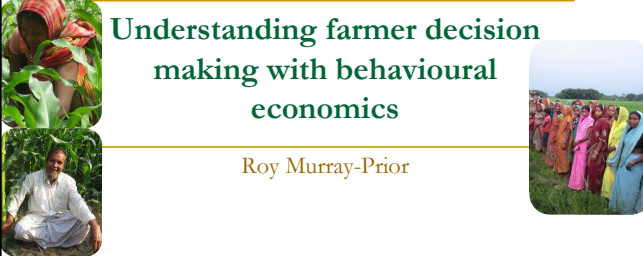**Agribiz RD&E Services**
Effective development outcomes by integrating RD&E

Understanding farmer decision making with behavioural economics

Roy Murray-Prior

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Purpose & issues

- Purpose:
  - outline use of behavioural science insights to understand decision making
  - implications for integrating into the design of interventions
- Issues:
  - behavioural science/economic theories
  - implications for the design of interventions
  - what does it mean for you?

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Behavioural science & economics?

- What hoping to learn from this webinar?
  - comment or in chat
- What do you think behavioural science/economics is?
  - comment or in chat
- Choose own extension project
  - be ready to consider implications.

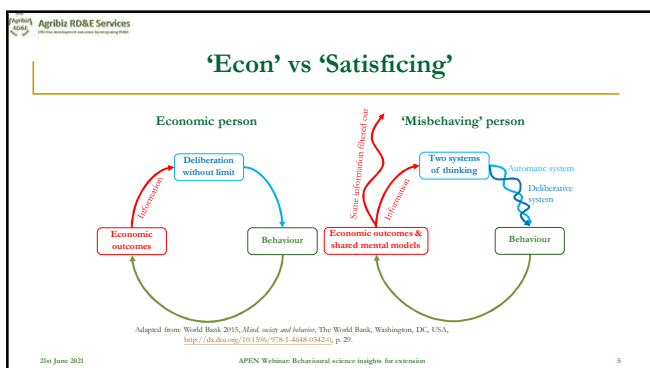21st June 2021   APEN Webinar: Behavioural science insights for extension   3

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The case for behavioural insights …

Nor is the people's judgement always true
The most may err as grossly as the few.
(John Dryden, ca. 1670)

We humans behave in complex ways.
Although we try to make rational decisions, we have limited cognitive abilities and limited willpower.
While our decisions are often guided by self-interest, we also care about fairness and equity.
Moreover cognitive abilities, self-control, and motivation can vary significantly across different individuals.
(The Royal Swedish Academy of Sciences, 2017)

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'Econ' vs 'Satisficing'

Adapted from: World Bank 2015, *Mind, society and behavior*, The World Bank, Washington, DC, USA, http://dx.doi.org/10.1596/978-1-4648-0342-0, p. 29.

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Behavioural science/economics

Enhance the explanatory power of **economics** by combining **insights of psychology & economics** to provide a **more realistic, psychological foundation** to how people make their decisions.

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Fields in the East Ganges Plains

Conservation agriculture innovations in EGP:
Unpuddled rice transplanting   Strip till crop planting

Conservation agriculture innovations in EGP:
Zero till crop planter   Laser leveller

Main theories informing behavioural economics & behavioural science

- Early human behaviour theories
- Bounded rationality
- Prospect theory
- Dual system theory
- Social cognitive theory
- Social identity approach
- Theory of planned behaviour
- Nudge theory

Early human behaviour theories

- Classical conditioning
  - stimulus leads to response linked to original stimulus
  - Pavlov's dogs
- Associative learning or operant conditioning
  - reinforcement increases desired behaviour
    - positive (reward if do)
    - negative (removal of, or threat of adverse consequences)
  - punishment reduces undesired behaviour
    - positive (fine if fail to do)
    - negative (removal of option to do something).

Early human behaviour theories

- Implications for extension adoption/scaling
  - overcome handout mentality associated with projects
  - include public praise & acknowledgement for adopters
  - microincentives to encourage
- Implications for your project
  - ?? chat?

Slide 1

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Bounded rationality
(Herbert Simon 1955)

- Decisions not optimal because of information acquisition, storage, retrieval & processing limitations
- Use simplifying procedures (heuristics)
- Satisfice or good enough
- Elimination by aspects
  - (Tversky 1972)
- Biases where we don't follow *Homo economicus* predictions:
  - with limited info & feedback, accuracy declines
  - 100 pages on biases in Thinking, Fast & Slow.

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Slide 2

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Bounded rationality

- Implications for extension adoption/scaling
  - design messages to change heuristics
  - provide new heuristics to overcome biases
  - provide reminders to reduce procrastination & the intention-action divide.
- Implications for your project
  - ?? chat?

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Slide 3

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Prospect theory
(Kahneman & Tversky 1979)

- People frame $ outcomes as gains or losses
- More adverse to loss than equivalent gain
- 3 cognitive features of model:
  - evaluate relative to neutral reference point (NRP):
    - status quo, expect, or what feel entitled to
    - outcomes > NRP are gains, < NRP are losses
  - loss aversion
    - losses greater weight than gains
    - risk averse to gains, but risk seeking over losses
  - diminishing sensitivity to changes in wealth.

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Slide 4

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Prospect theory

- Implications for extension adoption/scaling
  - frame benefits as forgone gain e.g. will lose $x is don't adopt
  - avoid negative or fear-based messages.
- Implications for your project
  - ?? chat?

