

UNDERSTANDING PRO-ENVIRONMENTAL BEHAVIOUR II

Environmental values, attitudes and behaviour: Theory and evidence
 Proenvironmental behavior: The case of Household energy consumption

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ENVIRONMENTAL VALUES, ATTITUDES AND BEHAVIOUR: IS THERE A LINK?

- A look at concepts, models, theories, evidence
- Examples
 - Environmental attitudes and attitudes towards predators
 - Household energy consumption

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HEP VERSUS NEP (DUNLAP & VAN LIERE, 1978; DUNLAP *ET AL.*, 1992)

- "Human Exemptionalism Paradigm" (HEP):
 - Human beings are exempt from the laws of nature and rulers over the physical world.
- New Environmental (or Ecological) Paradigm:
 - Today, the HEP is assumed to be replaced by a new world view more compatible with environmental limits, hereafter NEP

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ENVIRONMENTAL VALUE-ORIENTATIONS AS BASIS FOR ACTION

- Stern & Dietz (1994): a tripartite model
 - *Egoistic*: perceived personal threat from environmental problems is most important
 - *Altruistic*: negative consequences for others is most important
 - *Biospheric*: perceived consequences for the biosphere

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GENERAL ENVIRONMENTAL ATTITUDES AND VALUES AS PREDICTORS OF BEHAVIOUR

- In general relatively weak relations between environmental attitudes and behaviour
 - Scott & Willits (1994): acceptance of parts of the NEP concept is associated with the enactment of both consumer and political behaviours focused on protecting the environment
 - Widegren (1998): personal norm a better predictor of proenvironmental behavior and willingness to pay than the NEP scale
 - Bamberg (1996): General attitudes towards traffic-policy have no direct impact on car-using behavior, but a strong direct impact on the situation- and behavior-specific cognitions

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GENERAL ATTITUDES/MOTIVES: ECOCENTRISM/ANTHROPOCENTRISM SCALE

- **Thompson & Barton (1994):** Different *reasons or motives* for acting environment-friendly.
- **Anthropocentrism:** protection of nature related to maintaining or improving the quality of life for people
 - includes egoistic and social-altruistic values (cf. Stern & Dietz, 1994)
- **Ecocentrism:** valuing nature for its own sake
 - Nature should be protected because it has intrinsic value

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GENERAL ATTITUDES/MOTIVES: NEW ENVIRONMENTAL PARADIGM (NEP)

- Dunlap & Van Liere (1978):
 - First version of the NEP-scale (twelve items)
- Three broad themes:
 - *Humanity's ability to upset the balance of nature*
 - *Limits to growth for human societies*
 - *Role of humans relative to the rest of nature*

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NEP-R (DUNLAP ET AL., 1992)

- 15 item scale
- Five facets
 - Limits to growth
 - Anti-anthropocentrism
 - The fragility of nature's balance
 - Rejection of exemptionalism
 - The possibility of an ecological catastrophe

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SPECIFIC ENVIRONMENTAL ATTITUDES

- Schahn & Holzner (1990) 21 item scale:
 - **Theoretical concepts:** Affective evaluation, attitudes (in a narrower sense), and self-reported behaviors.
 - **Content areas:** Reduced energy consumption, energy used for transportation, environmentally responsible purchases, societal involvement, recycling, water consumption, protecting own health.

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SPECIFIC ENVIRONMENTAL ATTITUDES AS PREDICTORS OF BEHAVIOUR

- Diekman & Preisendörfer (1998):
 - Considerable inconsistencies between specific environmental attitudes and behavior
- Lober (1995):
 - Attitudes towards the siting of a recycling center differed significantly from behaviour in a study of behavioural and attitudinal dimensions of public opposition using inperson surveys and observed measures of behaviour.
- Steel (1996):
 - Attitude intensity was correlated with self-reported environmental behaviour and political activism in environmental issues.

