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**Article**

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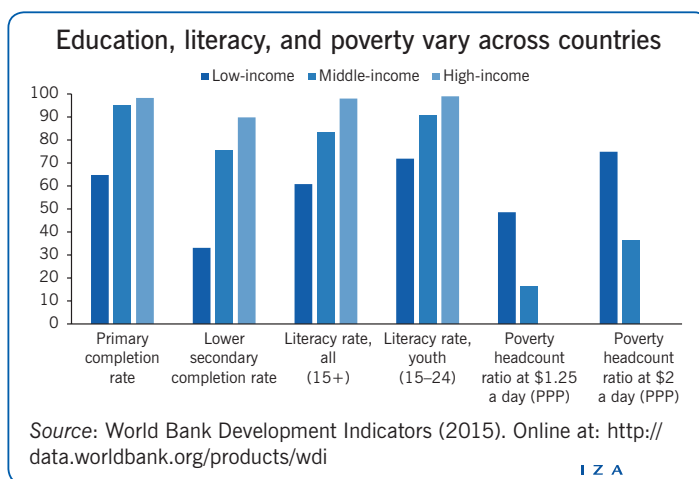
# Adult literacy programs in developing countries

## While mostly missing their primary objectives, adult literacy programs can still improve key socio-economic outcomes

Keywords: adult literacy programs, human capital, literacy and numeracy, income generation, labor market participation, health

### ELEVATOR PITCH

In addition to the traditional education system targeting children and youth, one potentially important vehicle to improve literacy and numeracy skills is adult literacy programs (ALPs). In many developing countries, however, these programs do not seem to achieve these hoped for, ex ante, objectives and have therefore received less attention, if not been largely abandoned, in recent years. But, evidence shows that ALPs do affect other important socio-economic outcomes such as health, household income, and labor market participation by enhancing participants' health knowledge and income-generating activities.



### KEY FINDINGS

#### Pros

- + Literacy impacts of ALPs can be high, if novel approaches and modern technologies are utilized.
- + ALPs have relatively low demand-side/direct costs and low supply-side/indirect costs.
- + There is some, though scarce, evidence of positive effects on labor market participation, consumption/income, and health.
- + Literate parents (especially mothers) are more likely to send their children to school and are more engaged in their children's education.
- + Evidence suggests that ALPs increase empowerment and civic participation among program participants.

#### Cons

- ALPs mostly show only limited impacts on literacy and numeracy (their ex ante stated objectives).
- ALPs are historically riddled with low initial enrollments, high dropout rates, and relapse into illiteracy.
- There is minimal evidence (especially, more rigorous evidence) of program impacts.
- Robust evidence is particularly scarce with respect to other important outcomes than literacy and numeracy, such as employment, wages, and health.
- ALPs have had hugely different impacts across countries.

### AUTHOR'S MAIN MESSAGE

Despite the poor performance of ALPs in improving the literacy and numeracy skills of participants in many developing countries, other beneficial outcomes suggest that these programs should still be considered as potentially useful policy options. Because ALPs potentially affect multiple important development outcomes, a more holistic approach to evaluating adult literacy programs would be appropriate. Some recent successful programs offer potential examples to follow, particularly the utilization of novel methods and modern technology.

## MOTIVATION

National governments and international and bilateral development organizations alike seek to improve livelihoods for the developing world through public policy interventions. Being highly associated with economic development, education—and the outcomes of education, including literacy and numeracy—is key in this process. Adult literacy programs (ALPs) represent one such policy intervention that seems particularly useful for upskilling populations with low levels of human capital across many dimensions (literacy, numeracy, health, income generation)—even if they do not necessarily help generate *all* of these skills equally effectively.

Despite the historically poor performance of ALPs in improving participants' literacy and numeracy skills, which are the primary *ex ante* stated objectives of these programs, additional beneficial outcomes such as improved health, consumption/income, and labor market participation seem to more than justify increased attention on these programs in the future. Moreover, due to the composite nature of these programs (i.e. they affect multiple beneficial development outcomes), all actors in the developing world would be well served to adopt a more holistic approach to evaluating adult literacy programs.

