

Learning and literacy: A research agenda for post-2015

Daniel A. Wagner

Abstract Ongoing policy discussions concerning the post-2015 future of the United Nations Millennium Development Goals are providing the basis for renewed efforts to understand and improve learning and literacy in a global perspective. Aiming for a pathway towards better scientific understanding, this paper asks a central question: What research would be necessary over the coming decade to realise the goal of improving learning and literacy in poor communities in low-income countries? The joint topics of learning and literacy development, and the factors which influence outcomes, are complex and intertwined – which is one reason why universal literacy has still not been achieved in spite of major investments over the years. Research will play a crucial part in addressing this challenge, and this paper proposes and reviews ten major areas of learning and literacy research. Designing and responding to an appropriate set of research priorities will be one of the crucial ways of addressing the question of how to improve learning, literacy and educational quality in the post-2015 period.

Keywords learning; literacy; policy; research; post-2015

Résumé Apprentissage et alphabétisation : un programme de recherche pour l'après-2015 – Les débats actuels sur les politiques relatives au devenir après 2015 des Objectifs du Millénaire pour le Développement fixés par les Nations Unies instaurent une base pour des efforts renouvelés en vue de cerner et d'améliorer l'apprentissage et l'alphabétisation dans une perspective mondiale. Cherchant une voie pour une meilleure appréhension scientifique, l'auteur de cet article pose une question centrale : quelle recherche serait nécessaire au cours de la prochaine décennie pour atteindre l'objectif d'améliorer l'apprentissage et l'alphabétisation dans les communautés défavorisées des pays à faibles revenus ? Les thèmes conjoints de l'apprentissage et de l'alphabétisation ainsi que les facteurs qui influencent leurs résultats sont complexes et imbriqués – et l'une des raisons pour lesquelles l'alphabétisation universelle n'est pas encore réalisée en dépit d'importants investissements depuis de nombreuses années. La recherche jouera un rôle décisif pour traiter ce défi, et cet article propose et analyse dix grands domaines scientifiques sur l'apprentissage et l'alphabétisation. La définition et le traitement d'un ensemble adéquat de priorités scientifiques seront l'une des voies déterminantes pour répondre à la question du comment améliorer l'apprentissage, l'alphabétisation et la qualité éducative après 2015.

D. A. Wagner (✉)
University of Pennsylvania Philadelphia, PA
e-mail: wagner@literacy.upenn.edu

Introduction

The World Conference on Education for All in Jomtien (Thailand) was a watershed moment in international education and development. Held in 1990, the conference

embraced two key challenges: first, to significantly increase access to education for children in poor countries; and second, to promote the *quality of learning* in education. A decade later, at the Education for All (EFA) conference in Dakar in 2000, these same two challenges were enlarged in a more detailed list of six education targets.¹ They were reinforced again in the United Nations Millennium Development Goals (MDGs) for 2015, where universal primary education was made the second of eight major goals (UN 2000).² These global efforts led not only to substantive increases in international development assistance to education, but also to greater attention in the broader public arena regarding the importance of children's learning on a global scale.

Consequently, over the past two decades since the Jomtien Conference, major progress in educational development has been made in low-income countries.³ In sub-Saharan Africa, for example, primary school enrolment climbed from under 60 per cent to nearly 80 per cent, putting millions of additional children in school. The impressive accomplishment of getting more children into school – many from poor communities – resulted in a number of unintended consequences. In short order, there appeared a greater need for more infrastructure and supplies (e.g., better-functioning schools, adequate textbooks, etc.) and more trained teachers. With the rapidity of growth in enrolment, it became difficult to support a parallel growth in the number of qualified teachers, to maintain reasonable class sizes, and – most relevant to the present discussion – to ensure that children had access to quality learning experiences.

Even before the Dakar conference in 2000, it was manifestly clear that the quality of education was a serious concern in low-income countries. For example, a World Bank national household survey in rural Bangladesh (Greaney et al. 1999) found that three years of schooling had approximately zero value in terms of learning achievement. In other words, the effort of getting children into school had little or no payoff with respect to educational gains. That was in 1999. Today, after nearly 15 years of substantial investments in education development, new studies are appearing with the same basic

¹ The six goals of the *Dakar Framework for Action*, to be met by 2015, were the following: (1) expansion and improvement of early childhood care; (2) compulsory and free good quality primary education; (3) equitable access for all to appropriate learning programmes; (4) a 50 per cent improvement in levels of adult literacy, especially women; (5) elimination of gender disparities and achievement of gender equality; and (6) improved quality of measurement of learning outcomes (UNESCO 2000, pp. 15–17).

² For a recent policy review of the institutional agency roles in defining and selecting skills as part of EFA, MDGs and the Global Monitoring Reports, see King (2011).

³ For the current 2015 fiscal year, low-income economies are defined as those with a per capita gross national income (GNI) of USD 1,045 or less in 2013, calculated using the World Bank Atlas method. For a list of low-income countries, see the World Bank indicators at http://data.worldbank.org/about/country-and-lending-groups#Low_income [accessed 15 August 2014].

result: in many countries, children cannot read a single word even after attending school for several years (in other words, schooling does not guarantee literacy), while adult literacy rates have changed relatively little in the poor low-income communities. Clearly, the Jomtien goals to promote the quality of learning need increased attention.

