

Multiple Alternative Indicators for Gauging School Effectiveness in Sub-Saharan Africa

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Abstract: Since the 1980s, school effectiveness research (SER) has been conducted with an aim of improving the educational quality in Sub-Saharan Africa. The majority of studies to date have focused on academic achievement measured at a single point in time as an output indicator of effectiveness. However, school effectiveness can be assessed through other measures of academic achievement. The present study suggests four related indicators: rate of grade repetition, dropouts, transfers, and achievement growth. These indicators are used because they have been found to correlate to low completion rate in primary education in Sub-Saharan Africa. This study explores application of these alternative indicators toward helping improve quality of education in this region.

Key words: school effectiveness research, indicators, primary completion rate, Sub-Saharan Africa

1. Introduction

School effectiveness research (SER) examines educational production functions. This approach is considered “which inputs lead to more output, also considering the cost of the inputs” (Scheerens, 1990, 65) through regression-based input-output models. SER was born from opposition to assertions such as the report “*Equality of educational opportunity*” (often called the Coleman Report after its author James Samuel Coleman) in the United States in 1966, which implied that individual schools have no effect on students’ development (Teddle & Reynolds, 2000). In the 1970s, the SER approach became increasingly applied in other developed, as well as developing, countries. SER’s aim is to uncover factors that contribute to effectively raising levels of student achievement.

Because SER has been widely conducted in diverse countries, its output indicators have developed in a number of ways. For instance, in developed countries some studies simultaneously used achievement growth, non-cognitive skills, holding power, transfers and dropouts as output indicators (Ainley, 1994; Rumberger & Palardy, 2005). Yet in developing countries SER indicators have not evolved.

Sub-Saharan Africa presents an apparent need to consider using multiple indicators. The present study suggests alternative output indicators in SER: grade repetition, dropouts, and achievement growth. In some cases, transfers might be also considered as an output indicator. Multiple indicators were used in SER because of low school completion rate (UNESCO, 2021), which was due to high rates of repetition, dropouts and transfers, and low achievement. Further, it appears these indicators were interrelated. Some schools might also measure high in one but low in another.

The present study describes the current situation in Sub-Saharan Africa and proposes the need

to use multiple indicators in SER to solve evident issues and promote school effectiveness in the region.

The next section presents an overview of SER indicators. The need for using multiple indicators in SER in Sub-Saharan Africa is then addressed, and the final section presents conclusions.

2. Overview of SER Indicators

School effectiveness is most often assessed via student test scores as they provide a direct measure of student academic achievement, which is viewed as one of the most significant outputs of schooling. Yet, as SER has come to be widely employed in different countries, there has been little development of output indicators. There are, however, a few exceptions. One of the most significant developments has been the use of achievement growth—the change in individual achievement over time (Mortimore et al., 1988; Teddlie et al., 1989). Coleman et al. (1966) used student achievement measured by tests at a single point in time, but achievement growth was considered as value added by teachers and schools, so it was found to be more valid to evaluate school effectiveness (Hill et al., 1996).

A second development was to use non-cognitive outcomes, such as students' behavior and attitudes toward school activities (Mortimore et al., 1988; Landeghem et al. 2002). Although academic achievement is the most significant indicator, output of education is not the only achievement measured by tests; development of non-cognitive skills is also examined (Mortimore et al., 1998).

Another development was simultaneous use of other indicators, such as school holding power, transfer rate and dropout rate (Ainley, 1994; Rumberger & Palardy, 2005). Research found it insufficient to use only achievement or achievement growth because schools ranked highly in either are likely to have lower school holding power, and high rate of transfers and dropouts.

In Australia, from data on approximately 3,000 grade-9 students in 22 non-selective high schools in 1987 and follow-up research in 1990, Ainley (1994) conducted SER using three indicators: achievement growth, attitudes toward school, and school holding power. Achievement growth was the extent to which student achievement changed from grades 9 to 12. Attitudes toward school were based on the Australian Council for Educational Research School Life Questionnaire and the Learning Process Questionnaire. School holding power was the extent to which schools are able to prevent students from withdrawing before reaching grade 12. The results showed moderately positive association between achievement growth and attitudes toward school, while there were no relationships between achievement growth and school holding power. It revealed that schools with high achievement growth did not have always high holding power. Some schools had high achievement growth but low holding power, while other schools had the opposite.

