Evidence for Action: Translating Field Research into a Large Scale Assessment

Erik Jon Byker
University of North Carolina at Charlotte, USA

Aditi Banerjee
ASER Centre, New Delhi, India

For more than a decade, hundreds of thousands of India's young adults have volunteered to collect data for an annual household education related survey. The survey is called the Annual Status of Education Report or ASER, for short. The ASER survey is a unique methodology of citizen-led assessments. The purpose of this article is to describe and report about how the ASER methodology is implemented. This article examines a case study of ASER volunteers (n=37) who are prepared to carry out the ASER methodology. This article also analyzes how the ASER methodology supports a conceptual framework about equipping everyday citizens, like the volunteers in the case study, to better understand and use data-driven evidence to take action to improve the education and schooling in their communities.

Introduction

Since 2005, several *lakh* (hundred thousand) of India's young adults have volunteered to collect data for an annual household education related survey. Similar to a door-to-door census, the volunteers walk from village to village across India and collect data on Indian children's ability to read and complete basic math figure (ASER, 2014; Byker, 2014a). These young volunteers are part of an initiative today known as "citizen-led basic learning assessments" that was created by Pratham, which is one of the largest non-governmental organizations (NGO) in South Asia. Pratham's mission is to improve the learning levels of India's elementary school children. Pratham also believes that assessment is a critical factor on the road to improvement. In 2005, the Pratham assessment survey was named the Annual Status of Education Report or ASER for short (ASER, 2014). The ASER survey is now supervised and implemented by the ASER Centre, which is an autonomous institution started by Pratham that focuses on measurement and assessment. ASER is a unique initiative; in fact, it is the "largest household survey of children conducted in India by citizens' groups, which is annually carried out by more than 25,000 volunteers and covering over 700,000 children in 15,000 villages" (Vagh, 2009, p. 2). The purpose of this article is to examine the ASER methodology for data collection. The ASER methodology converts a form of participatory action research (PAR) into a large-scale data assessment (French & Kingdon, 2010; Hickey & Mohan, 2004). This article describes and analyzes how the citizens of India carry out the ASER methodology.

The ASER methodology is rather innovative in that it connects everyday citizens with their localities through their large-scale educational assessment. The methodology fits the larger theme of this issue of *Current Issues in Comparative Education* as the ASER

 Current Issues in Comparative Education 18(1), 42-53.

methodology is an innovative method used in comparative and international education. ASER is innovative in terms of both scale and time as it supports the systematic assessment of almost one million children in India, all within a four month time period. We organize the rest of this article into four sections. First, we will outline the implementation of the ASER data collection. Second, we will map out the ASER methodology on to the larger ASER conceptual framework of assessment driven by evidence-based action. Third, we will describe and examine a case study of ASER volunteers being trained to implement the methodology in the field. Lastly, we will analyze the affordances and challenges of the methodology as well as discuss the practical applications of the methodology within the larger field of comparative and international education.

The Process of ASER Data Collection

The process of collecting data for the ASER survey is highly participatory and comprehensive. The ASER volunteers conduct their surveys over an intense two-day time period in almost all of India's rural districts. The volunteers use a surveying tool that is divided in to three sections: (1) the village information sheet; (2) the village school information sheet; and (3) the household survey sheet. The main goal of the ASER survey is to generate a statistical database regarding the basic learning levels among India's elementary aged children in rural areas. The ASER comprehensive survey also measures the enrollment status of the children. The statistical data are then disaggregated by district and state levels. Since the ASER survey has been conducted over a 10 year time period, data can also be analyzed for patterns and changes over time (ASER Centre, 2014). ASER is the most inclusive national data report in India about elementary children's learning levels (ASER, 2014; Kingdon & French, 2010; Byker, 2014a, 2015a).

The entire ASER data collection process takes a little over four months and it is a rapid process. Shaher Vagh (2009) explains that the "the availability of results in the same school year is a tremendous feat for such a large survey, which enhances its potential as a tool to inform educational practice and policy" (p. 1). In the rest of this section, we will outline the ASER data collection methodology. We will also discuss the recruitment of volunteers, explain the volunteers' two-day survey schedule using the ASER survey tool, and explain how the data are scrutinized for quality control purpose as well as how the survey data are converted into a large scale assessment report.