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RESPONSIBILITY AS PREDICTOR OF BEHAVIOUR

- Kals, Schumacher & Montada (1998):
 - Ecologically relevant decisions based on responsibility related beliefs and emotions, and on attributions of responsibility

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KNOWLEDGE AS PREDICTOR OF BEHAVIOUR

- Diekman & Preisendörfer (1998):
 - Ecological knowledge affects environmental behavior directly and indirectly
 - Higher inconsistency in young people

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CULTURE AS A PREDICTOR OF BEHAVIOUR

- o Laroche, Toffoli, Kim, & Muller (1996):
Determinants of environmental behaviours may vary across cultures

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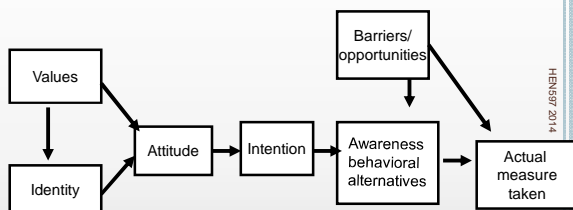
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FIELDING, McDONALD & LOUIS (2008): INCORPORATING IDENTITY CONSTRUCTS INTO THE THEORY OF PLANNED BEHAVIOUR (TPB) TO INVESTIGATE INTENTIONS TO ENGAGE IN ENVIRONMENTAL ACTIVISM

- o Environmental group membership and self-identity were positive predictors of intentions
- o More positive attitudes toward and a greater sense of normative support for environmental activism were related to greater intentions to engage in the behaviour.

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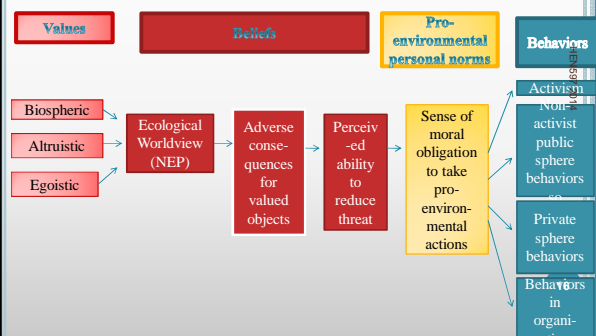


Factors assumed to influence choice of environment-friendly measure (adapted after Biel & Grankvist, 2005)

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THE VALUE-BELIEF-NORM THEORY OF ENVIRONMENTALISM (STERN ET AL, 2000)



ENVIRONMENTAL ATTITUDES: SOME EMPIRICAL EVIDENCE

DIVERGING ATTITUDES TOWARDS PREDATORS: DO ENVIRONMENTAL ATTITUDES PLAY A PART?

Kaltenborn, B.P. & Bjerke, T & Strumse, E.(1998)

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THEME

- Environmental beliefs and attitudes towards large carnivores among sheep farmers, wildlife managers and research biologists in Norway

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HUMAN ECOLOGY

- Managing the interaction of population, social organisation and technology in response to the environment
- The ability of humans to cope and adapt to a changing environment

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RESOURCE MANAGEMENT ISSUES

- How various interest groups perceive the environment
- Values and beliefs attached to the env.
- How environmental beliefs affect the position different actors take in conflict situations

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WILDLIFE AS CONFLICT ISSUE

- Human dominion versus concern over negative effect of human activity on ecological processes
- Norway: Sheep farmers demanding extermination of large carnivores versus groups supporting protection

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KELLERT'S TYPOLOGY OF ATTITUDES TOWARD WILDLIFE

- Positive attitudes
 - Ecologistic: Interest in ecological value of species and its rel to env
 - Naturalistic: Interest in direct outdoor contact w. species
 - Moralistic: Opposition to harm toward species
- Negative attitudes
 - Dominionistic: Interest in mastery over animals
 - Negativistic: Fear, dislike
 - Utilitarian: Interest in use for the benefit of humans

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EARLIER RESULTS (NORWAY)

- Wildlife managers and research biologists:
 - High on Ecologistic and naturalistic attitudes
- Sheep farmers:
 - High on dominionistic, negativistic and utilitarian attitudes

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MAIN RESEARCH QUESTIONS

- How strong is the support for an ecological world view in sheep farmers, wildlife managers and research biologists in Norway?
- Are differences in attitudes towards wildlife related to more fundamental differences in environmental values or beliefs?