In the US, using the National Education Longitudinal Survey (NELS) from 1988, 1990 and 1992, Rumberger and Palardy (2005) investigated the relationships among several different indicators of high school performance: (1) achievement growth over four years of high school, (2) proportion of 10th-grade students who dropped out between grades 10 and 12, (3) proportion of 10th-grade students who transferred over the same period, and (4) total proportion of 10th-grade students who left school before 12th-grade (sum of dropouts and transfer rates). In the results, these measures were generally unrelated. Schools effective in achievement growth did not effectively reduce dropout and transfer rates. School effectiveness in terms of dropout rates was slightly and positively correlated with school effectiveness in relation to transfer rates. This suggested schools that effectively reduced dropout rates were also effective in reducing transfer rates, but not effective in achievement growth. Therefore, the study revealed that a singular focus may disregard other important outcomes of schooling. Moreover, improving test score performance tended to negatively impact other areas.

The above studies suggested that achievement growth alone was insufficient for measuring which schools are effective, because schools effective in achievement growth because those who had low

achievement dropped out of school or transferred to another school. Thus, high achievement growth has been maintained in schools. However, such dropout and transfer cannot be neglected. SER needs to invoke wider-perspective indicators to properly view the range of value-bearing schooling traits. Along with achievement growth, dropout and transfer rates should be used as indicators of school effectiveness.

3. Need for Using Multiple Indicators in SER in Sub-Saharan Africa

As mentioned above, because Ainley (1994) in Australia, and Rumberger and Palardy (2005) in the US suggested the need to use multiple indicators such as achievement growth, dropouts and transfers, the same seems to be needed for SER in Sub-Saharan Africa. The Southern and East African Consortium for Monitoring Educational Quality (SACMEQ) and Programme d'Analyse Systés Éducatifs des Pays de la Confemen (PASEC) have analyzed potential factors influencing student achievement that are measured at a single point in time, as well as grade repetition. Some studies considered grade repetition (Liddell & Rae, 2001; Ikeda, 2005; André, 2008), dropouts (Lloyd et al., 2000; Wils, 2004; Chernichovsky, 1985; Mike et al., 2008), transfers (Glewwe & Jacoby, 1994; Tasaka, 2014), and achievement growth (Booth, 2003), and found factors related them. However, none have used those indicators simultaneously. Using multiple indicators is important because one measurement might be inconsistent with other important ones. For example, schools were effective in achievement growth, but they were ineffective in reducing dropout and transfer (Ainley, 1994; Rumberger & Palardy, 2005).

The present study suggests use of alternative output indicators in SER—grade repetition, dropouts, and achievement growth—in Sub-Saharan Africa (see Figure 1). Additionally, in some cases transfers might need to be considered. It is important that research uses those indicators simultaneously and identifies how they are interrelated. While many indicators should be considered