Recruitment

The ASER data collection first starts with finding volunteers to collect the survey data. In each of India's rural districts, volunteers are recruited from partner organizations like local colleges and universities, NGOs, and District Institutions of Education and Training (DIET), which is an institution for preparing teacher candidates to teach in India's government-run public schools. ASER first trains a group of Master Trainers (MTs) to conduct the survey. The MTs become the team leaders for each rural district and are tasked with recruiting additional volunteers to carry out the survey. To help with the survey data collection, each MT recruits a volunteer team of between 50 to 60 recruits.

Survey Implementation

As mentioned earlier, the ASER survey is implemented over a two day time period usually over the weekends. The first day of data collection is usually on a Saturday, which is still a school day in most regions of India. The second day of data collection is on Sunday, which is typically a day off in most regions of India. ASER divides the volunteers into pairs and then assigns each pair to a village to conduct the survey. On the first day of data collection, the volunteer pair meets the *Sarpanch* or village leader. The purpose of this meeting is to get the village leader's permission to conduct the survey, as well as to gather information about the village. The volunteers then visit the village's government-run primary and secondary schools. If the village has more than one government-run public school, the volunteers decide to visit the school that has the largest enrollment.

Upon entering the school ground, the volunteer pair first meets with the school's principal or headmaster. During this meeting, the pair shares the purposes of the ASER survey and obtains permission to collect the school's data. The school data that they collect includes the following: students' attendance, teacher attendance, school infrastructure (including if there are working toilets for both the girls and boys), and the type of computer technology equipment available at the school. After the school visit, the volunteers finish Day 1 of their data collection by walking around the village and mapping its geography. On the map that they sketch, they draw in the roads that go through the village, as well as the landmarks (health centers, temples, etc.). The volunteers mark the center of the village, which is often distinguished by a temple or place of worship, and then divide the village into four quadrants. The purpose of this mapping is to divide the village into different sections in order to ensure that households are selected from different parts of the village during the household survey on the subsequent day. Also, the mapping provides a way for ASER to recheck the data collection when conducting an audit of the village data.

On Day 2 of this data collection, the volunteers conduct the household survey in each of the four quadrants. Five households are selected from each quadrant and are surveyed for a total of 20 households per village. The volunteers follow a systematic process to survey these households. The volunteers start in the center of each quadrant and move to the left, stopping at every fifth household in that quadrant. This system is called the "fifth household rule" (ASER Centre, 2014, p. 4). The fifth household rule's purpose is to provide structure to the data collection so that there is a broad sampling of households in the village's four quadrants. The fifth household rule ensures that all volunteer teams are using the same sampling method in their data collection.

The volunteers use the household survey sheets in the ASER survey tool packet to record the data about basic household information. This information includes the following recording items such as: the material the home is built from, the parents' highest education levels, the reading materials available in the house, and if there is electricity in the home. The volunteers then record the information about the ages and quantity of children living in the home. The volunteers finish the survey with an

assessment of the children's basic reading, math, and English skills. The objective of these assessments is to identify what the children in the household "can do comfortably in terms of their basic reading in the first language, mathematics, and communication in English" (ASER Centre, 2014, p. 12). Over the course of the two days, the volunteers record all the data in the ASER survey tool.

Reporting Data

ASER then compiles all the collected data from the volunteers' surveys into a large database, which is randomly rechecked for quality control. An example of a quality control measure includes calling the people listed in the household survey forms to double check that the volunteers did indeed survey their homes. Also, the ASER staff and MTs will randomly select villages to reassess and make sure the collected data are trustworthy and reliable. After a rigorous quality control check, the data are compiled into state and national level reports. These reports are organized with descriptive statistics, and are illustrated with charts and graphs to make the data easier to decipher. The entire ASER process takes about four months, and the report is issued in mid-January each year so that state governments have time to implement interventions and policies to address the findings.

Conceptual Framework: Evidence-Based Action

The scope of the ASER methodology is elegant in that it is an ingenious way to conduct a household based educational assessment, but the scale of the assessment is robust. At the ground level where researchers are in the field collecting data, the methodology is straightforward in how it empowers everyday citizens to engage with their communities by participating in the assessment and measurement of the children in the community. Thus, the ASER methodology is "balanced on the shoulders of citizen volunteers spread across the huge geographic area of India . . . to engage more people, communities, and parents" about the importance of measuring the education levels of Indian children (Banerjee & Mutum, 2014, p. 24). Furthermore, the ASER methodology is grounded in a conceptual framework, which grounds assessment as a conduit for evidence-based action.

