

Electricity Bill Experiment:

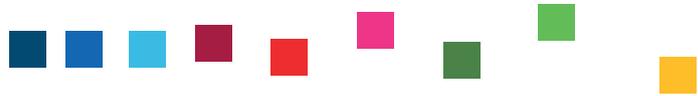
Can changing a bill design help people consume less energy?

UNDP Jordan Accelerator Lab 2022



Jordan

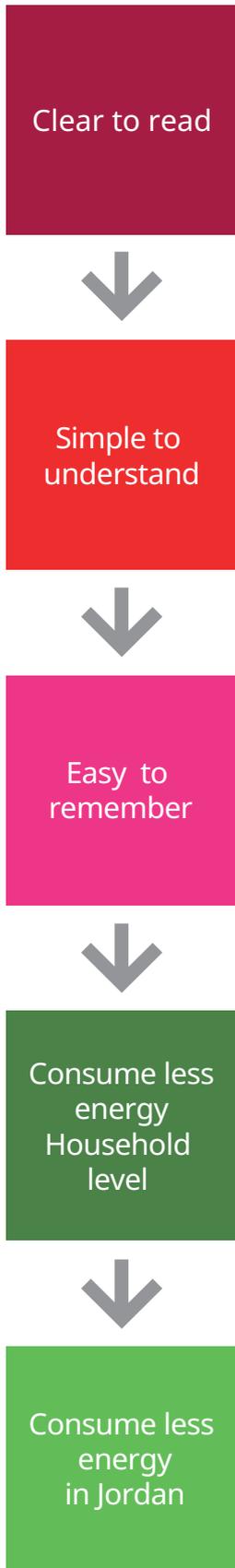




Experiment Hypothesis

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.



Conducting the Experiments

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.

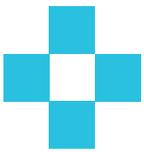


Experiment 2 Data Analysis and Findings



52
participants

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.



4 minutes
completion time



100%
completion rate



50%
Females

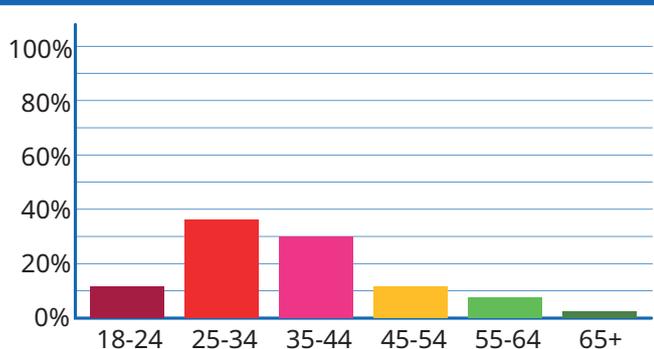


100%
Arabic speaker



50%
responsible for paying the bill
at the household

Participants age group distribution



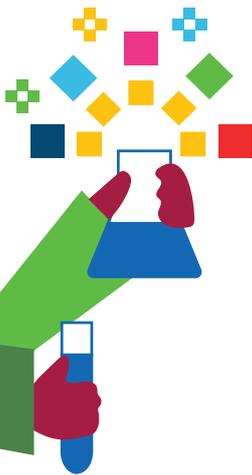
Experiment 2 Data Analysis and Findings

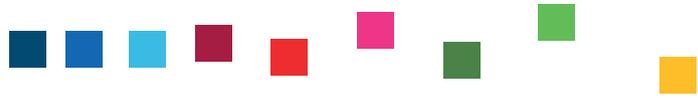
	Old Design	New Design	Difference	Compared to 1st experiment
Overall rating of design	2.5 / 5	4.1 / 5	+1.6	Higher
Ability to correctly recall fee	51.6%	52.4%	+0.8%	Lower
Ability to correctly recall consumption level	9.7%	38.1%	+28.4%	Higher
Ability to correctly recall maximum tier	22.6%	38.1%	+15.5%	Higher
Design ease of readability (easy + very easy)	9.7%	57.2%	+47.5%	Higher
Will a new design reduce consumption (yes)	9.7%	23.8%	+14.1%	Higher

Experiment 3 Real-Life Testing and Scaling

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.





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.



