

# COST-EFFECTIVENESS ANALYSIS OF THREE METHODS TO TRAIN HEALTH WORKERS IN ANGOLA

## LEARNING BRIEF

### INTRODUCTION

Population Services International (PSI) Angola has been implementing the Health for All project (HFA) since 2017, funded by USAID and the U.S. President's Malaria Initiative (PMI). In 2020, as part of HFA, PSI launched an innovative eLearning platform called Kassai to support capacity building of health workers in public facilities. In 2021, PSI conducted a cost-effectiveness analysis (CEA) to compare the value for money of three training methods in Angola – in-classroom training, Kassai self-learning, and Kassai blended learning – to inform policy, programming, and investment decisions by the government, PSI, and other development partners. This learning brief explains the methods used, presents key findings, and suggests recommendations and next steps.

### CONTEXT

Kassai is a Moodle-based e-Learning platform that was customized for use in the health sector by an Angolan digital innovation company, Appy People. The platform was rolled out to public provincial and municipal hospitals in six out of 18 provinces in the country. As of July 2021, there were 1,434 enrolled health workers in the Kassai platform with a goal to further increase that number by 150 health workers per month. The Kassai platform training content first featured five modules in malaria: Malaria Overview; Malaria Case Management in Children Under Five; Malaria Case Management in Adults; Malaria in Pregnancy, and Severe Malaria.



### RESEARCH QUESTIONS

#### **COSTS**

What are the average and marginal costs of training one health worker for each training method? What are the main cost drivers of each training method?

#### **EFFECTIVENESS**

To what extent do the methods achieve the goals of building knowledge and skills of health workers?

#### **COST-EFFECTIVENESS**

How cost-effective are the three methods? How does cost-effectiveness change over time?

#### **SCALE-UP AND SUSTAINABILITY**

What are the marginal costs of adding health workers for each training method?

The training content is now being expanded to also cover sexual and reproductive health, including family planning, and other health areas. The Kassai platform allows for two learning approaches: **self-learning** is conducted by learners via digital devices such as tablets or smartphones (online and offline); in **blended learning** sessions, digital resources of the Kassai platform (video classes, quizzes, pre- and post-evaluations) are used in the classroom setting. Blended learning targets health workers who have less access to personal digital devices and more limited digital skills. Again, in this CEA three methods were compared: traditional in-classroom training, Kassai self-learning, and Kassai blended learning.

## METHODS

A set of research questions was developed to guide data collection and analysis (see boxes on cover page). Costs and effectiveness measures were estimated for 2021-2025, using 2020 as the baseline year.

**Costs** were estimated using the ingredients approach, which starts by identifying all cost components (“ingredients”) incurred when implementing an activity. The overhead costs of PSI’s project management were not included. A distinction was made between start-up costs (incurred during the development of the method), implementation costs (costs associated with deploying the method, varying with number of trainees), and Kassai platform support costs (costs incurred once per year, not varying with the number of trainees). An annual rate of inflation of 12% was applied based on IMF projections for 2021-2025. Both average and marginal costs were calculated.

**Effectiveness** was measured along two key dimensions:

### 1. Number and share of health workers having completed the training

It was assumed that the three methods would train the same number of health workers per year: 2,500 in 2021, 5,000 in 2022, 7,500 in 2023, 10,000 in 2024, and 12,500 in 2025.

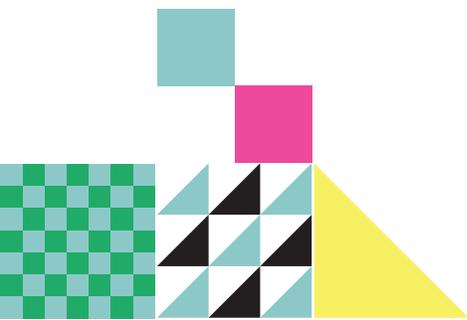
### 2. Number and share of health workers having completed the training successfully

Successful completion was defined as the trainee having achieved at least a 75% final score as measured by the post-training evaluation.

**Cost-effectiveness** ratios were then calculated for four key indicators: average and marginal cost per trainee and average and marginal cost per successful trainee.

PARAMETER	DESCRIPTION
Years	Number of years
Provinces	Number of provinces
Trainees per training	Number of participants per training
Trainees	Number of participants having completed the training course
Successful completion rate	Number of participants having successfully completed the course as a share of all participants
Modules	Number of modules

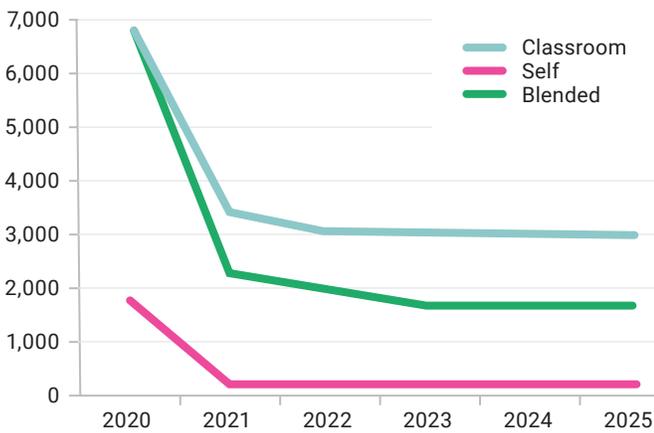
The **Excel-tool** developed for this analysis allows the user to **test different policy scenarios** by varying different parameters (see Table). The main parameters varied for this CEA were the number of days per training (10 days for in-classroom training, 5 days for blended learning), number of trainees, and the successful completion rate.



