (2007) work comes from the field of English, and his historical analysis represents essentially the only thorough consideration of the role of citizenship in FL. Because literacy researchers have much to offer and to gain from cross-disciplinary collaborations, they should be proactive in seeking and developing these collaborations.

We encourage the functional literacy research community at large to begin moving from individual practice to collaborative community through a three-phase process (Siedlok, Hibbert, & Sillince). The first phase, practices of inquiry, is exploratory for individuals to decide if they want to proceed with further collaboration. In this phase, individuals engage in risk taking, exploring, seeking opportunities, and searching for connections with others. Individuals realize there are risks such as potential failure or slower progress, as well as getting out of one's comfort zone. Willingness to expose oneself and entertain new ideas occurs in the exploring phase. Seeking opportunities transpires when an individual looks for a collaborative group without any clear intention or goal. Once a goal and project have been identified, individuals may search for connections with other research partners. Therefore, in this phase, collaborative opportunities may arise serendipitously or purposefully. The second phase is practices of engagement. This "practicing together"

includes engaging and accommodating to investigate how ideologies and tools can mesh so collaborators can work together. Then the researchers start to find a focus and build the collaboration. During this phase, the researchers amalgamate and negotiate so all participants are equal. This second phase is a developing stage where genuine collaborations happen as a result of rapport, purposefulness, and synergy. The final phase is practices of enactment. These community-based practices involve nurturing of interpersonal relationships, maintaining procedural justice to recognize all contributions, and brokering connections to ensure that connections fully function as collaborations. If there is any disengagement by participants a group may dissolve. The group may also socialize new participants. The goal is to establish a nurturing, shared understanding and purpose that results in a fully functional, substantially connected team of researchers who sustain their work.

In her 2015 presidential address to the Literacy Research Association, Janice Almasi called upon literacy educators to cross boundaries and engage with others from various fields. Along with Almasi, we advocate for more interdisciplinary research. Let's make interdisciplinary research the standard rather than the exception (Aboelela et al.). Society at large and the adult literacy community, in particular, will benefit from true, collaborative, interdisciplinary partnerships.

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