



A Model for Evaluation of Rural Schools in Developing Countries

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Abstract

Rural schools in developing countries present a unique opportunity to understand the factors required to create a successful learning environment for students with a specific set of challenges. This paper proposes a developmental model for evaluating rural schools, constructed with data derived from evaluation and research projects carried out in Yucatan, Mexico. In short, the model assumes that rural schools should provide a comprehensive set of services and support for a socially vulnerable population. Thus, this is a developmental model of evaluation that considers the school as a holistic unit, including the quality and length of educational services, the social supports, the school infrastructure, and the availability of comprehensive services before evaluating learning and curriculum. Sustainability, a key element in the model, is examined through school infrastructure, constancy and overall provision of services, and the degree of students' readiness to learn and opportunities offered. The model can place a school along a specific point along a continuum of a developmental process, providing clear directions and specific goals for school leaders to use to grow and advance the rural school toward a fully comprehensive center of learning and social change.

Keywords

Rural schools, evaluation model, developing countries

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Introduction

In 2015, a research team with funds from the Mexican federal government carried out a study of four rural schools in the Mayan zone of the Yucatan to evaluate the impact of the emerging program, “Escuelas Tiempo Completo”, or “full time schools project.” This federal school improvement program was designed to provide support to Mexican children in socially vulnerable conditions by extending educational activities from three to six hours a day, and to provide additional support in areas of health, nutrition, special education, Spanish language, math, technology, Mayan language and culture, and art (Sanchez Escobedo, 2016). Results and lessons learned from this study provide the basis for the construction of a new conceptual framework to understand how rural schools develop from providing the most basic services to students to a comprehensive, full-service community center with full supports for the special needs of rural school children in developing countries.

Historically, the evaluation of school effectiveness has oscillated between models that underline instructional issues and those that assess social and contextual issues involved in the student readiness to learn. From the first perspective, Carroll (1963) presented a model where the degree of student mastery is a function of the ratio of the amount of time spent on learning tasks to other non-instructional activities. In the Carroll model, the quality of instruction can then be improved by focusing on immediate factors such as aptitude, opportunity, perseverance, quality of instruction and the ability to understand instruction. In this way, the Carroll model provides a way to understand and evaluate schools as a function of the time spent teaching and the quality of instruction.

The second perspective is best illustrated by the seminal work on equality of opportunity undertaken by Coleman (1966) and Jencks (1972). These two studies from different disciplinary backgrounds arrived at similar conclusions, arguing that learning was largely dependent upon the physical and psychological readiness of the student. This readiness was determined by the degree of nutrition, health, security, and other essential supports within the family and community.

However, there are few models of evaluation that combine both views. In the case of rural schools specifically, there have been relatively few attempts to develop models of evaluation for rural schools that are both theoretically sound and that have pragmatic value. Furthermore, some models of education are based upon subjective and pedagogically-based constructs, making them difficult to assess. For example, the 2017 Mexican educational model presented by Aurelio Nuño Mayer, Secretary of Public Education, argues that the final outcomes of education are liberty, creativity, reasoning, and not memory. These outcomes are not only unobservable, but also do not take into account school context.

The model presented here derives from results and data from an ethnographic research project in rural schools in conditions of social vulnerability in Yucatan, Mexico. In short, the model posits empirical dimensions and measurable indicators to place a given rural school in a specific developmental stage along a continuum, prescribing actions and strategies for growth and advancement.

To better understand the rural school context, we first provide a review of the literature on the evaluation of rural schools.



Literature Review on the Evaluation of Rural Schools

Despite many of the similarities with Mexican rural schools, American models and strategies of evaluation of rural schools in the United States cannot be used to assess rural schools in developing countries. For example, as in Mexico, children in rural schools in the United States face poverty and food insecurity at a greater rate than the national average (Demi, Coleman-Jensen, & Snyder, 2010; Olsen, 2017). However, despite the poverty of students, Nelson (2010) argues that small, rural American schools have several advantages such; sufficient resources, well-paid teachers, meals, and other health supports to children. Furthermore, smaller class sizes create a much more personalized environment for building relationships among students and staff. This also means that every student may have a greater opportunity to participate in a variety of learning and extracurricular activities. In fact, it has been argued that many rural schools in the United States actually provide a better educational outcome for students than urban schools (Olsen, 2017).

