Instruction and Financial Incentives to Improve Covid-19 Knowledge in Mozambique

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Sector(s): Health

Fieldwork: Lessitala Consultoria e Servicos

Sample: 2,117 respondents from 76 communities

Initiative(s): Innovation in Government Initiative (IGI)

Target group: Adults

Outcome of interest: Attitudes and norms

Intervention type: Information COVID-19 response Monetary incentives Tailored instruction

AEA RCT registration number: AEARCTR-0005862

Research Papers: Teaching and Incentives: Substitutes or Complements?

Partner organization(s): Innovations for Poverty Action (IPA), Michigan Institute for Teaching and Research in Economics (MITRE), National Institutes of Health - National Institute on Aging (NIA)

Interventions aiming to improve learning often implement approaches that either increase supply of information and learning inputs or increase efforts to acquire knowledge, but not both. In Mozambique, researchers conducted a randomized evaluation to test whether teaching about Covid-19 prevention and/or financial learning incentives enhanced participants' knowledge related to Covid-19. They found that both interventions improved Covid-19 knowledge separately and, moreover, financial incentives complemented teaching to further improve knowledge about Covid-19.

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Governments, households, and individuals make significant investments of time, effort, and financial resources towards acquiring knowledge, including through formal education in schools as well as adult learning programs. Interventions aiming to improve learning often implement approaches that either increase supply of information and learning inputs available ("supply" side) or attempt to increase individuals' effort to acquire knowledge ("demand" side). However, there is little research examining the potential for complementarities between these two types of interventions. How can teaching and incentivizing learning affect knowledge acquisition, and how do these interventions reinforce or undermine each other?

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Mozambique has a literacy rate of 60 percent and most adults have received an average of 3.5 years of formal education.[1], Despite primary school enrollment rates of almost 98 percent,[2], only 55 percent of children complete primary school.[3], In light of the Covid-19 pandemic, the national government required schools, adult learning centers, and various establishments to close, mandated the usage of masks in public, and issued social distancing guidelines in March 2020. Mozambique has, to date, had 150,000 confirmed Covid-19 cases, and, despite declining cases in the country, schools and public establishments in some parts of the country remain closed.[4]

Selected because of their vulnerability to infectious disease as a result of being connected to major highways and ports, the evaluation was conducted in 76 communities in Sofala, Manica, and Zambezia provinces in central Mozambique. Before the program began, participants showed some general knowledge of coronavirus transmission, protection methods, and government policies, correctly answering 77 percent of questions testing their knowledge. Almost 99 percent also reported supporting social distancing and about half perceived their entire community as supporting social distancing.[5]



A woman distributes books to adult learners in Mozambique.

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Researchers conducted a randomized evaluation to test two interventions focused on promoting learning about Covid-19 among adults in Mozambique: teaching about Covid-19 and providing financial incentives for responding correctly to questions about Covid-19. Both interventions were implemented directly following an initial twenty-question Covid-19 knowledge test at the start

and were evaluated by comparing their effect on a subsequent Covid-19 knowledge test taken about six weeks later on average. Researchers also assessed whether the two approaches (teaching only and incentive only) enhanced or diminished the effect of each other (i.e., whether the effectiveness of the joint intervention was more or less than the sum of the effectiveness of the interventions when delivered separately). Specifically, researchers randomly assigned 2,226 respondents to one of four groups:

1. *Incentives* (433 participants): Participants were offered MZN 5 (US$0.07) for each correct answer on the subsequent Covid-19 knowledge test.
2. *Teaching* (441 participants): Participants received feedback on 80 percent of the questions they answered incorrectly and 20 percent of the questions they answered correctly during the initial Covid-19 knowledge test. Specifically, researchers reminded respondents what their answer was, whether or not it was correct, and then gave them the correct answer.
3. *Incentive + teaching* (464 participants): Participants were first informed of and offered the incentives as above, and then given the teaching intervention.
4. *Comparison* (888 participants): Participants in this group did not receive any intervention but were tested on their Covid-19 knowledge.

In the Covid-19 knowledge test both before and after the intervention, participants were tested on their knowledge of various aspects of Covid-19, including risk factors for contracting Covid-19, modes of transmission, common symptoms, how to protect oneself and others, and government policies to combat the spread of Covid-19. Separately, researchers also surveyed 67 experts on their views of whether the two approaches were complementary or substitutable. Finally, they collected implementation costs for each intervention.

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Overall, researchers found that both teaching and incentives improved knowledge when provided separately, and there was suggestive evidence of a positive complementarity when implemented jointly, suggesting that using both approaches simultaneously may be more effective than using a single approach. However, depending on implementation costs, the joint approach may not be the most cost-effective policy choice.

Test scores: In particular, the incentive intervention increased test scores by 1.56 percentage points compared to 78.4 percent in the comparison group (a 1.98 percent increase). This amounted to a 0.13 standard deviation increase in the share of questions answered correctly. Similarly, the teaching intervention resulted in a 2.88 percentage point increase (a 3.67 percent increase) or a 0.23 standard deviation increase. The joint intervention also increased test scores by 5.81 percentage points (a 7.41 percent increase), which represented a 0.47 standard deviation increase in correctly-answered Covid-19 questions. When implemented together, the interventions increase test scores 31 percent more than the sum of the interventions individually.

Complementarity of approaches: The researchers compare the effect of the joint treatment to the sum of the effects of the separate teaching and incentive interventions. Analysis of the joint intervention suggests that the teaching and incentive interventions are likely to be complementary, further bolstering the impacts when provided together. This result is contrary to experts' predictions that the interventions would be substitutes.

Cost effectiveness: As implemented by the researchers, the joint intervention had a lower marginal cost per additional beneficiary compared to providing both interventions separately. However, due to the cost of the financial learning incentive, they find that the teaching-only intervention was likely to be the most cost-effective intervention. However, researchers suggest that this could differ in other contexts with varied implementation costs.

Taken together, these results show that both providing information and incentives to participants to seek information on their own were effective at increasing knowledge about Covid-19 among adults. In addition, there was suggestive evidence that the

interventions were slightly more effective when implemented together rather than separately, suggesting the need to further explore complementarities. Researchers call for future research to further assess the complementarities between teaching and incentivizing demand for information among students, adults, or other groups, and whether they improve learning in other topics.

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2. UNESCO Institute for Statistics. 2019. “Mozambique – Education and Literacy.” http://uis.unesco.org/en/country/mz

3. UNESCO Institute for Statistics. 2019. “Primary completion rate, total (% of relevant age group) – Mozambique.” https://data.worldbank.org/indicator/SE.PRM.CMPT.ZS?locations=MZ

4. World Health Organization. 2021. “Mozambique.” https://www.who.int/countries/moz

5. Allen IV, James, Arlete Mahumane, James Riddell IV, Tanya Rosenblat, Dean Yang, and Hang Yu. 2021. “Correcting Perceived Social Distancing Norms to Combat COVID 19.” NBER Working Paper 28651. Cambridge, MA: National Bureau of Economic Research. https://doi.org/10.3386/w28651