## DISCUSSION OF PROS AND CONS

### Literacy impacts *can* be high

While the overwhelming majority of the empirical evidence indicates that, historically, the literacy and numeracy impact of ALPs has been fairly modest, more recent research seems to suggest that literacy and numeracy impacts can be high, especially if programs utilize more novel approaches than the traditional classroom teaching method and if incorporating modern technology in the process. In Niger, for example, a field experiment randomly allocating mobile phones (and providing instruction in their use) to a subset of participants in a more traditional ALP led to substantial impacts on (writing) literacy and numeracy among the mobile phone recipients [1]. Specifically, students in mobile phone receiving villages (the randomization was at the village level to avoid contamination between treatment and control groups) achieved test scores that were between 0.19 and 0.26 standard deviations higher than those in the standard adult education classes, and their standardized mathematics test scores (though not their writing scores) remained higher seven months after the end of the classes. While this is a stand-alone evaluation, for (two regions of) a single country, it suggests that there are indeed opportunities for improving the literacy and numeracy components of ALPs, as long as one is willing to look toward more novel and technology intensive approaches.

Ghana's National Functional Literacy Program (NFLP) provides another example. Substantial reading skills—but only moderate to weak writing and numeracy skills—have been found for program participants in one study, though the associated evaluation study was potentially affected by issues of non-random program placement due to the randomization being done at the individual, as opposed to the village, level [2]. Other evaluation studies of Ghana's NFLP similarly established an association with program participation and several other important outcomes including labor market participation [3], child mortality [4], and household expenditures (a proxy for income) [5]. These outcomes may arise through network effects and health knowledge, respectively, as they

are certainly *not* attributable to literacy and/or numeracy effects, since the latter are mostly found to be fairly modest [4], [5]. One reason for the relative success of the Ghana NFLP could be linked to the fact that the duration is 21 months, which is much longer than many other ALPs (where the norm seems to be around nine months) [6].

### **The National Functional Literacy Program (NFLP) in Ghana: A potential “best practice” model for future adult literacy programs?**

#### **Background**

Adult literacy programs have a long history in Ghana, dating back at least to the 18th century. The first national literacy program was introduced in 1948. In 1987 the Non-Formal Education Division (NFED) was established as an integral part of the Ministry of Education, aimed at organizing and coordinating adult literacy programs and other non-formal education. From the very beginning, the main target group was poor women in rural areas; indeed, as described by NFED itself, the main objective was “to make the poorest Ghanaians, especially those living in the rural communities, functionally literate with emphasis on women.”

#### **Logistics**

The duration of the Ghana NFLP is 21 months, which is much longer than many other ALPs (where the norm seems to be around nine months)—thus potentially partly explaining the relative success of the Ghana NFLP. Classes meet about two to three times a week (in the evening), for a total of about six hours per week. Class sizes mostly range from about 20–30 participants per instructor/facilitator.

#### **Program components**

The program consists of three course modules with 28 topics selected individually for each community—for example:

1. *Health module.* Topics here include family planning, teenage pregnancy, environmental hygiene, immunization, HIV/AIDS, safe motherhood and childcare, drug abuse, traditional medicine, and safe drinking water.
2. *Income Generation/Occupational Skills module.* Topics here include cocoa farming, maize cultivation, dry season farming, basket weaving, animal husbandry, bee-keeping, oil palm cultivation, borrowing money for work, hygienic ways of preserving and selling fish, farm extension services, pottery, and soap making.
3. *Civic Awareness module:* Topics here include taxation, bushfires, interstate succession law, child labor, chieftaincy, community empowerment, and expensive funerals.

#### **Other providers**

Other providers include several NGOs, such as World Vision (Ghana), Action Aid (Ghana), the Hunger Project (Ghana), Christian churches of various denominations, as well as Muslim communities. These programs are typically quite similar to the NFLP; in particular, these alternative providers frequently include similar modules (Health, Income Generation/Occupational Skills, and Civic Awareness), as well as similar individual topics from these modules in their programs. Some even adopted the NFLP primers directly for use in their own program. Subsequent results can therefore plausibly be interpreted in the context of the NFLP adult literacy program.

