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SOCIAL BENEFITS OF LITERACY EDUCATION – A COMPARATIVE APPROACH

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Abstract (10pt)

I explored the relationship between community stand alone literacy programs and family literacy programs to ascertain the impact of learner participation and outcome. This study hypothesized that the family literacy program emphasizes active learning through social interaction, which promotes bonding and bridging social capital; and that participating in the family literacy programs enhances learning and learners' achievement in standardized test scores. The study population covered 3,700 adults and 4,000 children who participated in the adult basic education programs in Pennsylvania, U.S. The result provided enough statistical differences in the comparative mean and standard deviations scores between the two literacy programs. Consequently, this led me to reject the null hypothesis in favor of the alternative that students who participated in the Family Literacy programs with high bonding and bridging social capital did have higher achievement scores than Community ABE/GED programs.

Keywords: Adult basic education;Family literacy program;Participation in education;Persistence in education;Social capital.

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1. Introduction (10pt)

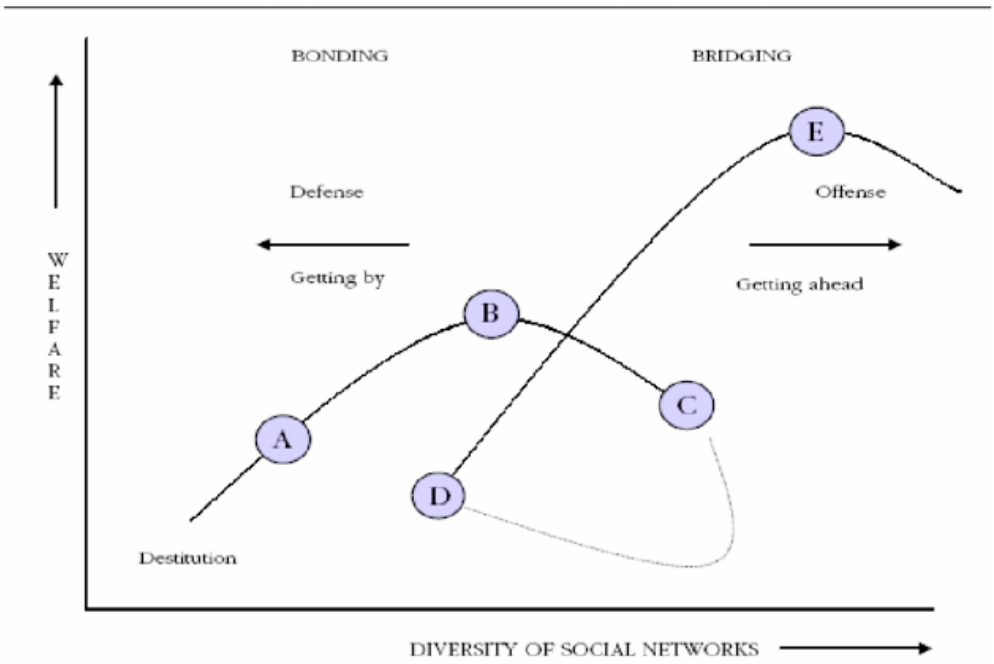
Some in our society have continuously fought the injustices of how the public school system, that was supposed to educate their children, do educate them, rather to be among the bottom tier in this modern day technology-rich society. Literacy acquisition is a level playing field for those who have the ability to provide extra tuition for their children, those who can afford to live in affluent communities with favorable zip codes; but the field is skewed against some in society, the poor, those on public assistance, and those who are not able to spend beyond the basic necessitates of life, like, food, shelter, and clothing. There are many "who lack basic opportunities of health care, or functional education, or gainful employment, or economic and social security" (Sen, 2000). There are many deprivations of human freedom, "a great many people in different countries of the world are systematically denied political liberty and basic civil rights" (p. 15). Literacy acquisition (Freire & Macedo, 1987; Gutierrez, Baquedano-Lopez, & Turner, 1997) is basic civil rights. Stuart Greene (2009) argued that educational reforms based on standardized achievement test scores actually mask racist ideologies that reproduce deficit gaps they claim to address in the first place.

