

Part A

CCT Weekly Practice Science

Unit 1 – Leveraging technology to mitigate hunger

Introduction

The nature of the online food ordering industry is such that it can sometimes force the wastage of even paid food. Companies allow order cancellations up until the food is packed and ready. After that point all orders are delivered to recipients. If the recipient does not consume their order that food goes to waste. This appears to be a social crime given the fact that there are so many hungry people on the streets. This represents a lose-lose situation to all stakeholders. The individual loses money while society loses food. Ironically, this waste should be easiest to control as there are no perverse incentives behind it.

Methods

We have created an electronic platform for matchmaking between the donor and the recipient. This platform enables a person who has ordered food from a food delivery company to choose the location where the order should be delivered if it is cancelled or unable to be eaten. It is an additional patch for food delivery companies. A registered user can order and cancel the food. However, a user cannot cancel the order once the food has been cooked. The platform provides visual notification to the user the instant the order cannot be cancelled. During registration, the customer gives the choice about the place where the order should be donated. If they choose not to decide, the platform allocates such food items to the areas from where they were originally ordered. The City of Bhopal has some traditional spots like temples, bus terminals, and markets where hungry people often congregate.

Food packages of customers who have exercised the donate option are kept as they are. The delivery boy of the assigned area distributes them. As no special delivery mechanism is created for donated food, no extra cost is incurred to the food company. This approach also maintains a high quality of the donated food. Once the food is donated a message is sent to the donor.

Results

The ‘donate food’ platform has been well received by customers. The company’s mobile app has witnessed an increased traction with users once the capability to donate was launched. In the month of April, 12.5% users downloaded VH Spice Box App. By the end of July 2019, this percentage had risen to 48.2%. More importantly, the number of donors has shown a healthy growth rate over the period. In the beginning there were hardly 20 users during April 2019 who used the ‘donate’ facility. However, by the end of June 2019, this number had increased to 186. Additionally, the adoption of the donate capability has surpassed the addition rate of new users. This facility has become an added attraction for new customers. Furthermore, during April 2019 only 4.2% of users donated their meals but in July 2019 nearly 23.4% of users donated meals. This validates our basic premise that, given a chance, people want to avoid food wastage.

Source: Aradhana Porwal, 2020, Leveraging technology to mitigate hunger <https://tinyurl.com/3sk2hd63>

Question 1

What was the author’s intent (aim of the project) of adding a ‘donate food’ button to food delivery apps?

- A. To test whether a ‘donate food’ button can be popularized in apps.
- B. To test whether a ‘donate food’ button can reduce food wastage.
- C. To test whether a ‘donate food’ button can reduce hunger.
- D. To test whether a ‘donate food’ button can increase food delivery app users.

Question 2

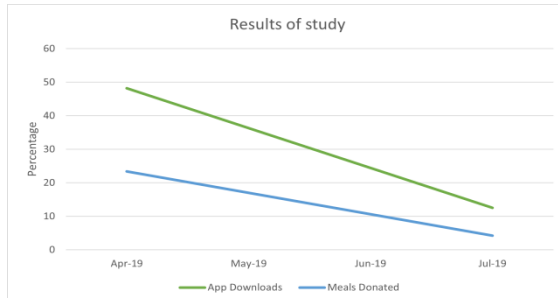
Which of these is most suited to be the conclusion for the above article?

- A. All apps with 'donate food' option are popular.
- B. People enjoy donating food to the poor.
- C. Food delivery apps have the potential to grow quickly.
- D. Food wastage can be reduced through apps.

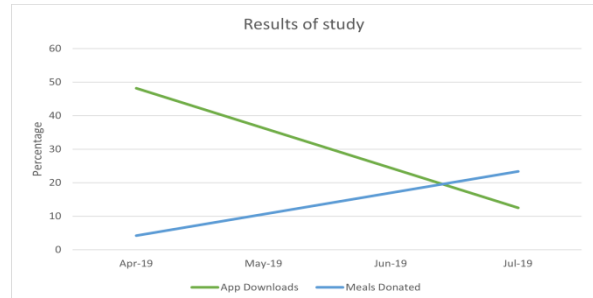
Question 3

Which of these graphs best showcases the results of the research?

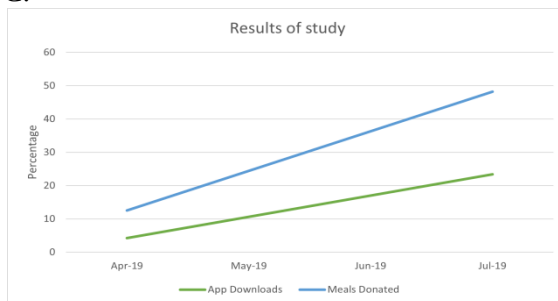
A.



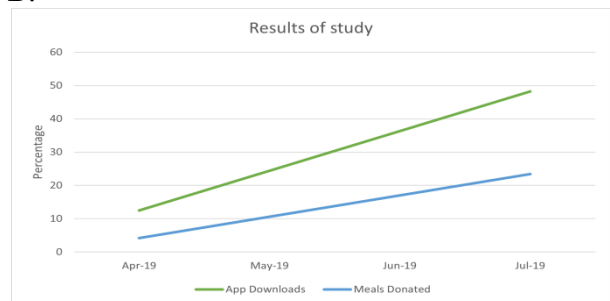
B.