Evidence-based action is part of ASER's organizational vision statement. This vision focuses on equipping citizens with the tools for assessment, and on trusting that the knowledge generated by assessments will be a catalyst for change that leads to more citizen-oriented engagement within the community. The ASER Survey Framework explains evidence-based action so that, "when ordinary people are empowered with knowledge, they can bring about extraordinary change" (Banerjee & Mutum, 2014, p. 6). Evidence-based action hinges on a paradox about measurement, which is the need for rigorous measures that is accessible and easy to act upon. The ASER methodology insists on guiding citizens to measure what affects the ecological systems in which they are situated (Bronfenbrenner, 1979). Such measurement incubates a sense of agency and a data-driven lexicon for citizens to communicate and take action steps for improving their communities.

Evidence-based action is also part of ASER's mission statement. The ASER mission statement is written to include the following Theory of Change: "Measure to understand, understand to communicate and communicate to change" (Banerjee & Mutum, 2014, p. 6). The ASER methodology aims to sustain a culture where measurement helps inform the action. It is culture that is based in data-driven realities rather than just assumptions. The ASER methodology helps to inform possible policies and outcomes that can improve education processes, especially in India's rural areas. Finally, the ASER methodology's emphasis on measurement is a way to further support capacity building among citizens and institutional partners. In turn, the citizens and institutional partners have a strategic role in carrying out the measurement as well as communicating the findings from their survey and assessment work.

Keeping the ASER vision and mission statement in mind, the ASER methodology is guided by the organization's commitment to their vision of evidence-based action. This vision of evidence-based action provides a lens for the work that the volunteers do. To understand how this happens, we will now turn to a case study of how volunteers go about enacting the ASER methodology in the field. The case study investigates a group of MTs who are being prepared to carry out the ASER survey in the State of Punjab. Not only are the MTs being trained to conduct the ASER survey, but they are also tasked with the responsibility of recruiting and helping to train an additional 50 volunteers who will assist them in carrying out ASER survey throughout Punjab's many districts. In this case study, we investigate the MTs' preparation and their perceptions of the ASER methodology. Our study examines two primary research questions framed around the premises of evidence-based action:

> *1) How are the Master Trainers trained and prepared to use the ASER survey tool, which is part of the ASER methodology?*
> *2) What are the Master Trainers' perceptions about volunteering to conduct survey research using the ASER methodology?*

Methodology

To investigate the two aforementioned research questions, we utilize a case study research design (Yin, 2008). Robert Yin (2008) asserts that the case study method is a research design for empirical inquiry that allows researchers to investigate complex phenomena in the authentic contexts. Case study research design also allows for multiple data sources in order to examine the sample population under study.

The Sample

The case study's sample was made up of 37 participants (n=37). The participants were all trained by ASER to become MTs in the State of Punjab. The gender breakdown among the participants was 9 (24%) females and 28 (76%) males. All the participants were between the ages of 19 and 23. Most of the participants were enrolled at a college or university in the State of Punjab and were working toward a Bachelor's degree. However, 6 (16%) of participants already held a Master's degree. Among the participants, 30 (81%) participants indicated that Engineering was their major degree program.

Data Collection

The case study data were primarily collected during the two-day training of the MTs. One benefit of using case study research design is that it allows for the inclusion of mixed-methods data collection (Creswell, 2014; Yin, 2008). Thus, we used qualitative and quantitative methods for collecting the data for this case study. There was one source that we classified as quantitative data, which was a questionnaire the participants completed about their training. The questionnaire had basic demographic related questions that could be examined using descriptive statistics. The questionnaire also included questions about the participants' perceptions about being involved with the ASER survey. Aside from the quantitative data source, there were two qualitative data sources: field notes from the participant observation and focus group interviews. The field note observations were recorded using time stamp notations and the note-taking was guided by an observation protocol. The protocol included collecting field observations and notes about the following aspects of the MT training: (1) the training pedagogies; (2) the training schedule; and (3) the discussion about how to conduct the ASER survey. The focus group interviews were conducted with a semi-structured interview approach. The focus group interview question protocol incorporated questions about the participants' word associations with their MTs' training as well as their perceptions about the ASER methodology.