Globalization and lifelong learning goals raises the question of what one can realistically expect literacy acquisition learners to achieve. Literacy programs (Lasater & Elliott, April 2004; U.S. Department of Education, 2016) are educational programs and as such, it is reasonable to expect learners to learn, that is, to acquire knowledge, skills, change, and new meaning (human capital), because of their educational participation (Fiske, & O'Grady, 2000; National Education Goals, 1992 p. 3; UNESCO, 2016). However, human capital investment alone without the associated social networks (social capital) may impede learning and economic empowerment. The network view on social capital, therefore, attempts to account for both its upside and its downside. It stresses the importance of vertical as well as horizontal associations between people and of relations within and among such organizational entities as community groups and firms. Strong intra-community ties give families and communities a sense of identity and common purpose (Astone, et al., 1999). This view also stresses, however, that without weak intercommunity ties, such as those that cross various social divides based on religion, class, ethnicity, gender, and socioeconomic status, strong horizontal ties can become a basis for the pursuit of narrow sectarian interests. The former has been called "bonding" and the latter "bridging" social capital

(Gittell & Vidal 1998). Different combinations of these dimensions, it is argued, are responsible for the range of outcomes that can be attributed to social capital.

Figure 1 shows that as the social networks of the poor become more diverse, so too does their welfare.

Figure 1: Social Capital and Poverty Transitions



Source: Woolcock (2000).

The social capital residing in a given network can be leveraged or used more efficiently, which is essentially the genius of peer group interaction (Donahue, 2011; Hess, 2010) as embedded in the family literacy adult basic education program. The individual adult with minimal basic skills learns literacy and employable skills by participating in family literacy programs. This basic skills acquisition helps the adult to expand her human capital and thereby improve her family's welfare (A). However, the economic returns on mere human capital investments soon reach a limit (B), especially when they rely on high endowments of human capital investment. If the individual adult continues to expand - for example, through further education - her resources may become overwhelmed, thereby reducing the wellbeing of long-established investment (C). At this level, diminishing returns set in; that is, the individual may be “underemployed" or "unemployed" due to "overqualification." In these circumstances, many individuals partially

divest themselves of their immediate community ties (D) and find a potentially more diverse network where "bridging" social capital is more abundant and economic opportunities more promising (E). Migration from villages to cities, belonging to a community, or a religious group is the most dramatic example of this situation.

2. Research Method

The analysis tested patterns of relationships among potential social capital indicators including the length of time adults participated in the adult basic education programs, and the resulting educational outcome. The study population covered 3,700 adults and 4,000 children who participated in the family literacy programs in Pennsylvania, U.S. During the program year, the Pennsylvania Adult Basic Education program funded more than 180 literacy programs across the State. Services were provided by a range of agencies including libraries, local education agencies, literacy councils, state correctional institutions, community colleges, community-based organizations, faith-based organizations, and universities. About 3,200 adults participated in English language and civics education, 1,900 adults participated in the workplace and workforce education, while 900 adult students participated in distance learning education. This study included sampling of all adult students who enrolled in the adult basic education program for both family literacy model and stand-alone model. The random sampling list included 180 agencies in Pennsylvania that offered about 940 programs throughout the state.

The study questions addressed the issue of persistence, duration, and potential social capital indicators in participating in the adult basic education program as follows:

1. **Persistence in participation:** Adult learner persistence in this study was a potential "predictor" variable, and was defined as the "time in class based on attendance records" (Quigley, 1997; Comings et al, 1999).
2. **Duration of participation:** Duration is an amount of time or a particular time interval. Duration of participation in this study was a potential "predictor" variable. Kassab, Askov, Weirauch, Grinder, & Van Horn, (2004) defined duration in family literacy programs as the "number of days" in the program.
3. **Social capital indicators in participation:** Social capital indicators in participation was a potential "predictor" variable in this study. Dika and Singh (2002) reported that social capital

indicators and indicators of educational attainment are positively linked. In this study, social capital was a "binary variable," a qualitative predicator with only two possible values (yes or no). That is “1,” if individual adult student received "social capital based instruction," and “0,” if individual adult student did not receive "social capital based instruction."