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Slide 5

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Dual-systems & 2-stage processing theories
'Thinking, fast & slow' Daniel Kahneman (2011)

- System 1: automatic, fast & non-conscious
  - continuous process evaluating environment
  - under cognitive or time pressure, distracted, positive mood
- System 2: controlled, slow & conscious
  - deliberative, complex computations, comparisons, planning and choice
  - decision important, heightened relevance, others holding accountable
- Farmers use strategies & heuristics to handle uncertainty
  - may need 'trigger' to take notice if going to change these.

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Slide 6

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Dual-systems & 2-stage processing theories
'Thinking, fast & slow' Daniel Kahneman (2011)

- Implications for extension adoption/scaling
  - tailor messages to **trigger** System 2 rather than System 1 thinking
  - develop & promote revised heuristics consistent with needs.
- Implications for your project
  - ?? chat?.

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Social cognitive theory or Social learning theory
(Bandura 2004)

- Learn through consequences of actions in 2 ways:
  - by direct experience: but this is costly
  - social modelling: observe another farmer
- Perceived self-efficacy, control and agency
  - belief in ability to control actions & events
  - success, social modelling, social persuasion, physical & emotional state
- Collective efficacy
  - shared beliefs in collective power
  - mutually reinforcing with self efficacy
- Goals and aspirations
  - goals, aspiration & challenges guide behaviour
  - must link to explicit plans & strategies.

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Social cognitive theory

- Implications for extension adoption/scaling
  - use messages & processes that focus on improving self-efficacy
  - facilitate building group efficacy to overcome social constraints
  - get farmers to set clear, realistic & achievable targets for change (goals & expectations)
  - encourage peer acknowledgement (self efficacy & aspirations).
- Implications for your project
  - ?? chat?.

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Social identify approach

- Social identity theory: focus is intragroup relations
  - norms of most behaviourally relevant ingroup
- Social categorisation theory: focus is intergroup processes
  - accentuation of differences between self & outgroup members.

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Social identify approach

- Implications for extension adoption/scaling
  - use ingroup messengers
  - create superordinate identity to reduce intergroup conflict
  - link identify to innovation outcomes
  - promote pro-innovation ingroup norms.
- Implications for your project
  - ?? chat?.

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Theory of planned behaviour
(Ajzen 1991)

- Predictive model:
  - person's attitudes to behaviour
  - subjective norms: perceived social pressure
  - perceived behavioural control to perform
- Perceived behavioural control components:
  - self-efficacy (ease or difficulty of performing a behaviour)
  - controllability (whether success is up to them).

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Theory of planned behaviour
(Ajzen 1991)

- Implications for extension adoption/scaling
  - link & use interventions that address attitudes, norms & improve perceptions of behavioural control
  - use local farmers & social networks to address negative views.
- Implications for your project
  - ?? chat?.

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Nudge theory
(Thaler & Sunstein 2008)

- Nudge is any aspect of the choice architecture that alters people's behaviour in a predictable way **without forbidding** any options or significantly **changing their economic incentives**.
- To count as nudge, intervention must be easy & cheap to avoid.
  - ❑ fruit at eye level
  - ❑ default setting
- Nudges are not mandate
  - ❑ banning junk food or taxing cigarettes are not nudges
- Brief, low cost, simple prompts & reinforcers that modify people's choices
- Based on theories already discussed.

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Most important nudges …?

- Appropriate default rules: e.g. automatic enrolment
  - change to opt out for My Health Record system
- Emphasise what most people do or think should be done
  - electricity/water usage comparisons
- Simplify programs so are easily navigable and intuitive
  - KISS principle
- Increase ease & convenience: reduce barriers & difficulty
  - ensure easily available

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Most important nudges …?

- Warnings, graphic or otherwise: e.g. smoking
  - plain packaging & smoking effects (this also disclosure)
  - colour coded nutrition labels
- Pre-commitment or implementation intentions
  - get commitment to course of action (our trial with farmers & service providers)
  - question about future conduct
- Reminders for activities
  - doctors/dentists reminders for attendance or to book
- Inform people of nature & consequences of things they care about
  - maintaining soil for their children
  - economic or environmental losses.

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Nudge theory

- Possible nudges for your project
  - ❑ ?? chat?.

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One model for designing BI inspired interventions: D.R.I.V.E. Model

- D.efine
  Analyse and define strategy as a set of target behaviours
- R.esearch
  Research actual behaviours and review related contexts
  Adoption stages: Attention; Processing; Decision; Action
- I.dentify
  Identify and evaluate suitable science-backed solutions
- V.alidate
  Design, test and validate tailor-made behavioural interventions
  Randomised control trials (RCTs)
- E.xecute
  Realise reliable change by executing tested interventions
  Source: Emmerling (2019)

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Randomised control trials (RCTs)

- BSI use RCTs to validate causal relationships between outcomes of alternative interventions (including no intervention)
  - ❑ Regarded as 'gold standard' of intervention evaluation
  - ❑ Often involves the expenditure of a lot of gold
- Many critiques & issues with use & design of RCTs
- Whole other topic for discussion.

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Additional insights …

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- 'Systems trump programs'
  - 'Wicked' real world problems rarely amenable to solutions that only focus on change to program in the system
  - Changing values & mental models difficult
- Sustained change needs:
  - engaged individuals
  - organisational infrastructure
  - political opportunity.

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In summary …

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- Three principles of BSI (World Bank 2015, *Mind, society & behaviour*)
  - most judgments & choices automatic
  - people think with 'mental models'
  - how think often depends on what others around them think
- Behavioural science/economics can help, but relies on:
  - using behavioural theories to understand behaviours
  - identifying, designing, validating & implementing interventions.

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Implications for you???

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