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METHOD

- Participants:
 - 1129 sheep farmers, wildlife managers and research biologists (response rate = 66.5%)
- Instruments:
 - 35 statements measuring attitudes towards large carnivores
 - 15item NEP scale
-

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RESULTS

- Eight items expressing the "New Ecological Paradigm"(NEP) received the highest mean ratings
- Seven items expressing the "Human Exemptionalism Paradigm" (HEP) received weakest support

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RESULTS

- **NEP: Group differences**
 - Sheep farmers: higher than other groups on HEP-items. Lower than other groups on NEP-items
 - Support/rejection of HEP and NEP

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RESULTS

- | | |
|---|---|
| <ul style="list-style-type: none"> ○ HEP ○ Research biologists: <ul style="list-style-type: none"> • Clearest rejection ○ Wildlife managers <ul style="list-style-type: none"> • Rejection, yes, ...but less strong ○ Sheep farmers <ul style="list-style-type: none"> • Close to a neutral pos. | <ul style="list-style-type: none"> ○ NEP: ○ No distinction betw. wildlif man. and res. biol., who agree with the NEP. ○ Sheep farmers: <ul style="list-style-type: none"> • Significantly lower |
|---|---|

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RELATIONS BETWEEN NEP, HEP AND THE SIX ATTITUDE SCALES

- Overall sample: NEP correlates pos. w. the positive attitude domain, and neg. with neg. attitudes
- HEP: opposite pattern: neg. corr. with pos. attitudes, pos. corr. with neg. attitudes
- Relations between NEP, HEP and the six attitude scales

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RELATIONS BETWEEN NEP, HEP AND THE SIX ATTITUDE SCALES

- Sheep farmers:
 - Pos. corr. between NEP and ecologicistic, moralistic and naturalistic att.
 - Pos. corr. between HEP and dominionistic, negativistic and utilitarian att.
- Wildlife managers:
 - NEP correlated pos. with positive att. and neg. with neg. att.
 - HEP correlated neg. with positive att. and pos. with neg. att.
- Research biologists:
 - Pos. corr. between NEP and ecologicistic, moralistic and naturalistic att.
 - HEP correlated neg. with positive att. and pos. with neg. att.

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CONCLUSIONS

- Respondents tended towards pro-ecological beliefs
- Negative attitudes towards carnivores are most typically found in groups whose economic interests are threatened by these animals
- The three groups express similar structure of environmental beliefs, but there is a difference of degrees: Sheep farmers' ecological beliefs are weaker
- Sheep farmers: Carnivores are perceived as an outgroup cognitively dissociated from other animals and the ecosystem: Thus, pro-ecological beliefs go together with neg. attitudes towards predators
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METHODS STRENGTHENING THE RELATION BETWEEN ATTITUDES AND BEHAVIOUR

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REMINDERS

- Overcomes internal barriers for action such as lazyness, forgetfulness etc
- Must be:
 - Specific
 - Close to the target behaviour in time and space
 - Tailored to suit it's audience

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INFLUENCE INTERNAL BARRIERS BY A FOCUS ON ATTITUDES AND NORMS

- Make people aware of the attitudes and norms they already have, but do not relate to the present situation
- When people's attitudes already are in favour of environmental protection, it is useful to remind them about this in a subtle way
- Campaigns are well suited for this purpose

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STRATEGIES STRENGTHENING THE RELATION BETWEEN ATTITUDES, INFORMATION, ATTITUDES AND BEHAVIOUR

Increasing participation in a recycling project: Four experimental conditions

Control group (not contacted)	2% participation
Information (folder describing project)	10% participation
Information + reminder before pick up	21% participation
Information + reminder + personal contact	28% participation

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INFORMATION HAS MORE EFFECT WHEN IT ATTRACTS ATTENTION THROUGH:

- a personal approach
- rumours
- making the invisible visible
- using a powerful medium
- careful design of the message
- message close to behaviour in time and space
- message designed to match the target group
- using the local groups

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CREDIBILITY

- It must be possible to check the information
- Use of social networks
- Use of opinion leaders to introduce desired behaviour

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CREATE ENGAGEMENT

- Commitment increases engagement
- Norm activation increases engagement
- Crises can increase engagement

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BEHAVIORAL KNOWLEDGE FROM INTERVENTION STUDIES

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LEHMAN & GELLER (2004): REVIEW OF THE APPLIED BEHAVIOR ANALYSIS APPROACH TO ENCOURAGING PROENVIRONMENT BEHAVIOR

- Argues that **behavior analysis** can play a greater role in solving environmental problems through
 - (a) reexamination and expansion of intervention targets,
 - (b) increased focus on long-term maintenance of pro-environment behavior, and
 - (c) more effective dissemination of intervention strategies and research findings.