Ongoing policy discussions concerning the post-2015 future of the United Nations Millennium Development Goals are providing the basis for renewed efforts on improving learning and literacy, especially among poor and marginalised populations. Yet, it is one thing to set goals and another to know how to achieve them. This is not just a statistical exercise – such as how many children or adults can read (as important as that goal might be). Rather, the questions this article addresses are: *what* does “can read” mean in instrumental and measurable terms, and *how* would one reach such a goal in terms of the knowledge resources required. More broadly, why is so little learning taking place in so many countries, and what are the barriers which seem to prevent better learning? Specifically, this paper asks: *What research would be necessary to realise the goal of improving learning and literacy in in low-income countries?* The investigation of this question begins with a conceptual and critical analysis of current research which links learning and literacy, followed by a proposed agenda for addressing ten key research issues.

Definitions and contexts

Learning is a word that has meant different things to different people over the years. Learning has made its way into the English language in a multitude of ways: institutions of learning, learned individuals, learned helplessness⁴ and experiential learning. Indeed, comprehensive reviews of the many definitions of learning are too numerous to list, especially when taking into account cultural and linguistic variations of the term and its meanings in local situations. Nevertheless, from its 19th-century origins in the social sciences, *learning* is defined most commonly as *a modification of behaviour due to experience* – such as in knowledge, skills, attitudes and values.⁵

⁴ Learned helplessness, a term coined by American psychologist Martin E.P. Seligman in the 1970s, refers to “a mental state in which an organism forced to bear aversive stimuli, or stimuli that are painful or otherwise unpleasant, becomes unable or unwilling to avoid subsequent encounters with those stimuli, even if they are ‘escapable’, presumably because it has learned that it cannot control the situation” (Nolen 2014).

⁵ For a discussion of Johann Friedrich Herbart (1776–1841) and the origins of learning theory, see an historical overview of behaviourism, gestalt and cognitive psychology in de Corte (2010). By contrast, economists tend to view learning as a phenomenon reflected in an individual’s rational choices, which

All learning takes place under a single cranium – it is impossible to fully separate learning *in* school from learning *outside of* school – or structured learning from informal learning. For far too long, the study of learning and learning outcomes has been confined to the school arena, ignoring the many other inputs and interactions taking place. Most of a child’s waking hours are *not* spent in school; and there are many millions of children who are not enrolled or have dropped out of school. Thus, there are real opportunities for utilising this out-of-school time with the types of learning – and the interactions among them – which can support learning and development. And, naturally, this also leads to the idea of supporting non-formal education (NFE) and adult literacy programmes which are often designed to operate outside of the school infrastructure.

Still, if one asks a policy maker *how* to improve learning, the solutions nearly always revolve around the “black box” of school, not learning *outside of* school. This is not surprising, of course, since policy makers typically have control of relatively fixed school budgets (primarily weighted by teacher salaries) which seriously limit their ability to make new investments of any kind. It remains a major challenge, therefore, to work on outside-of-school interventions, even when potential solutions become clear. Only evidence-based research findings which can create a robust knowledge base, and which demonstrate a strong return on investment, will likely be able to break through such institutional barriers. Programmes which can find synergies between formal and non-formal contexts are likely to have substantial payoffs.⁶

Definitions matter a great deal. I would argue that simple contrasts between “rich” and “poor” countries, or “literate” and “illiterate” people – as if we know what this means in stereotypical ways – are no longer useful in today’s world. For example, even the poorest families in low-income countries today increasingly believe in the importance of education and learning. Nor can it be assumed that parents in poor settings are “illiterate”; many have now gone to school for a number of years, even in the poorest communities. Further, language attitudes in low-income countries have begun to change with increased globalisation – international languages, especially English, are now viewed by many students and their parents as a key family asset towards economic advancement.⁷

change in response to a product’s perceived value, increases or decreases in the market price or availability of alternatives.

⁶ Probably the best-known and most researched area of synergy is between early childhood development (ECD) programmes and primary schooling – this approach is now gaining further attention in the post-2015 discussions.

⁷ For example, see Babson (2010), and Chick (2002) on the changes in language attitudes in South Africa. There is also growing evidence in numerous countries on the role of English as a second language even in

Attitudes towards women and opportunities for girls' schooling have also changed, as evidenced by their huge gains in their education in the last decade (UNESCO 2010).

Big cultural changes are taking place in today's world of learning, causing the kind of dichotomous distinctions cited above to become increasingly uncertain and inaccurate. Such temporal changes pose serious challenges to contemporary efforts to engage in comparative and cross-cultural research. What is needed today, and urgently, are better and more up-to-date methodological tools which are able to *disaggregate* both learners and their learning contexts – both between countries and within countries. For example, if mothers in a research study are shown to have variations in their literacy skills, then conclusions based on “maternal literacy” will need to be more nuanced than previous bivariate categorisations (see LeVine et al. 2011). Further, learning assessments used in low-income countries that are based on norms developed, say, in member countries of the Organisation for Economic Co-operation and Development (OECD) may be problematic in a number of ways which will not only bias results but may also be misleading to policy makers (see Wagner 2011a).

Learning varies by context. Learning is a constantly shifting target which reflects a variety of social, political, economic and technological changes affecting individuals as well as institutions which are designed for formal instruction (e.g., schools). The simple fact that students arrive at school with widely varying backgrounds and resources for learning is a serious challenge for teachers as well as learners, and for education systems. These changes may put at risk those children who are most in need of catching up with their better-resourced peers. It is also one of the reasons why NFE programmes are difficult – youth and adults vary even more than do school children, and have widely differing motives for engaging in further education. But change can also bring opportunity, such as increased access to mobile technologies and open educational resources. Overall, societal changes will require new ways of understanding learning and how to best promote appropriate solutions for the future.