4. **Socioeconomic status (SES):** Non-Caucasian and native-born adults with low literacy skills who participate in adult basic and literacy education tend to be of low socioeconomic status. The following socio-economic factors influence participation in ABE programs: labor force status, public assistance, household status, entry income, gender, ethnicity, parent-child relationship, and residential factors. Socio-economic status was defined in this study to be a composite measure of social class of low/high income level plus area of student residence (rural/urban) (Bryk & Raudenbush, 1992; Raudenbush & Bryk, 2002).

5. **Response variables:** The potential "response" variables in this study were tests scores of the TABE, CASAS, and GED subtests (reading skills, total mathematics, and listening skills). This study, employed the combination of CASAS and TABE post-test scores and GED "actual-test" scores (for reading skills, mathematics skills, and the listening skills) as the dependent variables.

3. Results and Analysis

The sample of this study consisted of 7,397 adult basic education students from both Community ABE and Family Literacy programs. Out of the 940 programs, 50.3 percent were ABE Community and Institution programs and 31.1 percent were GED Community and Institution programs. Nine percent of the total programs were for Even Start and Family Literacy programs, while the remaining 9.6 percent were Literacy Corp, ESL Civic, and PA WIN (Pennsylvania Workforce Improvement Network) programs. Fifty-seven percent of the students from the sample were female and 43 percent were male. Ethnic backgrounds of the students were composed of 42.3 percent Caucasian, 36.8 percent African American, and 14.6 percent Hispanic.

3.1. Descriptive Statistics for Main Study Variables

Table 1 presents minimum, maximum, means, and standard deviations for the main study variablesfor 7397 students.The average hours of instruction in adult education that students participated in ABE programs were 146 hours (M = 146.25, s.d. = 86.45). Majority of the students reported that they were head or spouse/partner in two-parent household (M = 180, s.d. =

1.32), and students had completed about nine to 10 years of schooling at the time of entry into the ABE program. The average scores on standardized test were: CASAS 216 (M = 216.42, s.d. = 18.70); GED Actual Test 439 (M = 438.51, s.d. = 126.20); and TABE test scores were 533 (M = 532.77, s.d. = 75.51). Overall, students' performance according to this study is acceptable within the National Reporting System (NRS, 2014) benchmarks. According to NRS, students performing at these levels are able to read simple descriptions and narratives on familiar subjects or from which new vocabulary can be determined by context. They can also make some minimal inferences about familiar texts and compare and contrast information from such texts but not consistently.

Table 1. Descriptive Statistics

	Min	Max	Mean	Std. Dev
Instructional Hours	80	1128	146.246	86.454
Standardized Test Scores	200	710	449.729	135.671
CASAS Test Scores*	153	262	216.419	18.702
GED Actual Test*	76	726	438.512	126.204
TABE Test Scores*	160	812	532.766	75.514
Reading Skills**	200	710	453.866	134.838
Total Mathematics**	200	665	489.967	97.945
Listening Skills**	200	238	215.269	8.687
Program Size	1	249	127.499	79.809
Household Status***	179	185	180.080	1.317

* CASAS = 1861; GED = 488; TABE = 5006
** reading scores = 4676; total math = 2252; listening skills = 469
*** **Household Status (Code)**

Head of Single Parent Household	(179)
Head of Spouse/Partner in 2 Parent Household	(180)
Head of Spouse/Partner-no dependents	(181)
Dependent member of Household	(182)
Dependent and Single Parent	(183)
Living in Group Quarters	(184)
Living Alone	

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Hypothesis Testing

Hypothesis – 1: Comparison of Community ABE and Family Literacy Programs

a) Type of program does not explain the variance; programs vary randomly given reading scores.

b) Type of program does not explain the variance; programs vary randomly given mathematics scores.