On the other hand, poverty in rural schools in Mexico has had a tremendous influence on the students' readiness to learn, and public educational policies do not necessarily respond to many needs of rural schools. Although only a quarter of the Mexican population lives in rural areas, two-thirds of the population live in extreme poverty reside in this area (Tyler, 2006). Furthermore, poverty in rural areas is worse than in urban areas because there are fewer services and opportunities (Pateman, 2011).

Not surprisingly, educational outcomes in the rural Mexican schools are far from satisfactory. The Mexican Agency for Educational Evaluation reported that because of poverty conditions, rural students do not learn to read and write on the average until they are 8 years old, a significant delay in comparison to their urban school's peers, which is closer to 6 years old (Instituto Nacional de la Evaluacion de la Educacion, 2017). What is more, the indigenous population living in poverty comprises the segment of the population with the highest rates of illiteracy (Schmelkes, 2013). This group composes two-thirds of the enrollment in Mexican rural schools and has significantly fewer resources and infrastructure than urban schools. Moreover, nearly half of the teachers in Mexican rural schools do not hold a college degree.

Despite the importance given in official discourse to the role of schools in improving social conditions, evaluating the effectiveness of rural schools remains a secondary discussion in educational policy and evaluation studies. What is more, the few calls for school evaluation in Mexico focus on using student test scores to determine school quality. Student learning outcomes are not a fair indicator of the effects of schooling in rural settings in Mexico due to the negative influences of malnourishment, hunger, diseases or family violence. In general, the rural school has some specific educational characteristics which require a psycho-educational approach as well some teaching strategies particularly adapted to its context. Hence, specific evaluation standards and strategies are required.

From this perspective, traditional models of evaluation in the United States used to assess rural schools cannot be used in Mexican rural schools because of the diverse socio-economic conditions, available resources, and educational policies. The major difference is perhaps that conditions in the United States and developed countries allow for the assessment of learning and instruction as indicators of quality of the school and the effectiveness of the educational process. While in developing countries, rural schools need to account first for the remedial or effects of educational services and other social supports in the general development of a child (Scheerens & Creemers, 1989).



A second important difference between United States and Mexico is the role and value of the school in the community. Although in both countries rural schools are perceived as centers for the community (Barley & Beesley, 2007; Olsen, 2017), the rural school in Mexico is in fact the most important service provider to the population in disadvantage. Vaccines, medication meals, meals, orientation and even financial support are provided directly or indirectly through the schools and education, in general, is a strategy for social development. In this context, home schooling is not only illegal but also it is considered to be a disadvantage and a sign of social isolation.

This work proposes a developmental model of evaluation for rural schools in developing countries that aims to go beyond traditional assessment models used in the United States, such as the growth model that attempted to estimate the percentage of students that met criteria for proficiency, or the value added model of achievement that aimed to make positive measurements of students' progress.

Following basic tenets of physical and psychological development, this model does not consider test scores or teacher evaluation reports unless the school had provided services to children cancelled the negative effects of poverty. It is argued that in rural schools, judging only students' scores is unfair, because it does not consider the conditions of disadvantage, the bilingual character of the school, problems with access and materials, or simply the degree of nourishment and health of the students. In addition, the model responds to the criticism of many other attempts that fail to devise a system of incentives that will align agents (services, teachers, principals and parents) with the organizational goals (Abernathy, 2010).

In this view, schools are the center of evaluation, not the students, principals or teachers. The model assumes that every rural school can be placed in a point of development depending the services and reach that they have achieved. Any school then can be placed along a continuum from a basic, emerging position to a holistic one with complete services that help the student ready to learn.

Method

An ethnographic approach in four typical rural schools in this region of Mexico was employed to collect information from the teachers, students, family members, and local authorities. The results were provided to stakeholders in the forms of written reports, audio, video, and other digital media (see for example, <http://j.tinyurl.com/MayaProject>).

As a result of this research, parameters of evaluation of these rural schools were established by combining the opinion of key actors (teachers, headmasters, administrators) with measurable indicators of efficiency, such as percentage of scheduled days of class actually provided, percentage of students attending school daily, availability of services (vaccines, etc.) quality and amount of teaching materials, and the number of days that meals were provided.

Indeed, it was clear from the study that objective measurable indicators were insufficient to judge the degree of efficiency in these schools in context. Lessons learned established five clear directions for a new kind of evaluation process; (1) schools need to be viewed as a unit in a holistic fashion, (2) any school can be placed at any given point of developmental scale, (3) beyond educational or instructional perspectives children's challenges need to be hierarchized, (4) evaluation results should provide specific directions for improvement, and (5) evaluation must be a systematic and consistent process.