Learning, language and literacy

rural areas where its use may be of little value. Naturally, there is much variation in language attitudes, and this is changing with the increased internal and external mobility of speakers of different ethno-linguistic groups.

At its founding in 1946, the United Nations Educational, Scientific and Cultural Organization (UNESCO) put literacy at the top of its education and human rights agenda. While considerable progress has been made over the past fifty years, levels of low literacy and illiteracy remain a significant problem in the 21st century across the world, and in particular in low-income countries (LICs). Over time, numerous rationales have been put forward to justify investments in literacy in children and adults: economics (higher skills lead to economic growth); social development (women's empowerment); political science (growth of democracy, national identity) and education (literate parents foster literate children). Literacy is not only an Education for All (EFA) goal (no. 4), but also a key outcome of learning as defined in the previous section. Further, the science of literacy acquisition can offer mutually reinforcing perspectives for children and adults. For example, adult literacy acquisition has a lot in common with children's literacy acquisition, much as second language acquisition in adults has fundamental similarities to the same processes in children. As such, it is important to think of literacy acquisition as part of *lifespan* learning and development.⁸

The year 2015 is the target by which the fourth EFA goal – an improvement (by 50%) in adult literacy – should be reached. What are the prospects for attaining this goal, or even coming close? To have a realistic policy goal of increasing literacy, we need to have a clearer understanding of it as a socio-cultural phenomenon. Much of the research on literacy in Western-type school settings has been only partially relevant to those interested in the promotion of adult literacy around the world (Wagner 1986). The picture began to change at the turn of the 21st century, as research on global reading and adult literacy began to grow.

European and American research studies have made the case for teaching early reading using the phonics (decoding) approach to acquisition, along with an important dose of reading support by parents and teachers inside and outside of school. This Western approach to reading achievement will have value to researchers in low-income countries, but nevertheless languages and scripts vary in important ways around the

⁸ When some refer to “lifespan” approaches in literacy development, there are often several implications. One of these, and central to the present paper, is that literacy begins early and is built upon from early childhood through adulthood. A second view is that literacy is itself a function of recursive intergenerational learning: that parents, siblings and even the home literacy environment are essential parts of children's literacy learning. This is no doubt true as well, and recent efforts to measure home literacy environments support this view (Dowd et al. 2013). A third view is that literacy may be learned at some stage of development, but may not be retained due to lack of sufficient practice – that is, the problem of “literacy retention” – as I have described elsewhere (Wagner 1998). While the latter two issues are beyond the scope of this article, they remain important concerns of literacy across the lifespan.

world. We can be less sure of our experimental interventions or statistical analyses when contexts vary so dramatically. For example, in non-alphabetic scripts, such as Chinese, a strict decoding approach will be of little value (Taylor 1999). When letters have multiple forms (such as in *Telugu* and *Kannada* in South India), the emphasis on early letter discrimination may be of greater importance (Daswani 2001). Finally, although the use of new technologies in education is expanding rapidly, we have only a few examples of its use for literacy programmes in the developing world (e.g., in India; see Wagner et al. 2010; Wagner et al. 2014).

In the policy arena, it is crucial to understand the pros and cons of language of instruction (LOI) in schools as a key determinant of literacy achievement. Often the decision on national or official language(s) is based on such factors as major or dominant linguistic groups, colonial or postcolonial history, and the importance of a given language to the interests of economic development. Official languages are typically those most commonly used in primary and secondary school, although there may be differences between languages used in beginning schooling and those used later on. One result of the continuing policy debate on LOI is that reading proficiency in any language remains incredibly low in many low-income countries (Gove and Cvelich 2010). Figure 1 shows reading levels at end of second grade or later, while other research (e.g. Greaney et al. 1999) shows very low reading skills even at the end of primary schooling.