Data Analysis

The quantitative data analysis was primarily at a descriptive level. These descriptive statistics provided "snapshots" about the participants' demographics and their perceptions about volunteering for ASER. The quantitative data offer basic descriptive statistics and are not meant to infer causality or to imply universal findings. We analyzed the qualitative data by following Miles and Huberman's (1994) interpretive approach for qualitative data analysis. Additionally, we used the constant-comparative method to compare patterns across the data sources (Glaser & Strauss, 1967). Data reduction happened through re-reading the data and coding the data into categories. Frequencies in the coded data were identified and analyzed to identify patterns in the data. Conclusions were drawn from the patterns to address the study's research questions.

Findings

We organized the report of the case study's findings according to the research questions. As described earlier, the first research question inquired about how the MT participants are being prepared to use the ASER survey tool and the ASER methodology. The second question investigated the perceptions of the participants about volunteering to conduct survey research using the ASER methodology.

Procedures

The ASER training procedures illustrates the rigorous preparation that the MT participants receive. As reviewed above, the two-day training is tightly scheduled and lasts for almost 20 cumulative hours. Each training day starts in the morning and goes

until the early evening. The first day begins with introductions and then the volunteers all commit to the ASER Volunteer Pledge, which states:

> "I, as a citizen of India, have decided to volunteer for the Annual Status of Education Report. This effort aims to engage citizens and the government in the process of ensuring quality education for the children of this country. For the past 10 years, volunteers like me have traveled to the farthest districts and reached the remotest villages. We have gone from Kashmir to Kerala and from Gujarat to Arunachal, to conduct this survey and collect information with utmost sincerity. Today, along with 30,000 volunteers across India, I am going to be a part of the largest citizen-led survey of India. I pledge to carry forward the honest work and vision of those who have come before me and become an example for those who will follow me in the years to come.
> I understand the importance of recording only correct information in the survey sheets and pledge to do so with complete honesty. Under no circumstances will I avoid my responsibilities during the course of the survey. I pledge to uphold the integrity of the important role this movement has entrusted in me and play my part in building a better India." (ASER Centre, 2014, p. 27)

After reciting the pledge in unison, all the participants sign their name under the pledge, which is located in their training manual. The pledge is a ceremonial part of the training where the participants show their commitment to the ASER mission and methodology. After the pledge recital, the training shifts to an overview and description of how to conduct the entire ASER survey. Then the participants then take a quiz, which contains over 25 questions about the procedures to follow when conducting the survey. After all the MT volunteers complete the quiz, they review and discuss the correct quiz answers. After a lunch break, the MT volunteers are then divided into small groups. The groups load up on a bus to go out in the field to small villages surrounding the training site, and conduct a pilot run of the entire survey training session. On the pilot run the ASER accompany the MTs in the village. Together, they meet with a village elder, draw a village map, complete the school survey, and conduct the household survey of at least five homes in the village.

On the second day of the training, the MT volunteers share the data that they recorded during the pilot study visit. They confer and recheck their data in small groups for accuracy. After making sure their ASER survey tools are filled out correctly, they reflect in small groups on their experience in the field. The benefit of reflection is that it allows the MT volunteers to discuss what they learned from pilot run and to address any challenges they faced in the field so that they are better prepared to deal with these situations when they are in charge of training the volunteers in their region. Then the MT volunteers are divided into new groups as an additional way to build camaraderie and learn from other volunteer's experiences. Each group prepares a presentation on how they will train the additional volunteers that they are expected to recruit. The presentation has several benefits. One benefit is that it gives the MTs practice how they

will present the ASER training information to the volunteers they recruit. Another benefit is that the MTs evaluate each other on their presentation and give feedback on presentation styles, maintaining confidence, and on the thoroughness of the content presented. A final benefit is that it also allows the MTs to share ideas they have recruiting the additional volunteers.

Perceptions

To understand the perceptions and motivations of the MT volunteers, they were asked to respond to the following question on the survey: "Why did you decide to volunteer for ASER?" Almost 70% of the participants included the word "service" in their response. Indeed, the most common response about service to this question was: "I want to serve my nation." A little over 18% of the participants shared a response about gaining knowledge about the education of India's children. For example, one participant wrote the following, "ASER is the way to know more about the education levels of our community. By being part of this, we can take a little step to improve the education level of our nation." Finally, there was a mix of other responses to this question about their decision to volunteer, which included: "to gain more experience," "to gain leadership opportunities," and "to explore something new, to do our little for the better future of children."