### Outcomes

While programs mostly have been found to only moderately improve the literacy (reading/writing) and numeracy skills they were intended to improve (though substantial reading skills have also been found in one case but still only moderate to weak writing and numeracy skills), impacts have been found on several other important outcomes including labor market participation, child mortality, teenage pregnancy, and household expenditures (a proxy for income). These outcomes may arise through network effects and health knowledge, respectively, as they are certainly not attributable to literacy and/or numeracy effects—as the latter are mostly found to be fairly modest.

*Sources:* Abadzi, H. *Adult Literacy: A Review of Implementation Experience*. World Bank Operations Evaluation Department (OED) Working Paper Series, 2003; Aoki, A. “Assessing learning achievements and development impact: Ghana’s national functional literacy program.” *Australian Journal of Adult Learning* 45:1 (2005): 63–81; Blunch, N.-H. “Multidimensional human capital, wages and endogenous employment status in Ghana.” In: Kanbur, R., and J. Svejnar. *Labor Markets and Economic Development*. London and New York: Routledge, 2009; Blunch, N.-H. “Staying alive: Adult literacy programs and child mortality in rural Ghana.” *World Development* 42:1 (2013): 114–126; Blunch, N.-H. “A teenager in love: Multidimensional human capital and teenage pregnancy in Ghana.” *The Journal of Development Studies* (Forthcoming, 2017); Blunch, N.-H., and C. Pörtner. “Literacy, skills and welfare: Effects of participation in adult literacy programs.” *Economic Development and Cultural Change* 60:1 (2011): 17–66.

### Costs are low, both on the supply and the demand side

Direct (supply-side) costs (e.g. buildings, teachers, materials) are low, as programs mostly use already available facilities and instructors from the formal educational systems (e.g. primary school classrooms and teachers). For example, in the nine ALPs with cost information evaluated in the BELOISYA project, a workshop and evaluation project held in N’djamena, Chad, in March 1999 and organized by the World Bank and the International Literacy Institute [7], costs ranged from as low as US\$12 per participant, US\$35 per completer, and US\$61 per successful graduate (these are instructional expenses only; in current prices at the time of the study, 1999). Similarly, a study examining eight projects in five different countries (Bangladesh, Côte d’Ivoire, Ghana, Indonesia, and Senegal) found a cost per participant ranging between US\$5.46 and US\$57.67 (with a median of US\$12.85), a cost per completer ranging between US\$11.73 and US\$73.65, and a cost per completer achieving a “pass mark” on a formal assessment ranging between US\$11.73 and US\$76.70 [8]. By any measure, and the issue of inflation notwithstanding, these are all very low direct costs.

Moreover, the indirect (demand-side) costs—mainly (productive) time foregone—are also low: taking again the Ghana NFLP as an example, participants meet two to three evenings each week for a total of about six hours per week throughout the program’s 21 months [4], [5]. Thus, participants are able to do other things during the daytime—in particular, they are able to engage in income generation and child-rearing activities. Altogether, the cost-side is very favorable for ALPs, which should help make them even more attractive, as well as affordable, for participants.

Conducting a fuller cost-benefit analysis for the case of the Ghana NFLP revealed substantial returns in monetary terms, even when using quite conservative assumptions (Figure 1) [4], [5]. For the case of child mortality, positive net returns were found in

all but one case [4]. Similarly, the calculated break-even treatment effects indicate that programs could still break even in terms of the simple cost–benefit analysis, even if the “true” impact from the programs was much lower than the arguably quite large effects estimated in that evaluation study. The Ghanaian NFLP thus appears highly cost-effective, overall, when considering the case of child mortality.