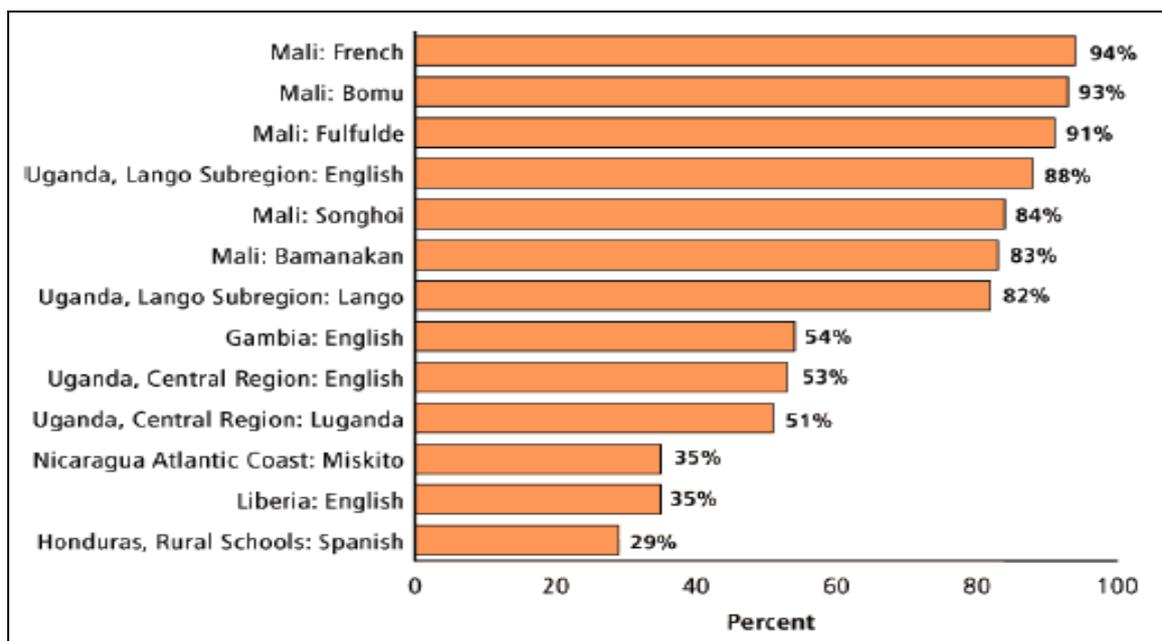


Figure 1 Percentage of children who cannot read a single word after two years of school, 2008–2009 (adapted from Gove and Cvelich 2010. p. 10).

Furthermore, there may be important differences between language policies in primary schooling and those in non-formal and adult education. For example, in Senegal, French is used exclusively in primary school, but local Senegalese languages are used in adult literacy programmes nationwide. The use of mother-tongue instruction in primary and adult education remains a topic of continuing debate (Alidou et al. 2006; Wagner 1992). Of course, one of the key barriers is the degree to which youth drop out of school, as shown by the youth survival rates in Figure 2. Research on adult literacy also shows the limited impact of formal schooling on adult literacy (Figure 3), where even primary school completion does not guarantee literacy for substantial portions of the population.

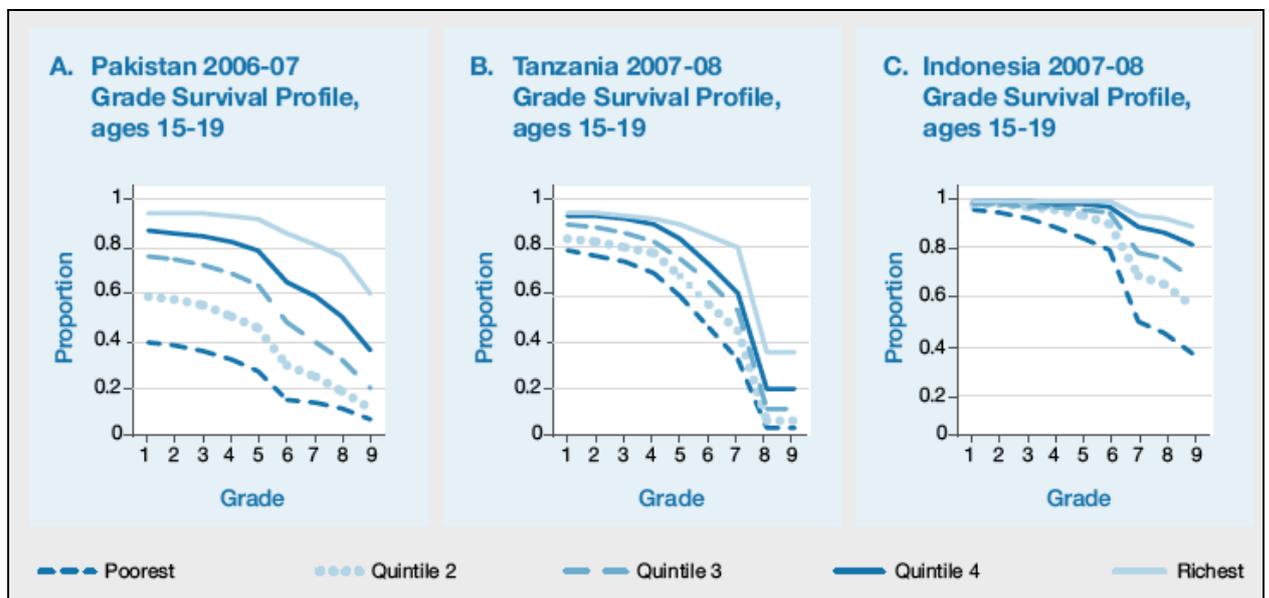


Figure 2 Comparison of youth aged 15–19 years who have completed a given Grade, by Income Quintile, various Years (adapted from World Bank 2011, p. 18).