# KEY RESULTS

## SELF-LEARNING

Self-learning using the Kassai platform is the most cost-effective of the three training methods. When looking at the estimated marginal cost of training one health worker in 2025, self-learning is 11 times more cost-effective than in-classroom training. Considering the estimated marginal cost of training one health worker successfully in 2025, self-learning (USD 228) is 13 times more cost-effective than in-classroom training (USD 3,044), and blended learning (USD 1,645) is almost twice as cost-effective as in-classroom training (see Figure).



## DISRUPTIVE INNOVATION

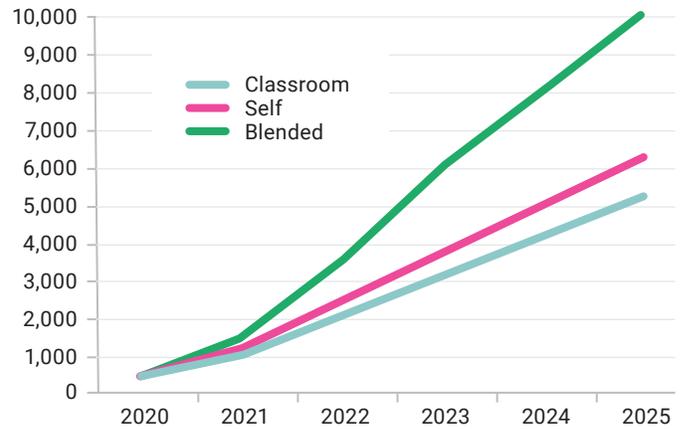
Given these substantial differences in cost-effectiveness, self-learning using the Kassai eLearning platform should be seen as a disruptive innovation with the potential to radically change how training of health workers is conducted in Angola and other countries.

## MORE COST EFFECTIVE

Despite the start-up costs to set up the Kassai platform (associated with design, development, preparation of content, and validation), self-learning is already more cost-effective than in-classroom training in the baseline year.

## HIGHEST RATE OF SUCCESSFUL COMPLETION

Because a combination of in-classroom training and self-learning is used to cover health workers with different needs, blended learning has the highest rate of successful completion (number of successful trainees as a share of all trainees) (see Figure).

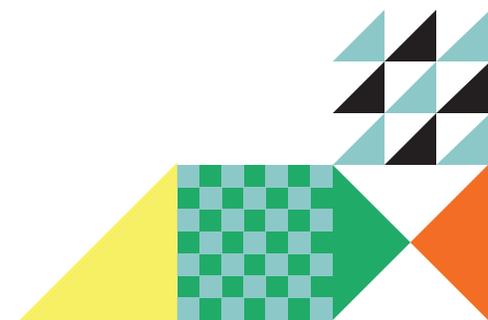


## BETTER REACH

The most realistic training method using the Kassai platform involves a combination of self-learning (for trainees who need less support and have better internet access) and blended learning (to effectively reach those who need more support and have less reliable internet access).

## ADDITIONAL BENEFITS

While challenging to quantify, the Kassai platform generates additional benefits in the form of improved ability to 1) track and monitor performance and activity of each trainee, 2) engage with trainees after the training activity, and 3) tailor the content, pace, and process to individuals.



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## RECOMMENDATIONS AND NEXT STEPS

### DISSEMINATE FINDINGS

Disseminate the findings of this study widely to key stakeholders such as policy makers, investors, and funders, and organize policy dialogue around key findings and recommendations to influence the way training of health workers is approached in Angola in the future.

### ADVOCATE FOR NATIONAL SCALE-UP

Advocate for national scale-up of the self-learning training method in combination with blended learning and secure resources for scale-up. As demonstrated by this CEA, self-learning will be considerably less expensive to scale-up, an important factor given limited fiscal space

### COMBINE BLENDED AND SELF-LEARNING

Implement a combination of self-learning and blended learning for health workers/geographic areas that may benefit from a combination of in-classroom training and self-learning because of additional support needs and internet reliability.

### ADDITIONAL MODULES

Consider adding additional modules to the Kassai platform to leverage an innovative and cost-effective approach to training health workers.

### ADAPT FOR OTHER HEALTH WORKER CADRES

Adapt the Kassai platform and develop training content to enable other health worker cadres, such as health statisticians, community health workers, and health promoters, to benefit from self-learning and blended learning.

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