PROGRAM MEASUREMENTS

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CONTENTS OF THIS CLASS

- Developing measures
- What to measure
- Some practical tips

DEVELOPING MEASURES

CONCEPTS AND MEASURES

«Since the measuring device has been constructed by the observer... we have to remember that what we observe is not nature in itself but nature exposed to our method of questioning.»

— Werner Heisenberg (1958)

- *Concepts are what to measure. They derive from evaluation questions and program theory*
- *Measurement is the assignment of numerals and quantifiable metrics to concepts, objects or events according to rules.*

Program	Outcome Concept	Outcome Measure
Student tutoring	Gain in knowledge	Scores on test xyz over time
Job training	Exposure to training	Number of Hours spent in the classroom
Support to people with disability	Greater autonomy	Ability to dress on their own

PROGRAM MEASURES TAKEAWAYS: SCHOOL MENTORING PROGRAM FOR ADHD STUDENTS

A concept can have multiple metrics

Example of concept: "Improved attention"

- Teacher ratings
- Completion rate of class assignment
- Self-reported ability to stay focused

Choosing a metric is a value-laden design decision

Example of concept: students' wellbeing

- Emotional wellbeing like stress?
- Social wellbeing like relationships with peers?
- Behavioural Selfmanagement like missing an assignment?

A metric may not perfectly reflect the concept

Example of concept: Improved academic engagement

Example of measure: Attendance

- Attendance may improve for many reasons (parental pressure, new school rules…),
- It is a general measure of engagement, not specific to ADHD
- Better measures may include: time spent on homework or participation in class.

PROGRAM MEASURES AND THEORY (A)

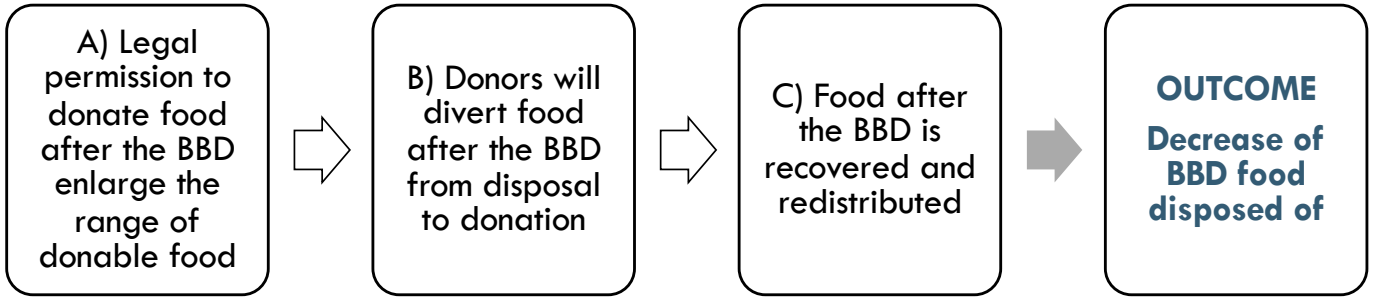
PROGRAM

The law allows for donating food after the best-before date (BBD).

MEASURES?

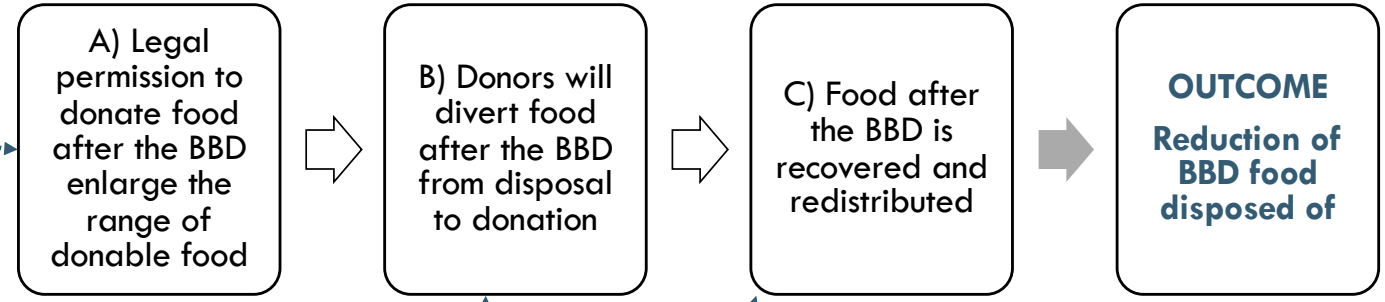
The reduction of BBD food disposed of after the law

