Electricity Bill Experiment:
Can changing a bill design help people consume less energy?
UNDP Jordan Accelerator Lab 2022
Background

Jordan struggles with increased energy demand and limited resources to fulfil its needs. The scarcity of energy resources puts the country in a vulnerable position as electricity consumption has been steadily increasing while households consumed the largest share.1

Accordingly, in 2019, the Jordan Accelerator Lab's focus concentrated on household energy consumption, identifying the redesign of the electricity bill as a potential pathway to influence behaviour and reduce consumption.

The Accelerator Lab organised a competition to redesign the bill to see if it would enable people to consume less energy. The team selected and merged three winning designs, with one design ultimately making it to the testing phase. The team planned three experiments to test the efficacy of the new proposed bill design compared to the existing one, but only completed two of them.

Three designs were merged to produce the proposed design.
Experiment Hypothesis

The Accelerator Lab built the experiment hypothesis based on an assumption that the current bill design is not user-friendly, so most people understand the total payment noted but not the other information provided.

Therefore, the Accelerator Lab made the following hypothesis: If users better understand the information regarding their household electricity bill, they will better retain the information, and in turn, consume less energy in the future, leading to lower overall energy consumption in Jordan.
In both experiments, the Jordan Accelerator Lab displayed the current and new designs to respondents for 30 seconds each, before asking them to recall specific information in the bills (price, amount of electricity consumed, and tier) immediately after viewing the bills. Then the team compared the level of readability and information retention between the current and new proposed bill designs.

**Experiment 1**

**Initiation and Small-Scale Testing**

The team conducted the first experiment internally with 30 UNDP staff members, half of whom received the current design, and the other half the proposed design. This experiment showed that the proposed design was indeed more effective in helping people retain information, confirming that the first part of the hypothesis is correct.

**Experiment 2**

**Re-testing with Larger and Diverse Groups**

In the second experiment, the team tested the bill design with 52 Arabic-speaking people from the general public, divided into two groups each comprising 26 participants, equally represented by gender. One group saw the current bill design, while the other group saw the proposed design. Both groups answered the same questions in the survey to test information retention and readability.

They concluded that the proposed design allowed users to better recall the fee, tier, and consumption level.
Experiment 2 Data Analysis and Findings

On the other hand, most participants highlighted “familiarity” as being the key positive attribute of the current design. This suggests that changes should build on familiar aspects of the current design, and that people may take some time before becoming accustomed to a new bill design and for changes in information retention to take effect.

52 participants

4 minutes completion time

100% completion rate

50% Females

100% Arabic speaker

50% responsible for paying the bill at the household

Participants age group distribution
Initially, the plan was to conduct a third digital experiment (and simultaneously scale) with at least 100 users through an electricity company or a private e-payment company, both of which have thousands of users on their mobile apps. The intent was to test the proposed design with half of either of the companies’ users, while the other half would be a control group receiving the current design. In the first month, the team would evaluate both groups’ retention of information. Then they would assess whether energy consumption decreased during the second month.

Unfortunately, neither of the potential partners agreed to run the third experiment. They explained that should this experiment be successful, making changes to the electricity bill design would require new infrastructures, design systems, and wasting large amounts of consumable stock materials of the current bill, which was not feasible for either of them.

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<th>Experiment 3 Real-Life Testing and Scaling</th>
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Lessons Learned

Despite not conducting the third experiment, the Accelerator Lab learned valuable lessons from this project:

- Before committing time and effort to run an experiment, ensure to have conversations with potential partners who could scale the solution to understand whether scaling is even possible.

- Given the delays faced due to the COVID-19 pandemic, the team had to change its plans for experimentation. Unexpected changes happen so it's good to be flexible and ready to pivot as needed.

- Design competitions allow creative students and recent graduates a space to offer great proposals in a short period of time.

- Reaching scale is not the only measure of success. Completing part of your initial plan is also something to celebrate.

- Scaling is globally challenging in innovation.