The evaluation of rural schools is complex and must be carried out in a qualitative fashion by methods that mix objective measurable indicators with statements and judgments of the school context to understand how the school responds to a child in social disadvantage. In addition to traditional indicators of learning, this new avenue of evaluation requires the assessment of the services and supports schools provide. It is only when the basic needs of students are met that they are ready to learn, so it would be premature to evaluate a school based on student academic outcomes until the school itself has reached the “Comprehensive” stage. In sum, data collection for this process, such as interviews, site visits, document review, and surveys, led to the re-conception of the school as a center of services and social support, promoting not only for learning, but also opportunities for social advancement.

Finally, the contextual framework and individual approach to each school was of paramount importance to the establishment of specific strategies for transition to higher levels of development. In some instances, for example, the school had to provide incentives to volunteer parents to prepare lunch. In others, the headmaster had to procure resources to build a covered shelter for protection for students during the lunch break because of the afternoon heat in the jungle. Another school needed to foster communication with families to ensure attendance of children to the school. In sum, each school had its own challenges, so the model had to take into consideration the individual contexts of each site.

Results from the study allowed investigators to identify different the specific types of educational services and social support actions that had positive influence on the educational process, such as increasing students’ attendance, fostering creative positive learning environments, or providing additional support to the student such as meals, vaccines, uniforms and other resources. Results also provided the basis for constructing a developmental Model of Evaluation, holistic and developmental in nature, which is depicted in the following sections.

Results: A developmental model for rural school evaluation

The model considers factors from the instructional process, while adds insightful criteria from models that focus on environmental conditions and factorize contextual factors into the understanding of educational outcomes. The factors considered are school readiness, infrastructure, instruction, and opportunities.

Table 1. *Stages of the model*

Stage	Focus of Evaluation
Basic	Planning Identification of opportunities and strengths Some services are provided
Developmental	There is a sense of complete services, meals and systematic health support is provided
Comprehensive	Complete services are provided, meals include breakfast and lunch. There is a systematic provision of health and educational services



Table 2. *Dimensions of the model*

Dimensions	Indicators	Sustainability
School readiness	Breakfast Lunch Vaccines	Y, N, frequency, % of children, number of days etc.
Infrastructure	Classrooms Toilets Kitchen Etc.	#, conditions, use etc.
Instruction	Days of class Hours of class Materials Learning outcomes	# of days, N of hours, existing materials
Opportunities	Physical education Special education Economic support advancement	Y or N. # days