INTRODUCE THEORY:



PROGRAM MEASURES AND THEORY (B)

A) CONCEPT: Potential expansion of supply, not actual donations
MEASURES:
- Stock-related measures (e.g., kgs of edible food reaching the BBD)
- % of producers reporting having BBD food through survey
- % of producers updating donation policy by including BBD FOOD



B) CONCEPT: Producers' choice to donate
MEASURES:
- Kgs of BBD food donated per month
- % of total donations consisting of BBD food
- Reported decisions/barriers to donate BBD food

C) CONCEPT: Recovery capacity and performance
MEASURES:
- Kgs of BBD food recovered / redistributed per month
- % of BBD food offer actually recovered
- % of BBD food discarded after recovery

TYPES OF MEASURES

A) CATEGORICAL/NOMINAL MEASURES

Numbers assigned to 2 or more categories (e.g. religions), but no mathematical meaning

Categories are mutually exclusive and together exhaustive (e.g. a, b, …, other religion)

EX. Mentoring format (small group, one to one)

B) ORDINAL MEASURES

Hierarchical ordering of categories (e.g. education)

Higher is greater, but differences are not specific intervals (satisfied vs very satisfied)

EX. Student motivation: not motivated, slightly motivated, motivated, very motivated

C) INTERVAL MEASURES

They have an order from more to less and assume equal intervals, although they do not have a true zero

You can make subtraction and addition

But 0 is not the absence of the attribute and 20 is not twice as 10

EX. Temperature (zero is not 'no temperature', and 10 degrees is not half of 20 degrees)

Student engagement score

D) RATIO MEASURES

They also allow ratios and have a true zero

EX. Time completion for class assignment

WHAT TO MEASURE

WHICH PROGRAM MEASURES?

They depend on evaluation questions and program theory, but overall, you may want to know about the following:

1. *Desired outcomes*
2. *Unintended outcomes*
3. *Interim markers of progress towards outcomes*
4. *Implementation components and processes*
5. *Resources, inputs, and environment*

1. DESIRED OUTCOMES (A)

A) Outcome measures can be derived from official goals, the literature, stakeholder consultation and grey literature. **Be aware of official goals**!

B) You can measure **short-term and/or long-term** effects

C) You can measure effects on **beneficiaries, institutions, territories, and the general public**

PROGRAM	WHO IS TARGETED	WHAT TO MEASURE	METRIC
Vocational training	Beneficiary	Increased knowledge	Score in standard test
Staff increase in public administration	institution	Responsiveness to citizens	Daily contacts with beneficiaries
Community program against delinquency	Neighbourhood	Reduction in violence	Rate of vandalism
Campaign on mental illness	The general public	Acceptance and knowledge of mental disease	Willingness to work with mentally ill people

1. DESIRED OUTCOMES (B)

D) Goals need to be **specific and operational:**

- Although you can certainly measure attitudes and beliefs, most programs wants to produce some behavioural consequences
- You should capture that **someone needs to do something differently**

C) To have a meaningful measure, you need a **yardstick**

- How much progress towards the desired outcomes marks success? Is 25% more good?
- I'll tell you when I see it (Peter Rossi)
- Compare, compare, compare (cross-section or in time)

1. DESIRED OUTCOMES (C) EXERCISE

For each program, find 2 good outcome measures: specific, measurable, meaningful

- An energy conservation program aiming to reduce energy consumption
- An evaluation course in English, aiming at increasing students' interest in the English language
- A road-building program in a developing country to enable farmers to transport their products to the city and increase their income

2. UNANTICIPATED/UNINTENDED CONSEQUENCES

Remember to brainstorm all possible consequences beforehand. Use experience, existing knowledge, program theory, imagination, and exploratory research (such as observation or interviews).

Sometimes a program may exacerbate the problem, appear to be increasing it, or displace it:

- A loan program for inefficient small businesses may get them deeper into debt
- An obligation to donate may increase donation dumping
- A campaign against arson may have a boomerang effect and induce arson
- A program on child abuse may bring to light many more cases than expected
- A police patrol program may 'move' crimes from a patrolled area to an unpatrolled area

Sometimes programs may also have positive unintended consequences:

- A solidarity market for food distribution may also create an incentive for developing new programs to be installed within the market
- Mentored students may improve their school results AND become more cooperative at home
- A support program for increasing the autonomy of disabled people may increase the contractualization of caregivers
- Contagion effects may have co-workers adopting the same practices learnt by program participants

2. UNANTICIPATED/UNINTENDED CONSEQUENCES EXERCISE

Can you think of unintended consequences, good or bad, of a neighbourhood police patrol program aimed at reducing crime in neighbourhood x?