Discussion

In Hindi, the word ASER means "impact." The ASER methodology certainly seems to make an impact on the volunteers, like the MT volunteers in our case study, who are helping to conduct the ASER survey. In this section, we analyze and discuss the ASER impact in greater detail. We start by examining the affordances and challenges of the ASER methodology. Then, we discuss the practical applications of the ASER methodology in the larger field of Comparative and International Education (CIE). We conclude this paper by making recommendations about the future of the ASER methodology in CIE.

Affordances

The ASER methodology is an unpretentious yet rigorous method of data collection in order to spur on evidence for action. The ASER methodology reinforces the linkage between evidence and action by building a strong capacity of volunteers (for example: the MT volunteers in our case study), and partner institutions to conduct and understand the ASER assessment data. The most vital affordance of the ASER methodology is how it has managed to create a culture of citizen-led assessment. Indeed, the ASER methodology is a reflection of democratic citizenship in action. The methodology facilitates a way for citizens to be active in their community through volunteering, engaging, and participating in an assessment of their community in order to improve the standards. Another affordance of the ASER methodology is how the measurement contextualizes data to localities. For policies and interventions to be effective, they need to be flexible enough to be contextualized to local settings (Byker, 2015a; 2015b). The ASER methodology sheds light on the important role that schooling plays in shaping a village.

It may take a village to raise a child, but it takes a school to raise a village. The ASER methodology supports this notion as it engages its volunteer citizens in participatory field research that multiplies together into a large-scale data assessment. The participatory nature of the ASER methodology is fundamental to capacity building as more and more citizens become committed to being part of finding out where their village stands in terms of the overall ASER assessment. The notion about the participatory nature of ASER is reflected in the response of one of our case-study participants who said, "I heard about ASER from my friends, so I wanted to get the same type of experience and knowledge of my country." Finally, the impact of ASER methodology leads to a powerful competency: altruism. Among the volunteers, there is a great sense of altruism, which is the care and selfless concern for others. It is beyond the scope of this case study to correlate whether the people who volunteer for ASER are naturally altruistic, or whether they gain altruistic behaviors because of the ASER methodology. We were nonetheless impressed with the altruistic attitudes that this group of participants possessed when it came to serving their nation.

Challenges

The ASER methodology has much strength, but there are also challenges to this methodology. One challenge is that the ASER methodology is resource intensive. It requires a great deal of human capital in the form of training hours and the actual implementation of the survey. Another constraint is the funding involved within this methodology such as costs involved with the material production of the ASER survey tool. Hundreds of thousands of ASER survey booklets and training materials are produced each year. There are also costs associated with training as well as the quality control of the data that come into account. Finally, time is also a constraint and challenge. The entire ASER assessment, from field research to published report, is completed in just about four months. The rapid timeframe ensures that the report is in the hands of India's leaders and policymakers in as close to "real-time" as possible. Yet, the aggressive time schedule means that the ASER Centre staff work tirelessly to get each annual report published according to schedule.

Applications to CIE

The ASER methodology has direct applications to the field of comparative and international education. In fact, the ASER methodology of citizen-led assessments has been replicated now in several countries around the globe. Pakistan, Kenya, Uganda, Tanzania, Mali, Senegal, and Nigeria have all adopted the ASER methodology in conducting large-scale assessments on the education levels of their children. It is important to note that the ASER methodology was adopted and re-contextualized in these different countries, which means in many countries the survey tool was renamed according to the language and culture of the region where it was adopted. For example, in Nigeria the ASER methodology is called *uwezo*, which means "capability;" whereas in Mali, the ASER methodology was renamed to *beekungo*, which means "we are in it together;" and in Senegal, ASER is called *jangandoo*, which means "learn together." In 2013 alone, these citizen-led, large-scale assessments covered over one million children in South Asia and Sub-Saharan Africa (Banerjee & Mutum, 2014).