To answer these research questions, an HLM "Intraclass Correlation Coefficient" a Covariance Parameter Estimates, using SAS and SPSS Test of Between-Subject Effects (ANOVA table), were computed. The intraclass correlation coefficient measured the proportion of variance in the outcome that was between groups (thus: the level-2 units). It was estimated by substituting the variance components for their respective parameters. The intraclass correlation coefficient for Reading Skills was (8957.19)/(8957.19 + 8364.35) = .517. This meant that approximately 52 percent of the variance in students' reading scores was attributed to the programs in which they were enrolled. The intraclass correlation coefficient for Mathematics Skills was (3512.74)/(3512.74 + 6352.19) = 3512.74/9864.93 = 35.61. This meant that approximately 36 percent of the variance in students' mathematics scores was attributed to the programs in which they were enrolled. The question then became, did type of program (0 = Community ABE/GED; 1 = Family Literacy) explains the difference?

A further analysis of means and standard deviation for mathematics and reading scores as a function of community ABE/GED and family literacy programs revealed that programs differed, again at the student-level, based on average mathematics and reading scores (see table 2). Therefore, type of program did influence students' reading and mathematics scores. The HLM and SPSS analyses indicated that adults who were enrolled in the family literacy programs

performed better in both reading and mathematics skills scores than those students enrolled in the community ABE/GED program for the same period.

Table 2

Means, Standard Deviation, and n for Mathematics and Reading Scores as a Function of Community ABE/GED and Family Literacy Programs

Community ABE/GED				Family Literacy			Total	
Subtest	n	M	SD	n	M	SD	M	SD
Mathematics Skills	1571	487.97	100.52	553	498.33	88.33	490.67	97.58
Reading Skills	3793	448.26	138.43	731	489.05	106.50	454.85	134.62
Total	5364	936.23	238.95	1,284	987.38	194.83	945.52	232.20

To triangulate the hierarchical linear modeling (HLM) results above, hypothesis 2(a) (b) analyzed the data when all the predictors and the response variables, including the subtest (reading skills, mathematics skills, and listening skills) with total sample of 7397 were considered using ANOVA and correlation statistics.

Hypothesis – 2: Comparison of Community ABE and Family Literacy Programs

a) Family Literacy programs with high bonding and bridging social capital do not have higher learner achievement scores than community ABE/GED programs

b) The length of time participating in the family literacy programs with high bonding and bridging social capital does not influence adult literacy achievement scores.

The emphasis for hypothesis 3(a) (b) was learning achievement at the student-level; an Independent Sample t Test statistics was used. An Independent Sample t Test is employed when investigating the difference between two unrelated or independent groups (in this case, Community ABE and Family Literacy Programs). The analysis provided two statistical tests. The

F test was not significant for listening skills (.84); this meant that the assumption was not violated, and the "Equal variance assumed" line was used for the t test and related statistics. However, the Levene's F was statistically significant at alpha .05 level for reading skills and total mathematics; thus, the variances were significantly different and the assumption of equal variances was violated. Therefore, the "Equal variance not assumed" line was used. The t in scores on listening skills was not statistically significant (p = .075). However, the results for reading and math scores were statistically significant (reading, t = -9.38, degree of freedom (df) = 1262.39, and p = .001; scores on math, t = -2.38, df = 1099.85, and p = .017). I therefore concluded that, there were differences between community ABE programs and family literacy programs.

Table 3. Comparison of Community ABE and Family Literacy Programs on Reading Skills, Total Mathematics, and Listening Skills
For TABE, CASAS, & GED

Variable	N	M	SD	*t*	df	*p*
Reading Skills				-9.380	1262.393	.000
Community ABE	3937	447.219	138.585			
Family Literacy	739	489.274	106.072			
Total Mathematics				-2.383	1099.850	.017
Community ABE	1683	487.282	100.740			
Family Literacy	569	497.910	88.774			
Listening Skills				-1.783	467	.075
Community ABE	449	215.118	8.680			
Family Literacy	20	218.650	8.364			

Table 3 indicated that the family literacy programs were significantly different from community ABE programs on reading skills (p = 001) and total mathematics (p = 017). Inspections of the two group means indicated that the average reading skills score for community ABE programs (447.22) was significantly lower than the score (489.27) for family literacy programs. A similar trend existed for total mathematics. The mean score for community ABE programs (487.28) was lower than the score (497.91) for family literacy programs. However, community ABE programs did not differ significantly from family literacy programs on listening skills (p = .075).