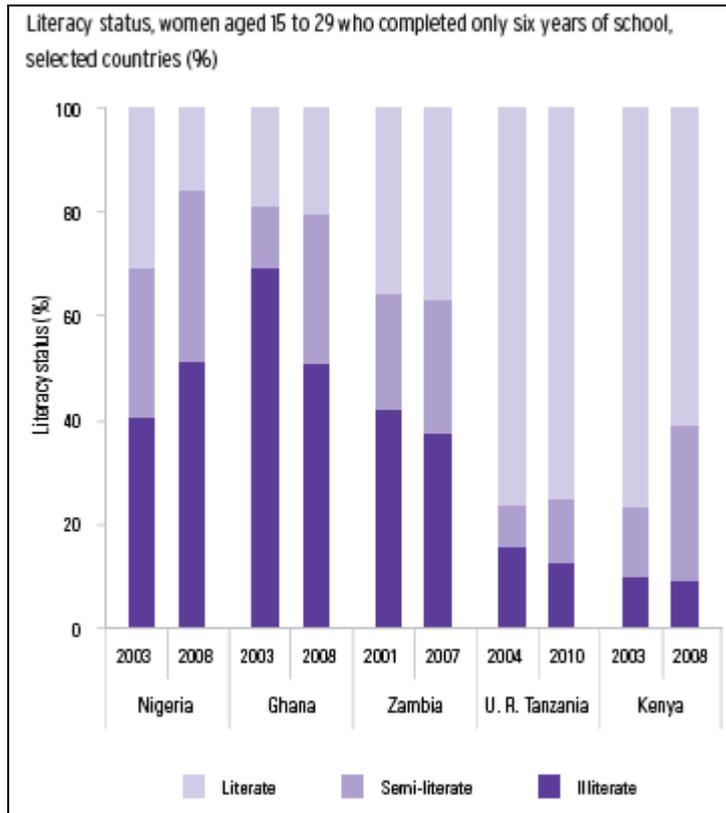


Figure 3 Literacy skills in selected sub-Saharan African countries, adapted from EFA Global Monitoring Report team analysis (UNESCO 2012, p. 97) based on demographic and health survey data.

National and international agencies have shown greater interest in literacy since the introduction of the EFA goals, especially with respect to children's literacy. Yet, even taking population growth into account, only modest progress can be claimed in reducing illiteracy rates, particularly among adults, in many low-income countries. This observation is not really surprising, because the problems of literacy development are embedded in the social, cultural and linguistic fabric of each society. With population migration continuing, along with globalisation of other parts of our societies, a highly variegated world of ethno-linguistic complexity seems to be our global destiny.

As a consequence, policy decisions about learning, language and literacy will become ever more relevant and more complicated, even as our knowledge base about learning and literacy continues to increase. Societies today are changing rapidly, along with a global economy which requires ever more skills and more learning in a competitive marketplace. To understand, predict and cope with these transformations, we need research which can help prepare the way for societies to cope with changing demands on human skill and human development.

Moving towards a research agenda

The importance of rigorous, empirical evidence for innovations in social programming has been well established in recent decades (Boruch and Rui 2008; Castillo and Wagner 2014). It is not by accident that the most innovative and competitive firms in the private sector spend a large share (up to 10%) of their annual revenue on research and development, much larger than most ministries of education.⁹ Research not only provides new paths to innovation, but can also reduce wasted investments in time and resources on methods which no longer work. To take just one relevant example: for decades international agencies have been collecting information on national “literacy rates”. These data have been used for a variety of policy purposes, ranging from the need for more adult literacy programmes to initiatives designed to address children’s reading achievement. Solid research has now demonstrated that in many countries such data on literacy rates are only rough estimates which have often been misleading policy analysis (Wagner 2011b).¹⁰

To prescribe a research agenda on any topic is hazardous – in part because the state of play in research changes constantly, but also due to the diverse interests of multiple stakeholders, including the research community itself. Nevertheless, I believe that it is not only possible, but indeed necessary to set priorities for future research into learning and literacy, particularly with regard to reaching current and post-2015 international educational goals.

Below I list ten research priorities which, taken together, constitute an essential research agenda for improving learning and literacy. These priorities should be seen as opportunities to fill gaps in the current knowledge base in order to reach those in need as well as to attain international educational goals.¹¹

1. *Enhancing readiness for schooling.* Learning outcomes are more likely to fall below desired levels among children whose home environments are not well equipped to promote optimal language development, socio-emotional support, early literacy and numeracy, and motivation to attend and learn in school. Research would employ interventions capable of determining factors which would prepare young children for successful transition from home to school and assess education trajectories across time. Interventions might include: improving parental (adult)

⁹ See Jaruzelski and Dehoff (2010). A much smaller share is spent by national ministries of education in low-income countries.

¹⁰ See also the work of UNESCO’s Literacy Assessment and Monitoring Programme (LAMP), which has been trying to improve data collection on literacy rates (UIS 2009).

¹¹ These research priorities have been adapted from the Brookings *Global Compact on Learning* Research Task Force (see Wagner et al 2012; Brookings 2011).

literacy, parenting education, provision of literacy/mathematics learning materials with guided participation, and varieties of early childhood development (ECD) programmes.¹²

2. *Language of instruction.* Young children from poor households and marginalised communities are often in classes where they have minimal mastery of the language of instruction (LOI) in the classroom. With increased internal and external migration in and between low-income countries, there are increasing numbers of schools where multiple mother tongues are spoken in a single classroom, and where the teacher has limited competence in one or more of these languages. Research is needed to examine the costs, benefits, practical feasibility, and long-term learning and literacy outcomes of language education approaches in different multilingual contexts. One important ongoing constraint in comparing bilingual education models is that instruction in either mother tongue (L1) or in the second language (L2) may be provided with quite varying degrees of teacher and curricular competence; and research comparisons must be studied under conditions of scale, something which is rarely done.¹³ LOIs are also critical for programmes designed to improve literacy in youth and adults, where language choice can have a direct impact on downstream employment opportunities.
3. *Instructional practices for reading and mathematics.* A new generation of assessments has shown that children's reading and mathematics levels in low-income countries are in fact much lower than previously thought.¹⁴ One of the limitations of such assessments is that they do not necessarily give solid guidance for improved pedagogy. Thus, research is needed on how teachers instruct children in reading and mathematics, and how much time is required for skills acquisition.¹⁵ Such research should also focus on the role that teacher quality plays in producing improved outcomes. While much has been done in recent years to expand the science related to children's literacy, much more needs to be understood with respect to low-literate and illiterate youth and adults (Wagner 2011a).
4. *ICTs and learning.* Many claims are being made about the impact of Information and Communication Technologies (ICTs) on learning, but so far, relatively few have received adequate research attention. This dearth of research and evaluation is of particular concern due to the significant amount of attention and investments this area is currently receiving. To address this issue, our team has recently developed an *effectiveness framework* for the evaluation of diverse design solutions, including

¹² Recent work has emphasised the importance of more timely (faster) data gathering so that early childhood development (ECD) programmes can be optimised quickly enough to make a difference while children are still in ECD programmes (Wagner 2011a). This is not to the exclusion of other types of research, such as longitudinal studies, which are also important in the longer run.