C.

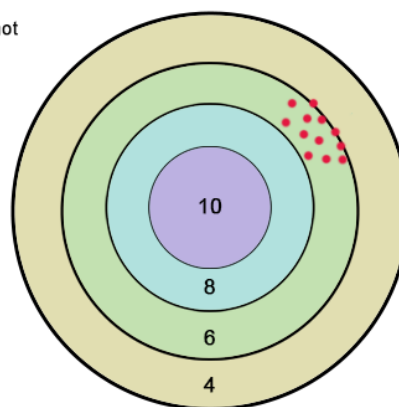


D.



'Validity' of a research project is defined as the extent to which a concept is accurately measured in a quantitative study, i.e. are your methods accurately giving the results of what they are supposed to measure? For example, you position your arm such that you aim to shoot a 10 on a target. But every time you use this arm position, you are only able to hit a 6 perfectly. This means that there is some error in the method of positioning your arm, which is thus invalid (i.e., you are not using the correct method to get the result that you are looking for).

Single shot



Question 4

Consider the title of the above research project, ‘Leveraging Technology to Mitigate Hunger’. If this were the main aim of the project, would you say that methods used are ‘valid’?

- A. No, because the methods do not measure the number of donations that were received.
- B. Yes, because the methods measure the popularity of the ‘donate food’ app.
- C. No, because the methods did not measure the number of delivery boys making the donations.
- D. Yes, because the methods measure the number of times the app was downloaded.

A research project is said to be ‘reliable’ if the results can be reproduced when the research is repeated under the same conditions. For example: When the length of a notebook is found to be 15cm using Ruler 1, it’s length will be 15cm when any other ruler is used. Because your results can be reproduced no matter what type of ruler you use, it is reliable.

Question 5

Can the results of the above research be reproduced with similar results, i.e., is the study reliable?

- A. No, because these methods and results can only be produced in the city of Bhopal.
- B. No, because there is no certainty that the results will be the same despite using the same methods.
- C. Yes, because the same methods can be employed anywhere in the world and similar results can be obtained.
- D. Yes, because these results correctly showcase that hunger can be mitigated using technology.

Source of questions:

Centre for Teacher Accreditation (CENTA[®]) – m.centa.org

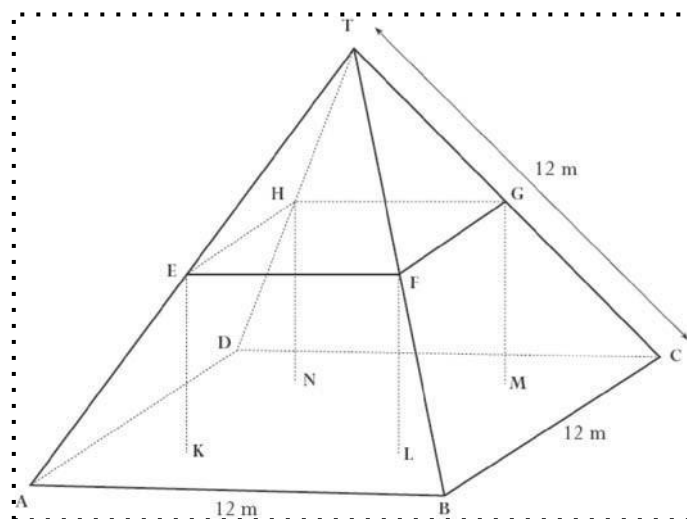
Part B

FARMS

Here you see a photograph of a farmhouse with a roof in the shape of a pyramid.



Below is a student's mathematical model of the farmhouse **roof** with measurements added.



The attic floor, ABCD in the model, is a square. The beams that support the roof are the edges of a block (rectangular prism) EFGHKLMN. E is the middle of AT, F is the middle of BT, G is the middle of CT and H is the middle of DT. All the edges of the pyramid in the model have length 12 m.

QUESTION 12: Calculate the area of the attic floor ABCD.

The area of the attic floor ABCD = _____ m²

QUESTION 13: Calculate the length of EF, one of the horizontal edges of the block.

The length of EF = _____m

Part A

CCT Weekly Practice Science

Answers

1. **Option B:** The addition of a 'donate food' app was intended to reduce wastage of food caused by cancellations. As a result of this, it was anticipated that hunger issues in Bhopal would be addressed. Thus, the title of the article states that hunger can be mitigated with technology.
2. **Option D:** The results indicate that the use of the 'donate' button in apps had increased over a period of time. This means that food wastage can potentially be reduced as more people use this option.
3. **Option D:** This graph correctly depicts the growth seen in app downloads and meal donations between April 2019 and July 2019.
4. **Option A:** The title of the study informs us that the study is trying to reduce hunger by using technology. However, parameters such as the number of people who received the donated food have not been measured. Measuring the percentage of app downloads/usage does not inform us as to whether hunger really is being mitigated. Therefore, this study is not valid.
5. **Option B:** For any study to be reliable, it's methods and results should be reproducible. In the current study, the addition of a donate button can be carried out using any food delivery app anywhere in the world, but whether or not the results will be reproduced cannot be guaranteed through this methodology. The study lacks robustness to be reliable.

The solution for Part B is explained in Video Solution.