Since the assumption of equal variances was violated, I ran the appropriate nonparametric statistic, which in this case was the Mann-Whitney (M-W) U test. The M-W was used with a between group design with two levels of an independent variable. The Mann-Whitney test (Table 4) is a nonparametric test to compare two unpaired groups. This test is an alternative to the independent group t-test, when the assumption of normality or equality of variance is not met.

Table 4. Non Parametric Test: Mann Whitney U

Ranks on TABE, CASAS, & GED

	Program	N	Mean Rank	Sum of Rank
scores on reading	Community ABE	3937	2287.31	9005140.00
	Family Literacy	739	2611.21	1929686.00
	Total	4676		
scores on math	Community ABE	1683	1116.01	1878237.50
	Family Literacy	569	1157.54	658640.50
	Total	2252		
scores on listening	Community ABE	449	232.64	104453.50
	Family Literacy	20	288.08	5761.50
	Total	469		

The above table showed the mean or average ranks for community ABE and family literacy programs on each of the three dependent variables. SPSS ranked the students from 4,676 (highest) to 1 (lowest) for "reading skills," 2,252 (highest) to 1 (lowest) for "total mathematics,"

and 469 (highest) to 1 (lowest) for "listening skills," so that, in contrast to the typical ranking procedure, a high mean rank indicated the group scored higher. On all three subtests (reading skills, total mathematics, and listening skills) family literacy students ranked higher than Community ABE/GED students. Table 5 confirmed the results of the Mann-Whitney (M-W) U test and the previous HLM analysis.

Table 5. Comparative Mean and Standard Deviations of Community ABE and Family Literacy Programs Variables

	Community ABE			Family Literacy		
	N	Mean	s.d	N	Mean	s.d
Test Scores	6069	441.16	140.25	1328	488.90	103.76
Instruction Hours	6069	144.45	86.89	1328	154.47	83.95
Reading Scores	3937	447.22	138.58	739	489.27	106.07
Math Scores	1683	487.28	100.74	569	497.91	88.77
Listening Scores	449	215.12	8.68	20	218.65	8.36

As evident in Table 5 and above analyses, there were enough statistical differences in the comparative mean and standard deviations scores between the two groups. Consequently, this led me to reject the null hypothesis in favor of the alternative that students who participated in the family literacy programs with high bonding and bridging social capital do have higher achievement scores than community ABE/GED programs.

4. Conclusion

The statistical analyses at the student-level indicated that adults who participated in the family literacy program performed better in both reading and mathematics skills scores than those students who enrolled in the Community ABE/GED program for the same period. Hypotheses

tested in this study affirmed the major research questions and the theoretical frame that family literacy programs with high bonding and bridging social capital also have higher achievement test scores than Community ABE/GED programs. Though further research is needed to confirm this finding, this study may contribute to further understanding of what is entailed in creating bonding and bridging social capital in adult basic and literacy education.

This study suggested that educational attainment and grades were positively associated with strong help networks of parents, number of friends known by parents, and parents' involvement in school. The level of social structures surrounding the family literacy programs promotes strong bonding and bridging social network such as the collaboration of family and child education programs with other community agencies and programs, including social services, health services, and employment services. Finally, this study indicated that though differences existed between the programs, both programs made similar progress towards social capital acquisition. Longstanding traditional family systems, such as dependence on the extended family and the community, are changing. At the same time, government support is quickly eroding. With all these factors working against the adult learner, one question is, how can adult basic and literacy programs offer a promising alternative to ensure continuous participation of learners? The results from this research study revealed the need for further research into how both stand-alone Community ABE/GED and Even Start Family Literacy programs may work to attract potential adult learners with multiple forms of literacy needs.

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