In addition, a study of the Nicaraguan Cruzada Nacional de Alfabetización (CNA) found an effect on child mortality from participation in an ALP that was comparable to two years of formal education [9]. Similarly, in Nepal it has been found that a graduate of a nine-month ALP can master the skills of a fifth or sixth grader from the formal education system [6]. These last two examples suggest some degree of cost-effectiveness of ALPs,

Figure 1. Cost–benefit analysis for the National Functional Literacy Program in Ghana for the case of child mortality

Cost	Girls	Boys
Direct cost	30.19	30.19
Opportunity cost: 2 years of 0.25 × average labor earnings	56.83	56.83
Total cost (direct + opportunity cost)	87.02	87.02
<b>Benefits</b>		
<i>(i) Average earnings</i>		
Low impact scenario:	104.87	148.41
Medium impact scenario:	914.63	1294.29
High impact scenario:	1,815.91	2,569.69
<i>(ii) 50% of average earnings</i>		
Low impact scenario:	52.44	74.21
Medium impact scenario:	457.32	647.15
High impact scenario:	907.96	1284.85
<b>Net benefits (benefits – cost)</b>		
<i>(i) Average earnings</i>		
Low impact scenario	17.85	61.39
Medium impact scenario	827.61	1207.27
High impact scenario	1,728.89	2,482.67
<i>(ii) 50% of average earnings</i>		
Low-impact scenario	–34.58	–12.81
Medium-impact scenario	370.3	560.13
Hig-impact scenario	820.94	1197.83
<b>Break-even treatment effect (impact estimate, %)</b>		
Average earnings	–0.137	–0.097
50% of average earnings	–0.185	–0.131

Note: Results are shown in present value, in 1999 US dollars. The low, medium, and high impact scenarios refer to the three different levels of impact estimates from maternal adult literacy program participation on child mortality in Blunch (2013).

Source: Blunch, N.-H. “Staying alive: Adult literacy programs and child mortality in rural Ghana.” *World Development* 42:1 (2013): 114–126 [4].

even relative to the more expensive formal education; though, in practice, ALPs should of course be seen as a complement—and not an alternative—to the formal education system.

### **Other beneficial impacts from ALPs beyond literacy and numeracy**

While the improvement of literacy and numeracy skills has frequently been rather limited, ALPs have shown the ability to produce a multitude of other useful benefits for participants in many cases. These benefits can be classified into three main groups: increased labor market participation and income, improved health, and increased civic awareness and self-confidence—though these are of course strongly interdependent (e.g. having good health is crucial to being active in the labor market).

#### ***Increased labor market participation and incomes***

ALP participants have been found to be more likely to move from economic inactivity and working as an unpaid family worker to becoming self-employed, especially in rural areas [3]. This indicates the usefulness of ALPs in helping to transform developing economies from self-subsistence farming into modern economies, a transformation that developed economies have already achieved. ALPs have also been found to directly improve the earnings capacity of participants in some cases. In Ghana, for example, it was found that in households where nobody had completed any formal education, incomes (proxied by household per capita consumption) in ALP participating households were between 8.5% and 14% higher than in non-participating households [5]. Similarly, in Indonesia it was found that rates of return for ALPs (i.e. the rate of growth of individual income compared to the rate of growth of the cost of training) were similar to those of primary education, with both calculated at about 22% [6]. Even more directly, there is evidence that ALP participation has led to immediate increases in income from being cheated less, for example at the bank or the market [10].

#### ***Increased school participation of children and involvement of parents***

In Nicaragua, female participants of the CNA have been found to be more likely to send their children to school, and to keep them there [9]. ALP participants in Bangladesh also reported sending their children to school more often than non-participants, though it appears unclear whether this was due to learning to read or due to messages about children's schooling transmitted in ALP classes [6]. In turn, this increase in education for participants' children will affect their future labor productivity, and, therefore, the livelihoods of the next generation in the labor market.