¹³ Research has begun to appear based on Early Grade Reading Assessment (EGRA) and EGRA-related tools for assessing and supporting L1 and L2 reading acquisition in various countries, including Vietnam, Bangladesh, Thailand and India (see Pinnock 2011). Of course, not all language issues concern LOI; in some countries (especially in the OECD) multi-lingualism is a direct policy goal, which necessarily involves other factors in language and literacy learning.

¹⁴ See the work on the Early Grade Reading (and Mathematics) Assessments (EGRA and EGMA) (Gove and Wetterberg 2011) and smaller quicker cheaper (SQC) approaches to assessments (Wagner 2011b), as well as the work of Pratham (an Indian NGO) and Uwezo (a Kenyan NGO), both of which have developed their own localised reading and maths assessments.

¹⁵ Some recent evidence suggests that reading instruction is quite limited in poor schools in Kenya (Piper and Mugenda (2012).

the types of platforms (mobiles, smartphones, PCs, tablets) and modalities (stand-alone and interactive [internet-based]) (Wagner et al. 2014). Further studies are needed to consider learning content software in multilingual settings which is appropriate (including language-appropriate) for poor children, youth and adults (Wagner 2005, 2014; Wagner et al. (2010).

5. *Non-formal “bridge” programmes for youth literacy.* In spite of substantial progress in improving primary school enrolment, there is a major risk of dropout – particularly among girls – towards the end of primary schooling. This problem of educational “wastage” is particularly severe in the poorest parts of low-income countries, and among ethno-linguistic minority groups. Research is needed to better understand how some countries have developed “bridge” programmes which help school dropouts (or “stopouts”) to return to school, and how learning can be accelerated so that basic skills acquisition enables the child or youth to catch up with their peers.¹⁶ With the advent of quicker assessment methods (such as EGRA), research is required to better understand how remediation can return more children to school. In addition to remediation, parallel research could use similar assessment methods to better identify children at risk of dropping out (essentially “risk-reduction programmes”), which are prevalent in OECD countries but much less so in low-income countries. Low-cost assessments designed for low-income countries now make detection and prevention much more possible (Wagner 2011a).
6. *Learning consequences of technical and vocational education and training (TVET).* TVET is designed to offer job-focused skills in specific contexts. In high-income countries, TVET typically assumes that basic literacy and numeracy skills have been adequately acquired. In low-income countries, such an assumption is problematic, and in many cases unlikely to be met. Research is needed on how TVET supports workplace skills in low-income countries. In particular, evidence is needed on: basic skills competencies of TVET students; the impact of low basic skills on subsequent TVET learning; how TVET curricula and pedagogy support (or fail to support) later higher-order skills; and on the relative importance of general work readiness skills as compared to particular technical skills (Muskin 1997).
7. *Accountability at the community level.* Over the past decade, accountability in education increasingly refers to how communities can hold national and local officials more responsible for the delivery of learning to children. Examples from Pratham (a well-known NGO in India), and Uwezo (a prominent NGO in Africa) have shown how evidence gathered at the local level can put significant pressure on the educational policies of governments (Bhattacharjea et al. 2011). Local stakeholders are increasingly interested in children’s learning and school outcomes, and so may offer powerful leverage when empirically credible and transparent research enters into public and social media. One important and oft-ignored research dimension investigates the best ways both for mobilisation and scaling up, once consensus is achieved.
8. *Cross-sectoral collaborations for learning.* Learning is most often thought of as an education sector activity. However, as noted earlier, learning takes place in all of life’s domains, and is certainly not bound by school walls. One clear implication is

¹⁶ One example is India’s “bridge” programme in Andhra Pradesh state; see Wagner et al. (2010).

that many youth who have left their formal education may be involved in both structured and informal learning in other sectors, such as health and agriculture. These two large and significant sectors require trained and knowledgeable workers, yet relatively little research has been undertaken on how learning (say, literacy and numeracy) affects productivity in the two sectors.¹⁷ Conversely, even less is known about how these occupations (perhaps undertaken as youth apprenticeships) impact on learning. The intersection of these and other sectors offers a substantive and important terrain for further exploration.