Figure 1. *The developmental model of rural schools (MORS)*

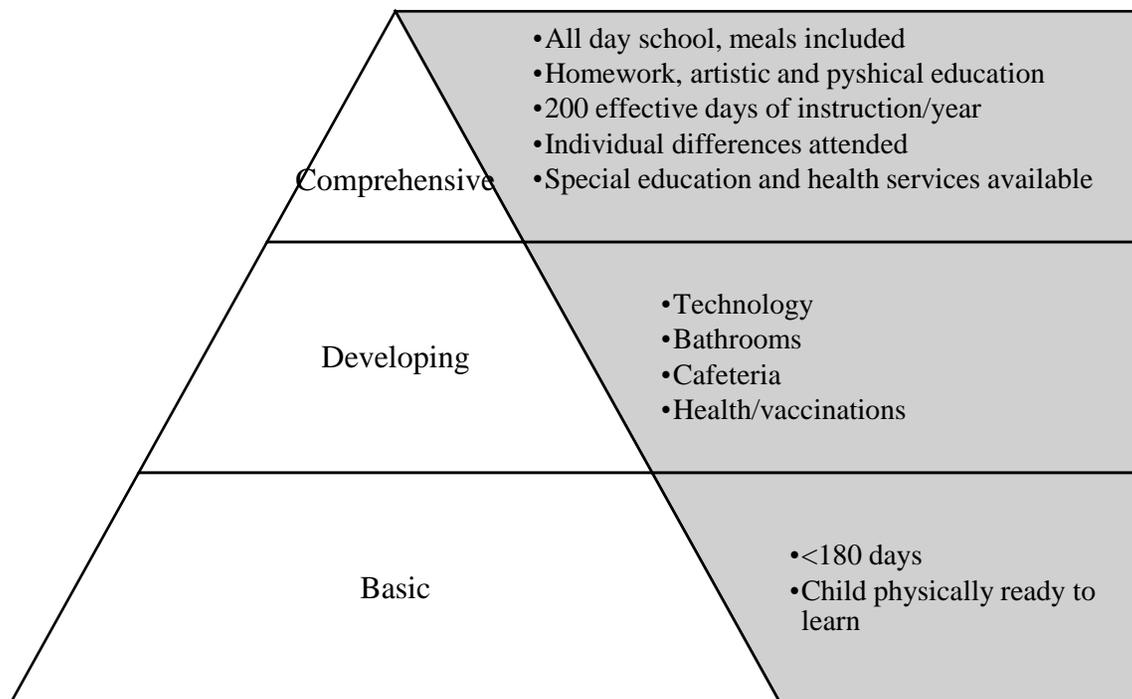




Figure 2. *Dimensions of the model of rural schools (MORS)*



Rather than eliciting right or wrong judgments, schools are placed through evaluation of these dimensions in each developmental stage from a basic level, where resources are scarce without evidence of consistency of teaching strategies and social supports, to a consolidation stage – the evolution stage – in which support and services seem to be sufficient and better organized in a consistent and stable fashion, toward the ultimate level of development which is the comprehensive level. At this level, all services are provided in the school in a consistent and predictable fashion. In other words, the infrastructure to serve these children is comprehensive, there are sufficient and complete services and consistent (and persistent) actions to guarantee their educational readiness and learning in spite of individual differences and social disadvantage. Hence, assessment of the schools is systematic over a period of time and considers contextual factors from a developmental perspective.

The developmental model is presented in Figure 1 and it can be conceived of in three stages. Stage one focuses on assessing services, where the basic needs of students are met. Stage two is centered on issues of school management, leadership and administration. Finally, stage three is centered on student learning and academic outcomes. It is a pyramidal model in the sense that learning is a higher-level function that needs from basic social support and education infrastructure. In addition, the model assumes a developmental perspective that allows any school to move from any given point of development, from an initial stage in which the implementation of measures and indicators emerges in the school community, to a holistic and comprehensive stage in which instructional strategies and other sources of social support act together in fostering learning.

Rural schools serving children in vulnerable social conditions must have a holistic and comprehensive view of the child beyond learning and achieve curricular milestones. In this sense, the model evaluates schools as units of service, instruction, and social change. Adult actors, such as the school principal or the teachers, are not considered in isolation.

Indeed, these schools must care for a broader and integral perspective that encompasses the child's healthy development in various dimensions. Under this tenet, rural



schools must have systematic screening processes that allow early identification and treatment of children with developmental, health, social and behavioral problems. Early identification of children with developmental delays is critical for diagnosing and providing early interventions and improving the school potential and their chances of continuing in the educational ladder. In this perspective, rural schools in Mexico should screen for basic health issues such as infections or dietary conditions to more sophisticated affections such as learning disabilities or emotional problems. In the comprehensive stage, rural schools track students with digital files providing inclusive services and supports. In addition, in this stage the school measures developmental milestones and other physical and psychological indicators of growth, learning, and social adaptation.

This is a holistic model that considers the school as a unit of social support. Hence, the schools are viewed as a comprehensive provider and administrator of several educational, health, psychological, and social services that help children overcome conditions of disadvantage. In this view, the role of the schools goes beyond learning contents from the curriculum, whereas it is crucial to help children achieve key physical and psychological developmental milestones at expected at a given age in similar urban and even private schools.

The model hierarchizes and order evaluation indicators in a more logical succession of events. That it, it attempts to account for physical, social and psychological factors which are essential for learning, before judging the role of school. At the same time, the model addresses conditions related to learning in the school such as the learning environments, the discipline, and the infrastructure. The model is based in the tenet of accountability for the complete and consistent provision of services to fight back extreme poverty. This is in contrast with the government's pedagogical model that strives to foster creativity and reasoning in frank disregard of social conditions and developmental delays broadly reported in Mexican rural zones.

In sum, the model for evaluation includes procedures and indicators from both, the contextual general setting and from the school situation. Ideally, key elements should be accounted to create an index of impact that allows evaluators to place the school, in each stage of development, from basic, where basic educational instructional tasks are carried out, to developmental stages in which some of the services and supports are provided along with instruction, to an ultimate comprehensive level of development. In this stage, the school not only provides and manages several services and supports for children, but also it is able to generate a learning environment.

Discussion

As opposed to the government-derived models based upon subjective pedagogical postures, this model focusses on services and efficiency in social supports that can be measurable, evaluated and furthermore, that can elicit criteria for accountability in social and educational intervention.