#### ***Health***

Several studies report findings of improved health due to ALPs, especially among participants' children. In Nicaragua, for example, women who participated in the CNA in the 1980s tended to have fewer children and to experience lower child mortality [9]. Similarly, Ghanaian mothers who participated in ALPs have been found to experience lower child mortality [4]. Because healthy workers are also more likely to be productive workers, this once again indicates future economic returns to ALPs, both among participants and their children.



### ***Civic awareness, self-confidence, and empowerment***

Further positive associations of ALP participation include civic awareness, self-confidence, and empowerment [6], [10], [11]. As is the case with most of the previous research in this field, causality is an issue though—as will be discussed below. “It is difficult at this stage to establish a clear cause-effect link between literacy courses and social benefits, including self-confidence and empowerment” [6].

### **Limited success and lack of robust evidence on ALPs**

As mentioned previously, ALPs mostly seem to have only limited impacts on literacy and numeracy [4], [5], [6]. This modest performance has been explained, at least in part, by several factors, including low initial enrollments in literacy programs, high dropout rates, frequent low performance, and relapse into illiteracy [6]. Another reason may be that many ALPs are quite short in duration, with the norm being only around nine months [6]—contrasting with one of the few ALPs that seems successful, namely the Ghana NFLP, which has a duration of 21 months [4], [5].

While evaluations of ALPs do exist, the area is riddled with a general paucity of knowledge based on rigorous evaluations. The experiences of the National Literacy Program in Burundi perhaps illustrate this as vividly as any—as stated in a presentation of the program on UNESCO’s website: “A project is under way to evaluate the impact of the program, but this is still awaiting funding from financial backers.” Similarly, programs in several countries in Latin America, in India, and in South Africa are still awaiting evaluation.

Moreover, many of the evaluations that do exist, especially the earlier studies from the 1970s, 1980s, and 1990s, are riddled with potentially serious methodological issues [5]. First, the samples are generally small, having fewer than 100 observations in the control group is not unheard of—a number much larger than this, preferably in the thousands, would be desirable. Second, frequently only simple statistics, such as the fraction of completers who are able to read, write, and/or do written calculations are reported using so-called “tracer-studies,” where only program participants are tracked—a practice followed by the World Bank as recently as 2002 [6]. Here, “best practice” would suggest having comparable treatment and control groups, similar to what is done in the medical literature. Several issues arise here, namely, these studies miss the possibility of other outcomes such as health and income generation and they omit the counterfactual (i.e. the outcome for non-program participants). Finally, and perhaps most importantly, many of the available evaluations do not account for possible endogeneity in program placement and participation decisions.

More recently, an otherwise carefully performed evaluation of the Ghana NFLP was carried out by randomly assigning individuals to the various treatment and control groups [2]. In so doing, the study is potentially affected by non-random program placement, since areas/villages that receive a program may be systematically different than areas/villages that do not receive a program. These systematic differences could substantially impact the estimated (lack of) effectiveness of the program for different individuals, which would not necessarily reflect shortcomings in the program itself. Another concern is the potential for spillover effects between participants and non-participants. A better means of controlling for potential non-random program placement would hence be to randomly



assign treatment and control groups at the village level—that ensures that there are no systematic differences between program and non-program villages, and also ensures that the results are not confounded by the possible spillover effects between participants and non-participants at the individual level.

Finally, there is evidence of hugely differing experiences in ALP impacts across countries, which poses an important challenge of finding out why some programs have worked and others not. For example, the Ghanaian NFLP seems particularly successful, as does a more recent ALP from Niger [1], [4], [5]. By contrast, many other ALPs have not been successful, especially in terms of increasing participants' literacy and numeracy skills (e.g. in Venezuela) [4], [5]. Once again, an important part of the reason for this difference may be that many ALPs are quite short in duration [6].

## LIMITATIONS AND GAPS

Researchers still do not know enough about what works and what does not work in terms of achieving successful ALP effects. Even if some improvements have been seen, the statement made more than a decade ago that “even when statistics are reported, there are usually no research designs to establish cause–effect relationships” [6] unfortunately still holds true today, to a large extent.