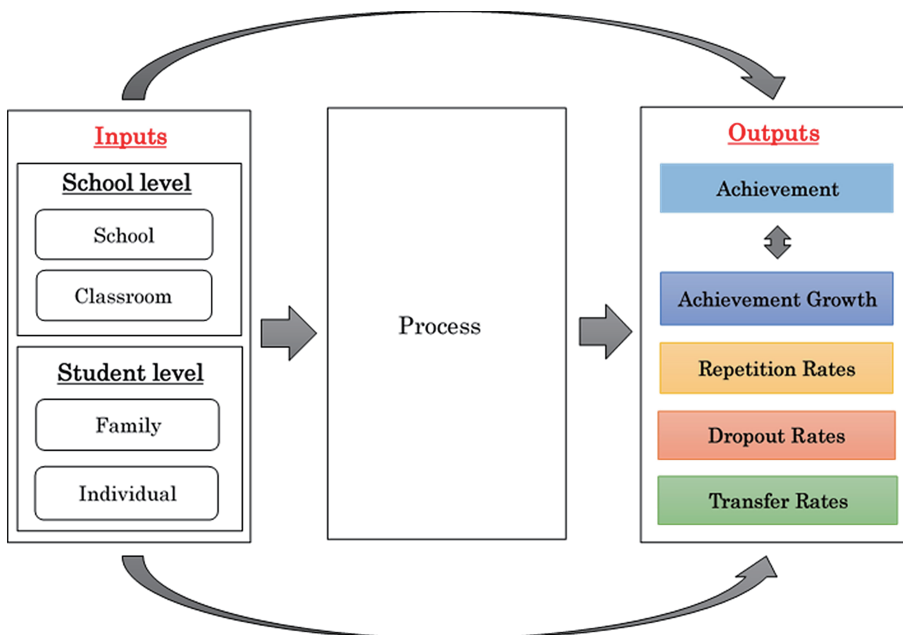


Figure 1. Alternative output indicators in SER

Source: Developed by the author based on Scheerens (1990)

for the measurements of SER, those are essential to properly assess the impact of schooling on achievement. There are mainly three reasons: (1) High repetition, dropout, and transfer rates, (2) Low achievement and (3) A view of the national examinations.

3.1 High Repetition, Dropout, and Transfer Rates

Grade repetition, dropout, and transfer rates are high in Sub-Saharan Africa. Grade repetition is widespread, with rates ranging from 21.2% in Swaziland to 60.3% in Malawi (Hungu, 2010). The *EFA Global Monitoring Report 2013/14* notes that in Sub-Saharan Africa the proportion of students starting school who reached the final grade was only 56% in 2010 (UNESCO, 2014). High transfer rates were found in Kenya (Tasaka, 2014), Uganda (Taniguchi, 2013) and Malawi (Taniguchi, 2014). In Kenya, approximately 20% of grade 12 students had transferred from another school. In Uganda, 67.8% and 55.5% respectively in grade 3 and 6 students had transferred between schools at least once. Of them, 39.0% and 34.7% had transferred more than twice. In Malawi, 15.6% and 18.6% of the grade 5 and 7 students had transferred during a year. Importantly, these three events might be interrelated. Grade repetition and transfers might increase the risk of dropouts, and grade repetition might increase the risk of transfers.

Grade repetition is often considered a remedy for low academic achievement based on the assumption that automatic promotion will disadvantage low-achieving students (Hungu, 2010). However, the effect of grade repetition on academic achievement was mixed. Many researchers reported negative achievement effects when students who had repeated were promoted to the next grade, while a few studies reported a positive effect over the short term but the effects decreased over time and disappeared in a later grade (Jimerson, 1999).

Dropping out is one of the most detrimental unexpected events with regard to completion of education. Once students drop out of schools, in almost all cases they never return. Therefore, a fair amount of research has been conducted to identify the causes of dropping out.

Transfers are the result of a number of causes. In general, the cause of transfer is change of residence. However, a few studies found different reasons in Sub-Saharan Africa. In Uganda, teachers explained that student mobility occurred because of attempts to avoid paying fees and grade repetition, and to seek a higher quality of education (Taniguchi, 2013). From data on 11 secondary schools in Kenya, Tasaka (2014) found the cost of fees to be one reason for transfer. It was also found in Zambia that when schools improved their students' passing rates for national examinations, fewer students transferred away (Shibuya et al., 2012). There is in fact less evidence, however, that high transfer rates might indicate certain issues, such as cost of fees and grade repetition. These issues seem to be related to school policy and practice. Thus, transfer still may need to be considered as an indicator in SER.

Importantly, SER in Sub-Saharan Africa needs to use grade repetition, dropouts, and transfers simultaneously as output indicators because there might be a vicious relationship among them. Grade repetition was found to increase the risk of dropping out (Grissom & Shepard, 1989). In some cases, it also influenced transfers. Students who repeat grades several times might consider changing to higher-level schools because they or their parents might consider that the present schools are lower quality of teachers or school facilities. On the other hand, they might consider changing to lower-level schools because they intend to avoid repeating grades. Such transfers might increase the risk of dropouts (Rumberger & Larson, 1998).