9. *Transparency of learning evidence.* There are many consumers of information about learning (especially school-based learning). For example, most parents are interested in knowing, for their own children, the most likely outcomes of school attendance. What will the child learn, in which language, and with what results (certificate and/or promotion to which next school)? What types of evidence are available to these parents? How could parental views change with the input of further evidence?¹⁸ Further research in this important area might include the production of “consumer reports” for schools that are specifically designed to answer the kinds of questions which parents (and children and communities) might have about the value of schooling. Impact studies will need to be undertaken to understand the consequences of such interventions.
10. *International goals which support local learning and literacy needs.* In a diverse world, with multiple types of stakeholders (ranging from local NGOs to the United Nations) it is not easy to agree on any set of international goals, including on learning outcomes. Even with the likely advent of new post-2015 learning goals,¹⁹ research will be needed to understand whether goals (and indicators) will advance learning and literacy in local settings, as contrasted with benchmarks which depend on international large-scale assessments (Wagner 2011a). Research is needed to provide operational definitions for any new learning goals, to link them to assessment measures which can be utilised over time, and which will support learning inside and outside of school – for children, youth and adults.

Conclusions

Learning is not only *what* we do every day in our everyday lives, it is also *central* to what we do as productive human beings personally and at work. Improving learning, then, is among the most important activities in which people, policy makers and governments should invest. And literacy may be thought of as the most central cognitive skill which is both promoted by governments and societies, as well as needed by people of all ages.

¹⁷ For one early and interesting study on the impact of literacy on productivity in agriculture, see Jamison and Mook (1984).

¹⁸ See Banerjee and Duflo (2011, p. 88) on a study in several countries that showed how parental beliefs of the expected incomes of their children’s schooling affected their attitudes about keeping their children in school. In countries like the U.S., the publication of school (and even classroom) outcomes is becoming more commonplace, especially with the rise of ‘choice’ and ‘charters’ in American education.

¹⁹ See, for example, the work of the Learning Metrics Task Force (2013).

In the present review, research priorities ranged from studying better instructional practices for literacy, and the use of new technologies, to impacts on TVET and cross-sectoral research collaborations. The broad imperative to improve learning and literacy continues to be one of the great challenges of the 21st century, as it was in the previous one. Substantial investments in education will undoubtedly be made over the coming years. But will they be used effectively to help the most disadvantaged communities as well as across all age-groups (i.e., children, youth and adults)? Designing and responding to an appropriate set of research priorities will be one of the most important ways to address the future of learning, literacy and education.

References

- Alidou, H., Boly, A., Brock-Utne, B., Diallo, Y. S., Heugh, K. & Wolff, H. E. (2006). *Optimising learning and education in Africa: The language factor*. Paris: ADEA, GTZ, Commonwealth Secretariat.
- Babson, A. N. (2010). *The place of English in expanding repertoires of linguistic code, identification and aspiration among recent high school graduates in Limpopo Province, South Africa*. PhD dissertation, University of Michigan, Ann Arbor.
- Banerjee, A. V. & Duflo, E. (2011). *Poor economics: A radical rethinking of the way to fight poverty*. New York: Public Affairs.
- Bhattacharjea, S., Wadhwa, W. & Banerji, R. (2011). *Inside primary schools: A study of teaching and learning in rural India*. New Delhi: ASER/Pratham Mumbai Education Initiative. Available online at http://img.asercentre.org/docs/Publications/Inside_Primary_School/Report/tl_study_print_ready_version_oct_7_2011.pdf.
- Boruch, R. & Rui, J. (2008). From randomized controlled trials to evidence grading schemes: current state of evidence-based practice in social sciences. *Journal of Evidence-Based Medicine*, 1, 41–49.
- Brookings (2011). *A global compact on learning: Taking action on education in developing countries*. Washington, D.C.: Brookings.
- Castillo, N. M & Wagner, D. A. (2014). Gold standard? The use of randomized controlled trials for international educational policy. *Comparative Education Review*, 58(1), 166–173.
- Chick, J. K. (2002). Constructing a multi-cultural national identity: South African classrooms as sites of struggle between competing discourses. *Journal of Multilingual and Multicultural Development* 23(6), 462–78.
- Daswani, C. J. (2001). (Ed.). (2001). *Language education in multilingual India*. New Delhi: UNESCO.
- de Corte, E. (2010). Historical developments in the understanding of learning. In H. Dumont, D. Istance and F. Benavides (eds), *The Nature of learning: Using research to inspire practice*. Paris: OECD.
- Dowd, A. J., Friedlander, E., Guajardo, J., Mann, N. & Pisani (2013). *Literacy boost: Cross country analysis results*. Washington, D.C.: Save the Children.
- Gove, A. & Cvelich, P. (2010). *Early reading: Igniting education for all*. A report by the Early Grade Learning Community of Practice. Washington, DC.: RTI.