The present developmental model to evaluate rural schools assumes that potential learning can only be assessed if basic health, nutritional, hygienic and other most basic needs of the children are met. In rural settings in Mexico, Latin America, and many other developing countries around the world, rural schools should be conceived as the front line in the struggle against the cycles of disadvantage that perpetuate poverty. There are three implications of the findings. The first relates to teacher training that should emphasize subjects that help teachers understand the influences in human development, nutrition, and



hygiene associated with poverty and their effects on learning and on strategies in the school that may help interrupt the cycles of transmitted deprivation (Rutter & Madge, 1976).

The second implication relates to the importance of the person leading the school. School leaders can provide transformation in rural, high-poverty schools by having high expectations for all (Childers, 2009), building positive trusting relationships with stakeholders (Gorski, 2015; Tschannen-Moran, 2014), and providing support and professional development for teachers (Kono, 2012). Rural school directors who view poverty through a perspective of finding strengths instead of deficits and who have high expectations for all learners are better equipped to facilitate instructional growth and positive change for students living in poverty (Gorski, 2015; Klar & Brewer, 2013).

Rural leaders can help build positive learning cultures in their schools by knowing and understanding both the culture of their students and culture of the neighborhood(s) (Gorski, 2015). Leaders who understand the context of their communities are better able to facilitate a positive culture and learning environment (Ylimaki, Jacobson, & Drysdale, 2007). Principals can create a safe and supportive learning environment for students and staff by building trusting relationships (Tschannen-Moran, 2014). In addition, principals can build trust with families and provide opportunities for families to be involved in schools (Masumoto & Brown-Welty, 2009), which could include providing child care and transportation to school events, or providing family outreach by going out into the community (Gorski, 2015).

A third implication for is the need to provide on-going support and training for educators in rural schools (Ashton & Duncan, 2012; Kono, 2012). Educators must understand that until student's basic needs are met, effective learning and teaching is not likely (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). When the social and emotional needs of students are met, there is an increase in academic performance, fewer behavior problems, and increased feelings of positive self-esteem and emotional and social development (Payton et al., 2008).

The fourth implication is that policymakers in the Mexican educational system should imagine schools as not only as places of instruction and learning, but also in terms of institutions to be leveraged for social justice. This progressive view envisions schools as agents of social and personal development for children in poverty. The pilot program of full time schools should be fully funded to include provision of foods, uniforms, health services and additional instruction.

Finally, results provide a framework for future educational research to explore factors related to socioeconomic conditions in rural schools in other countries. A shift in the expectations for what a rural school must provide students before addressing the instructional process will ultimately improve student learning and readiness for school.

Conclusion

The need to identify and construct pathways of change and implementation in Mexican rural schools demands an evaluation model with a sound theoretical support. The MORS model provides a framework to explore the effects of investment and effort in rural schools with particularly vulnerable populations of children. In addition, the levels and stages included in the model, provide landmarks to judge both research and evaluation processes.

When in poverty, children in rural schools need complete and comprehensive support that overcomes deficiencies and weaknesses from the family or origin to be physically and



emotionally ready to respond to the demands of the school. Rural schools ultimately should provide a clean, safe, nurturing, and stimulating environment. What is more, rural schools must address developmental issues and account with mechanisms and the necessary staff to assess, teach and provide intervention when needed. In general, the school must account for each student in identifying the presence of risk and protective factors and able to use various kinds of screening tests, record and monitor each child health, educational and developmental history, and develop actions in the community such as promoting parental involvement in school activities and local authorities support.

Results from the study allowed investigators to identify different types of educational services and social support actions that had positive impact, the Mexican model is similar to other such as the “Escuela Nueva” in Colombia and Guatemala providing additional support to the student such as meals, vaccines, uniforms and other resources.

Of course, the implementation of the model provides important future research opportunities. The next step will be the development of a quantitative index, by assigning a partial value to different services in each dimension to help place schools in different degrees of development. Secondly, clear specifications for improvement and change must arise from the use of the MORS if practical value and impact is desired. Analysis and further examination of the role of rural schools in fighting poverty and disadvantage need to be revived both in educational research and policy making.

Most importantly, what is needed is a comprehensive rural school in rural Yucatan to serve as a prototype for other rural communities in Mexico. This model school would provide all of the services outlined in the MORS, including transportation to and from school to allow for larger class sizes. Ideally, this model school would be associated with a university to allow for the training of the next generation of teachers and school leaders with specialization in the unique needs of rural school children.

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