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INTERVENTION STRATEGIES.

- *Antecedent Strategies*
 - (a) information/education
 - (b) verbal or written prompts
 - (c) modeling and demonstrations
 - (d) commitment
 - (e) environmental alterations.

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CONSEQUENCE STRATEGIES

- Rewards
 - Notable behavior change, but behaviors drop to baseline levels when the reward was removed
- Feedback: providing information to participants about their environment-relevant behaviors
 - modest but consistent energy savings

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PROBLEM: LONG-TERM BEHAVIOR MAINTENANCE

- **Solution strategies**
 - focus on behaviors that do not need to be maintained
 - implement intervention evaluations of appropriate length and design, so factors which increase response maintenance can be discovered
 - design interventions that can continue indefinitely

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BOYCE AND GELLER (2001): KEY FACTORS RELATED TO BEHAVIORAL MAINTENANCE

- Reward schedules should be large enough to get a behavior started, but not so large as to serve as complete justification for performing a behavior
- When a behavioral commitment is requested, it should be accompanied by information that provides a sound rationale for the behavior.

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INFORMATION CAMPAIGNS: CAN THEY INCREASE ECOLOGICAL BEHAVIOUR?

- What can psychology tell us about the effects of information campaigns?
 - Which type of campaign works best? When does information work?
 - What are the conditions for strong relations among attitudes and behaviours?
 - Are attitude campaigns sufficient for attitude change?
- Changing environmental attitudes: Effective strategies

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INFORMATION- AND ATTITUDE CAMPAIGNS: POSSIBILITIES AND LIMITATIONS

- + May increase people's awareness and change attitudes
- - Lead only occasionally to behavioural change
 - How can we increase the effectiveness of campaigns?

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INFORMATION ALONE HAS VERY LIMITED EFFECT, BECAUSE:

- Removes only information related barriers
- Does not remove external barriers (such as economic ones)
 - Increases at best only low cost/less demanding behaviours

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WHEN IS INFORMATION EFFECTIVE?

- Feedback:
 - Via the energy meter at home
 - Via electronic devices (feedback every minute, hour, etc...)
- This works, because:
 - The information is directly related to behaviour
 - Straight-forward application of behavioural psychology (operant learning theory): all behaviours leading to rewards will be repeated
- Feedback is at it's most effective when available immediately before and after the target behaviour (here: energy saving behaviour)
- Limitation: Participants must be highly motivated

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MODELING/OBSERVATIONAL LEARNING

- *Ex.: Video of a young couple demonstrating how they can save energy in the home*
 - Combines behavioural psychology and communication research
 - Experiments have demonstrated energy savings of more than 20%
 - Cost-effective: video is a one-time cost that may be used in an unlimited number of households
 - Limitation: Participants must be motivated

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THE POTENTIAL OF INFORMATION CAMPAIGNS

- Works when the most important barriers are internal to the individual
- May have important indirect effects over time
- Influences only attitudes and behaviours compatible with people's more fundamental values
- The effect increases if one builds upon psychological principles of communication and focuses the campaign directly towards relations between attitudes and behaviours
- Works best in combination with other strategies (such as organisational change, economic incentives, etc)

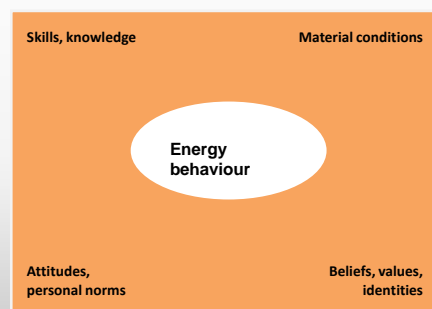
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ADDRESSING FIELDS OF RATIONALITY – A POLICY FOR REDUCING HOUSEHOLD ENERGY CONSUMPTION?