- Gove, A. & Wetterberg, A. (2011). *The early grade reading assessment: Applications and interventions to improve basic literacy*. Research Triangle Park, NC: RTI International.
- Greaney, V., Khandker, S. R. & Alam, M. 1999. *Bangladesh: Assessing basic learning skills*. Washington, D.C./Dhaka: World Bank.
- Jamison, D. T. & Moock, P. R. (1984). Farmer education and farm efficiency in Nepal: The role of schooling, extension services, and cognitive skills. *World Development* 12(1), 67–86.
- Jaruzelski, B. & Dehoff, K. (2010). How the top innovators keep winning. *strategy+business* 61. Booz&co reprint 10408. Accessed 16 September 2012 from http://www.strategyand.pwc.com/media/file/sb61_10408-R.pdf .
- King, K. (2011). Skills and education for all from Jomtien (1990) to the GMR of 2012: A policy history. *International Journal of Training Research*, 9, 16–34.
- Learning Metrics Task Force (2013). *Toward Universal Learning: What Every Child Should Learn*. Washington/Montreal: Brookings/UIS.
- LeVine, R. A., Levine, S., Schnell-Anzola, B., Rowe, M. L. & Dexter, E. (eds). (2011). *Literacy and mothering: How women's schooling changes the lives of the world's children*. New York: Oxford.
- Muskin, J. A. (1997). Becoming an independent entrepreneur in the informal sector of northern Côte d'Ivoire: What role can primary schooling play?" *International Journal of Educational Development*, 17(3), 265–83.
- Nolen, J. L. (2014). Learned helplessness. In *Encyclopaedia Britannica online academic edition*. Accessed 14 August 2014 from <http://www.britannica.com/EBchecked/topic/1380861/learned-helplessness>.
- Pinnock, H. (2011). Reflecting language diversity in children's schooling: moving from "Why multilingual education" to "How?" Washington, D.C.: RTI. Available online at www.rti.org/brochures/eddata_ii_mother_tongue_instruction.pdf
- Piper, B. & A. Mugenda. 2012. *The Primary Math and Reading (PRIMR) Initiative baseline report*. Washington, D. C.: RTI.
- Taylor, I. (1999). Literacy in China, Korea and Japan. In D. A. Wagner, R. L. Venezky and B. V. Street (eds), *Literacy: An international handbook* (pp. 423–429). Boulder, CO: Westview Press.
- UIS (UNESCO Institute for Statistics) (2009). *The next generation of literacy statistics: Implementing the Literacy Assessment and Monitoring Programme (LAMP)*. Technical Report 1. Montreal: UIS.
- UN (United Nations) (2000). *United Nations millennium declaration*. Resolution adopted by the General Assembly. United Nations A/RES/55/2. New York: UN. Accessed 27 August 2014 from <http://www.un.org/millennium/declaration/ares552e.htm>.
- UNESCO (United Nations Educational Scientific and Cultural Organization) (2000). *The Dakar framework for action. Education for all: Meeting our collective commitments*. Paris: UNESCO.
- UNESCO (United Nations Educational Scientific and Cultural Organization) (2010). *Reaching the marginalized. Education for All Global Monitoring Report 2010*. Paris: UNESCO.
- UNESCO (United Nations Educational Scientific and Cultural Organization) (2012). *Youth and skills: Putting education to work. Education for All Global Monitoring Report 2012*. Paris: UNESCO.
- Wagner, D. A. (1986). Child development research and the Third World: A future of mutual interest? *American Psychologist*, 41(3), 298–301.
- Wagner, D. A. (1992). *Literacy: Developing the future*. Unesco Yearbook of Education,

- 1992, Vol. 43. Paris: UNESCO. [Also available in French].
- Wagner, D. A. (1998). Literacy retention: Comparisons across age, time and culture. In H. Wellman & Scott G. Paris, (eds), *Global prospects for education: Development, culture and schooling* (pp. 229–251). Washington, D.C.: American Psychological Association.
- Wagner, D. A. (ed.). (2005). *Monitoring and evaluation of ICT in education projects: A handbook for developing countries*. Washington, D.C.: World Bank/InfoDev.
- Wagner, D. A. (2011a). *Smaller, quicker, cheaper: Improving learning assessments in developing countries*. Paris/Washington: UNESCO-IIEP & EFA Fast Track Initiative (Global Partnership for Education). Available online at <http://unesdoc.unesco.org/images/0021/002136/213663e.pdf>.
- Wagner, D. A. (2011b). What happened to literacy? Historical and conceptual perspectives on literacy in UNESCO. *International Journal of Educational Development*, 31, 319–323.
- Wagner, D. A. (2014). *Mobiles for reading: A landscape research review*. Technical Report. Washington, DC: USAID. Available online at http://www.meducationalliance.org/sites/default/files/usaidthe_wagner_report_finalforweb_14jun25_1.pdf.
- Wagner, D.A., Daswani, C.J. & Karnati, R. (2010). Technology and mother-tongue literacy in Southern India: Impact studies among young children and out-of-school youth. *Information Technology and International Development*, 6(4), 23–43.
- Wagner, D. A., Murphy, K. M. & de Korne, H. (2012). *Learning first: A research agenda for improving learning in low-income countries*. Center for Universal Education Working Paper. Washington, D.C.: Brookings Institution. Available online at <http://www.brookings.edu/~media/research/files/papers/2012/12/learning%20first%20wagner%20murphy%20de%20korne/12%20learning%20first%20wagner%20murphy%20de%20korne.pdf>.
- Wagner, D. A., Nathan M. Castillo, N. M., Katie M. Murphy, K. M., Molly Crofton, M. & Zahra, F. T. (2014). Mobiles for literacy in developing countries: An effectiveness framework. *Prospects*, March 2014, 44(1), 119–132.
- World Bank (2011). *Learning for all: Investing in people's knowledge and skills to promote development*. Washington, D. C.: World Bank.

The author

Dan Wagner is the UNESCO Chair in Learning and Literacy, and Professor of Education at the University of Pennsylvania. He is Director of the International Literacy Institute (<http://www.literacy.org>), co-founded by UNESCO and the University of Pennsylvania, and Director of Penn's International Educational Development Program (IEDP; <http://www.gse.upenn.edu/iedp>) in graduate study. Dr Wagner has extensive experience in national and international educational issues, and has served as an advisor to UNESCO, UNICEF, the World Bank, USAID, DFID and others on international development issues. He is a fellow of the American Psychological Association, the American Anthropological Association, and the American Educational Research Association.