A large part of this knowledge gap is due to a lack of relevant data. Often, researchers must rely on already available data from, for example, the World Bank's Living Standards Measurements Surveys, which are prone to potential issues of self-selection and non-random program placement. Recent research has certainly attempted to establish cause–effect relationships through applications of a combination of instrumental variables and community fixed effects, though much more research is called for in the future to try to better understand what works, and why [4], [5].

What is required are (more) randomized controlled trials (RCTs), where the randomization is performed at the village level, rather than the individual level, so as to jointly avoid the issues of non-random program placement, individual self-selection into programs, and potential contamination in terms of spillover effects from participants to non-participants. But this is both expensive and time-consuming, and so “state-of-the-art” evidence along these lines is only recently starting to emerge (as a prime example, see [1]).

Relatedly, it is unclear exactly which parts of the components work and which do not work. For example, in the Ghana NFLP it has been suggested that—given the poor literacy and numeracy performance of the program—the positive impact on household consumption might be due to either the income-generation activities component or to network effects from participating in the program [5]. To truly determine that, however, requires RCTs at the village level, where the program components are randomized as well (e.g. one version would only include the literacy program, one would include the literacy program and a health component, and another the literacy program and an income-generating activities component).

Lessons may also potentially be learned from ALPs conducted in developed countries (though this would require a new, separate study for assessing that body of work). In a similar vein, though perhaps more surprisingly, some of the lessons learned from developing countries in terms of what works and why, may also have implications for

developed countries—especially for the most vulnerable parts of the population, which face many of the same constraints as their counterparts in the developing world.

Lastly, the teaching style itself might matter, but this is also something that requires more examination. It has been suggested, for example, that it is possible—using more modern, research-based methods—to provide reading literacy skills in as little as 100 days [12]. This comes up against issues of funding, however—as well as the fact that the methods used for teaching people to read in many countries are complex and hard for teachers to execute [12].

## SUMMARY AND POLICY ADVICE

ALPs have not proven very effective in promoting their intended outcomes of literacy and numeracy, which is probably one of the main reasons they have been reduced, if not largely abandoned, throughout developing nations. Yet, based on the review of research findings presented here, it is obvious that there have been (and are) many other important outcomes from ALPs that have helped promote human socio-economic development across several dimensions. These include the provision of information (e.g. health knowledge, occupational skills, importance of education, bookkeeping) and the networking of participants among each other, which could also be affecting the other outcomes. Hence, ALPs, in some cases, seem to be a cost-effective way of achieving such impacts. The strengthening of ALPs should therefore remain of interest for policymakers seeking to improve the livelihoods of people in developing nations in a broad sense, not just in terms of improving literacy and numeracy.

Toward this end, there was a noticeable increase in attention given to ALPs in the early 2000s, in particular from the World Bank, as evidenced in the publication of several major papers and reports at that time [6], [7], [8], [10], [11]. However, there is evidence that the focus on/promotion of ALPs (if not adult education more generally) has substantially decreased in the past couple decades [13].

With limited funds available, particularly in the developing world, it is even more important to better understand what works and what does not—and why—among the wide range of experiences in terms of the effectiveness of ALPs. More and better research—based on more and better data—should therefore be made a policy priority.

In the meantime, based on the evidence reviewed here, a few programs stand out, which may be particularly useful for emulation across countries—notably the Ghanaian experience, which was of much longer duration than most other programs. A more recent example of “best practice” involved the use of mobile phones in Niger [1], though the likewise more modern research-based teaching methods discussed in [12], including using well-sized and well-spaced letters, explicitly teaching each letter, practicing patterns, and blending letters into syllables, might also be useful for making future ALPs even more successful.

In summary, ALPs should not be viewed as a magic bullet, and certainly not as an alternative to the formal education system. Rather, they can be seen as a complement to the formal education system, by offering adults who never went to school as children (or, if so, only very briefly) an alternative way of improving their human capital and obtaining more general life skills.

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### **Competing interests**

The IZA World of Labor project is committed to the *IZA Guiding Principles of Research Integrity*. The author declares to have observed these principles.

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