3. INTERIM/INTERMEDIATE OUTCOMES

A) Long-term achievements may not be measurable within the time of the evaluation service

- An educational primary school program to increase the economic status of adults

B) Long-term measurements are not needed if causal links are already well established

- Stopping smoking is enough for measuring the long-term reduction of lung cancer

C) Early feedback may be useful for corrective actions before waiting for long-term goals

- If, after 10 lectures against drugs, surveyed adolescents do not declare any intention to refrain from taking drugs…

D) Long-term processes and intervening variables can impair causal attribution and obscure spurious connections. As always, start with program theory:

- Mentoring program for students with ADHD for improving academic performance

1. Mentors teach self-regulation and organization strategies
2. Students begin using planners, timers, and stepwise task routines (intermediate outcome 1)
3. Students show more on-task behavior in class (intermediate outcome 2)
4. Students complete more assignments (intermediate outcome 3)
5. Academic performance improves (long-term outcome)

4. IMPLEMENTATION COMPONENTS AND PROCESSES

Implementation measures represent how the program is put into practice, the performed activities and the quality of the delivery system.

Some program processes are useful because they are connected with program outcomes

- Police patrol program: Responsiveness to residents' reports

Others may serve to describe and control how the program operates.

- Police patrol program: Number of patrols scheduled vs implemented

Examples of implementation measures:

1. *Indicators may include such things as the following:*
2. *Characteristics of staff offering the service*
3. *Frequency, duration and intensity of service (dosage)*
4. *Integrity of service to intended (planned) design*
5. *Size of group receiving service*
6. *Quality of service*

4. IMPLEMENTATION COMPONENTS AND PROCESSES – COVERAGE, BIAS, DELIVERY

- How many subjects reached with respect to expected potential
- Features of participants reached: are they priority targets, creamed off, over/under represented subgroups?
- Whether all components of the program worked effectively and reached the target
- Whether the program is known by the potential target
- Barriers in program take up
- Implementation of expected activities and services in quality and quantity
- Adequacy of staff behaviuours
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5.INPUTS, RESOURCES AND ENVIRONMENT

Program inputs include items set at the start of the program. They are the 'raw materials' with which the program works, sets its parameters and (some of them) are necessary to evaluate efficiency:

- The organisation implementing the program (e.g. multiple municipalities)
- The program staff (e.g. different skills)
- The program budget
- The community within which the program should function
- The target population of program participants (e.g. demographics)

Select those items that help you

a) Describe the essentials of the program,

b) Explain what happens

SOME PRACTICAL TIPS

CHOICE OF MEASURES IS CONCEPTUAL, PRACTICAL, AND REQUIRES INGENUITY

CONCEPT	INDICATOR	WHY
Variety of food in solidarity markets	Number of types of pasta	- Easily measured - Representative of the overall assortment - Steady presence in the market - Connected to culture
Potential expansion of donatable food	Declared reasons to waste	- It measures expected potential - Measuring actual quantities of BBD food may be hard - There were no available data
Satisfaction with the menu in primary school canteens	Wasted food	- It was easy to measure by coupling food entry monitoring and food waste data - Surveying people every day for every single change in the menu is impractical - Surveying children may be harder than with adults - Revealed preferences are better than perceptions

DEVELOPING AND CHECKING MEASURES

1) Understand what the program does: design, program theory, goals and expected outcomes

2) Find measures that answer the evaluation questions

3) Develop measures that are program-specific and operational: what changes does the program expect to produce?

4) Check your measures:

- VALIDITY: Are we measuring the right concept? Are we measuring the concept correctly?
- DIRECTION: What is good and what is bad?
- RELIABILITY: Is it a noisy measurement tool? Is there lots of errors and contrasting interpretations?
- SENSITIVITY: Does the measure register differences?
- ACCESSIBILITY: Is the needed information available? Is it easy to collect?

MEASUREMENT CHECKS: EXERCISE

Evaluate the following measures in terms of validity, sensitivity, direction, reliability, and accessibility.

Neighbourhood police patrols

1. Number of reported crimes in the neighbourhood
2. Residents' perception of safety on a 1-5 scale
3. Number of hours logged