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Abstract – This paper examines the important role of schooling in creating capacities for technological innovation in Africa. Schooling is a principal source of the modern scientific knowledge which most individuals possess. However, increasing levels of educational attainment does not necessarily increase capacities for innovation; it is what students learn in school rather than how long they attend school that is important. Policies to strengthen the impact of schooling must be based on a better understanding of how the content, language and processes of instruction influence the ways individuals think about the natural world and perform practical tasks in daily life involving use of modern health and agricultural technologies.

Zusammenfassung – Im vorliegenden Artikel wird die bedeutende Rolle der Schulbildung zur Schaffung von Fertigkeiten und Fähigkeiten für die technologische Innovation in Afrika untersucht. Die Schulbildung ist die Hauptquelle der modernen wissenschaftlichen Kenntnisse, die die meisten Menschen besitzen. Jedoch bedeutet die Erhöhung der Leistungsanforderungen notwendigerweise eine Erhöhung der Kapazitäten für die Innovation; wichtig ist nämlich eher, was die Schüler in der Schule lernen, als die Zeit, die sie sie besuchen. Strategien, um den Stellenwert der Schulausbildung zu steigern, müssen auf einem besseren Verständnis der Zusammenhänge beruhen, inwieweit Inhalt, Sprache und Lehrprozesse die Art und Weise beeinflussen, in der die einzelnen Schüler die natürliche Welt denken und die praktischen Aufgaben des täglichen Lebens erfüllen, indem sie sich der modernen Gesundheits- und Landwirtschaftstechnologien bedienen.

Résumé – Le présent article examine le rôle important de la scolarité dans le développement de capacités d’innovation technologique en Afrique. La scolarité est la source maîtresse du savoir scientifique moderne que la majorité des personnes possèdent. Cependant, les niveaux toujours plus hauts de compétences éducatives n’agrandissent pas nécessairement les capacités novatrices. C’est moins la durée de la scolarité des élèves que ce qu’ils apprennent qui importe. Les politiques visant à renforcer l’impact de la scolarité doivent s’appuyer sur une meilleure compréhension de la manière dont les contenus, la langue et les processus d’enseignement influencent l’opinion que les individus ont du monde naturel et la façon dont ils accomplissent quotidiennement leurs tâches pratiques en ayant recours aux technologies médicales et agricoles modernes.

In a lecture given at the American Museum of Natural History several years before her death in 1978, Margaret Mead (1970) drew attention to the fact that modern technology had so transformed the contemporary world that it was no longer possible to study societies in various stages of technological evolution. Examples of stone age, iron age and other prehistoric societies had disap-
peared, having coexisted with technologically more advanced societies for several millennia. However, a few years afterward, the Philippines government claimed that it had found a stone age society. This announcement prompted much media attention. Television viewers had a unique opportunity to see how modern technology was introduced to a technologically primitive society. The 'stone age' people were assembled for a demonstration of the technological bases of the power of the modern state. A pig was produced, shown and executed with a rifle. Next steel hammers, axes, machetes and other tools were distributed. This was probably intended to evoke wonderment which, together with the fear generated by the previous demonstration, enabled the government officials to carry out an enumeration of the community, bringing it formally within the authority of the modern state.

What happened to these people is not known. (The Marcos government was accused of perpetrating a hoax.) But if the events described were not invented entirely, it might be assumed that they were technologically changed in profound ways. I provide this anecdote because it offers some insights into the deterministic ways we usually think about technological innovation and go about stimulating it. Innovation is often conceived, simply, as resulting from the interface of different levels of technology, superior technologies pushing out inferior technologies whenever they are brought into contact if the circumstances for adoption are conducive. This view emphasizes the delivery of technology as central to the process of technological innovation. It also directs attention to how new and existing technologies are assessed by potential adopters, presuming that technological choice is rational in the sense that it is governed by considerations of technical efficiency and resource optimization. What is absent in this formulation is any recognition of the importance of factors influencing capacity for technological innovation. Our 'stone age' society may possess capacities to use the simple technologies to which they were introduced. However, many seemingly simple health and agricultural technologies that are being delivered to rural populations in African countries require very different cognitive capacities which presume the knowledge of modern science that formal schooling imparts. In this perspective, emphasis is placed on how the new technologies are understood as well as on how they may be used rather than on the economic, political or social circumstances of technological choice.

The significance of this perspective can be seen by using a second anecdote. In 1985, the year of the great drought in Eastern Africa, I was carrying out fieldwork in a Digo village near the Kenyan coastal city of Mombassa (Eisenmon 1988). Since the coast province was unaffected by the drought and the country had to import maize from the USA, the government launched a campaign to increase maize production through distribution and compulsory planting of hybrid seeds. Farmers were thus transformed into market producers and technological innovators. However, most were subsistence producers and used