Moreover, schools with high student achievement do not always measure highly in other outcomes. In some cases, in high-achieving schools, repetition, transfer and dropout rates are high compared with those in low-achieving schools, while conversely, they can be lower in low-achieving schools than in high-achieving schools. In Australia, Ainley (1994) found there was no relationship between achievement growth and holding power. Also, in the US, Rumberger and Palardy (2005)

revealed that effective schools might not solve the issue of grade repetition, transfers, and dropouts. In high-achieving schools, teachers focused on improving achievement so that low-achieving students are likely to repeat grades, transfer to another school or drop out.

3.2 Low Student Achievement

There is a need to consider how student achievement can be improved in Sub-Saharan African countries. Low achievement is a significant issue, and to improve it student achievement growth needs to be identified.

In developed countries, several studies used achievement growth as an output indicator in SER. In particular, mostly since the 1990s, research has focused on investigating the effects of teacher and school on achievement growth, accounting for individual factors, such as student demographic conditions and family background. This is called value-added modeling. This approach is useful for evaluating how much teachers or schools improve student achievement in a particular period.

Yet there is almost no system for evaluating how much teachers and schools improve levels of student achievement. In some cases, teachers tend to consider that laziness causes low achievement. They consider that students, for instance, did not study hard, were often absent from school, or did not pay attention to their teachers. However, the cause of low achievement is not only an issue concerning individual factors. Rather, teachers and schools should improve their achievement. Therefore, achievement growth is significant to measure in order to evaluate teachers and schools.

Low achievement might negatively affect other events. In most of cases, grade repetition causes low achievement. It is linked with dropouts and it might be related to transfer. If student achievement is improved, grade repetition would be reduced. It meant that dropout or unavoidable transfer might be reduced.

3.3 A View of National Examinations

Governments, teachers, communities and parents in Sub-Saharan Africa tend to consider the most important output of schooling to be passing the national examinations. This is generally because passing examinations is key to advancing to the next level of education or finding a job. Assessment of academic achievement at a certain level of education is important in society. However, if taken to excess it could negatively impact educational quality. In order to pass the national examination, low-achieving students often repeat grades. However, as mentioned above, grade repetition is not always effective at raising achievement. Instead, it might cause dropouts or transfers.

National governments also often consider their public examination system as equating to a national assessment system, even though it is mainly used to promote students between educational levels (UNESCO, 2014). They often rank schools based on national examination results. Schools thus focus on raising the pass rates of these examinations. As a result, some schools might push low-achieving students to repeat grades, transfer to another school or drop out.

4. Conclusion

To date, most SER in Sub-Saharan Africa has focused on student achievement measured at a single point in time. Achievement is generally considered the most important factor in schooling, but schools tend to focus only on student achievement and not adequately consider other measurements such as grade repetition, dropouts, and transfers. Therefore, as the studies of Ainley (1994) and Rumberger and Palardy (2005) revealed, there is a need to consider other indicators in SER in Sub-Saharan Africa.

The present study considered issues facing Sub-Saharan Africa and explored alternative

indicators in SER. It proposes grade repetition, dropouts, transfers, and achievement growth as alternative output indicators, and it is important that these are all measured simultaneously. Studies have analyzed factors influencing them separately, yet they might be interrelated; there might be a vicious cycle or trajectory among them. Low achievement causes grade repetition, so there is need to measure academic achievement several times and identify how it can be improved. Grade repetition is likely to be linked with dropouts. Repeating grades several times might raise the rate of transfer to schools. Unavoidable transfer tends to increase dropouts, and dropouts are the worst possible outcome in schooling. In almost all cases in which students drop out of school they never return.

Schools at which one measurement is high will not always rank highly in other categories. High-achieving schools might have high repetition, transfer and dropout rates, while low-achieving schools might be low in these areas. These are extreme cases, but it seems important to consider multiple indicators in efforts to raise completion rates in primary education in Sub-Saharan Africa.

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