Conclusion

There is much future promise to the ASER methodology as a pathway to community engagement in schooling and education through the mobilization of a citizenry. Scholars have pointed to the importance of contextualizing educational improvements into the practices of localized school settings (Byker, 2014b; Iyengar, Witenstein, & Byker, 2014; Kumar, 2004). The efforts of citizens who volunteer for ASER are one way that the larger field of CIE better understands the learning levels of India's children, as well as the availability or scarcity of resources in rural Indian schools. Rukmini Banerji (2015), the director of Pratham, explains that "Citizens- led assessments have a very strong potential to lead to citizen-led action for improving learning" (para. 12). Indeed, the whole point of citizen-led assessments is for it to lead to positive action on behalf children and schools.

Related to the future work of CIE, the ASER methodology provides a powerful model of a democratic form of citizenship engagement in communities and schools. As the findings from our case study show, it is a model that seems to be linked to an increase in awareness and service to a community and nation. More research is needed about a possible correlation with the ASER methodology and an increase in altruistic attitudes. Even so, the ASER methodology has caught on in India, and has spread around the globe. Today there are programs that are getting started, like the *Lakhon Mein Ek* campaign, which is working to improve the status of children's learning in more than 100,000 villages in India. The program is a direct outcome of the ASER methodology, and the objective is to mobilize citizens to and have them gain responsibility for education related action in their villages. We expect that similar programs will multiply in the future as more and more countries and citizens decide to make an impact for the betterment of the children in their communities.

Acknowledgements: Thank you to Dr. Suman Bhattacharjea, Nandita Banerjee, Nimisha Kapoor and the ASER Centre India for their support in the preparation of this article.

***Contact**: Erik Jon Byker at ebyker@uncc.edu and Aditi Banerjee at aditiaser.10@gmail.com*

References

Annual Status of Education Report (ASER). (2013). New Delhi: Pratham Resource Center.

Annual Status of Education Report (ASER). (2014). New Delhi: Pratham Resource Center.

ASER Centre (2014). Instruction booklet. New Delhi: Pratham Resource Center.

Azim Premji Foundation. (2004). *The social context of elementary education in Rural India report.* Retrieved from: http://www.azimpremjifoundation.org/

Banerjee, A. & Mutum, A. (2014) The ASER assessment and survey framework. New Delhi: Pratham Resource Center.

Banerji, R. (2015). Building a movement - assessment to action. *Research on Improving Systems of Education*. Retrieved from: https://www.rise.ox.ac.uk/content/building-movement-assessment-action

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Byker, E. J. (2014a). ICT in India's elementary schools: The vision and realities. *International Education Journal, 13*(2), 27-40.

Byker, E. J. (2014b). ICT oriented toward nyaya: Community computing in India's slums. *International Journal of Education and Development using ICT, 10*(2), 19-28.

Byker, E. J. (2015a). The one laptop schools: Equipping rural elementary schools in South India through public private partnerships. *Global Education Review, 2*(4), 126-143.

Byker, E. J. (2015b). Teaching for 'global telephony': A case study of a community school for India's 21st century. *Policy Futures in Education, 13*(2), 234-246

Chudgar, A. (2009). Does adult literacy have a role to play in addressing the universal elementary education challenge in India? *Comparative Education Review, 53*(3), 403 – 433.

Creswell, J.W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches,* 4th ed. Thousand Oaks, CA: Sage Press.

French, R., & Kingdon, G. (2010). The relative effectiveness of private and government schools in Rural India: Evidence from ASER data. *London: Institute of Education*.

Hickey, S. & Mohan, G. (2004). Towards participation as transformation: Critical themes and challenges. In S. Hickey & G. Mohan (Eds.), *Participation: From tyranny to transformation? Exploring new approaches to participation in development,* pp. 3-24. New York, NY: Zed Books.

Iyengar, R., Witenstein, M. A., & Byker, E. J. (2014). Comparative perspectives on teacher education in South Asia. In A. W. Wiseman & E. Anderson (ed.) *Annual Review of Comparative and International Education 2014* (pp. 99-106). doi: 10.1108/S1479-3679_2014_0000025010

Kumar, K. (2004). Perspectives on learning in elementary schools. Plenary address. National Conference on Leadership in India's Elementary Schools. Retrieved

from
http://www.azimpremjifoundation.org/downloads/Plenary%20Address.pdf

Vagh, S. B. (2009). Validating the ASER testing tools: Comparisons with reading fluency and the Read India measures. New Delhi: Pratham Resource Center.