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T. WINTHER, SUM, UNIVERSITY OF OSLO
E. STRUMSE, LILLEHAMMER UNIVERSITY COLLEGE

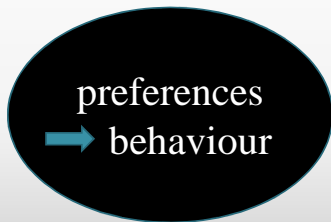
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FACTORS INFLUENCING BEHAVIOUR ON THE INDIVIDUAL LEVEL



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WHAT CONDITIONS PEOPLE'S



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PREFERENCES: A PSYCHOLOGICAL PERSPECTIVE

- Descriptive approach: preferences as the likes or dislikes the individual may have in a certain domain,
- Reasonable Person Model:
 - People are satisficers, not maximizers
 - People can be reasonable, depending upon the circumstances
 - People often possess extremely limited information.
 - People's needs are many and varied

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FOCUS ON SELECTED COGNITIVE, AFFECTIVE (AND MATERIAL) FACTORS

- Underlying factors for understanding preferences in economic theory
- Factors partly accounting for the motivations pushing or pulling the individual to perform various measurable behaviours:
 - Skills and knowledge
 - Attitudes and personal norms
 - Beliefs, values and identities

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IMPORTANT FINDINGS ON PREDICTORS OF ENVIRONMENTAL BEHAVIORS

- A strong intention to act can be seen as resulting from a large variety of environmentally relevant thoughts and emotions, such as
 - Attitudes
 - Perceived behavioural control
 - Personal norms
 - Problem awareness
 - Feelings of guilt
 - Attributions: Beliefs about responsibilities and causes

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META-ANALYSES ON PSYCHO-SOCIAL DETERMINANTS OF PRO-ENVIRONMENTAL BEHAVIOUR.

- Hines, Hungerford & Tomera's (1987) meta – analysis of 128 studies - Results from a subset of studies focusing of psycho-social variables: mean correlations with pro-environmental behaviour (PEB)
 - Proenvironmental attitudes: $r = .38$
 - Locus of control/self-efficacy: $r = .37$ (15 studies)
 - Felt moral obligation to behave in a pro-environmental way: $r = .33$ (6 studies)
 - Pro-environmental behavioural intention: $r = .49$ (6 studies)

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BAMBERG & MÖSER (2007): NEW META-ANALYSIS OF PSYCHO-SOCIAL DETERMINANTS OF PRO-ENVIRONMENTAL BEHAVIOUR

- Based on 57 samples/studies
- Results:
 - Mean correlations similar to those reported by Hines et al.
 - Structural equation modelling (SEM): Meta-analytic SEM (MASEM)
 - Pro-environmental behavioural intention mediate the impact of all other psycho-social variables on pro-environmental behaviour (27% explained variance).
 - Attitude, behavioural control and personal moral norm all predict pro-environmental behavioural intention (52% explained variance)
 - Problem awareness: important indirect determinant of pro-environmental intention mediated by moral and social norms, guilt and attribution processes.

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STERN (2008): REVIEW OF THE SOCIAL PSYCHOLOGICAL LITERATURE ON HOW CONSUMER CHOICES ARE AFFECTED BY VARIOUS INTERVENTION APPROACHES

- The strongest influences are often contextual. Psychologists rarely examine more than a few of these
- The more a behavior is shaped by technology, infrastructure, regulation, financial cost, convenience, and other contextual factors, the weaker the effect of personal variables
- The favored variables of psychologists and economists have limited importance

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INFORMATION: ENERGY EFFICIENCY AND CONSERVATION MESSAGES (LUTZENHISER, 2009)

- Should be intelligible to the consumer
- Should be concrete, vivid and impactful, personalized, action-oriented, and offering advice about choice and behaviour that is perceived to be fair, just, and equitable.
- People process information in different ways
- The messenger affects the perceived legitimacy, credibility, and trustworthiness of the information.

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INFORMATION PRESENTATION AND CHOICE OF ELECTRICITY (GREEN OR NOT)

- The format of information presentation assumed to have a strong effect on choice of electricity
 - People choose the electricity offered as the default
- Results:
 - In a field study, people did choose green el. when it was the default
 - This was also the result in one experiment

(Pichert & Katsikopoulos, 2008)

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HOW STRONG ARE THE INFLUENCES OF PSYCHOLOGICAL FACTORS?

- The more a behaviour is shaped by contextual factors, the weaker the effect of personal variables (Stern 1999)
- Often highly indirect effect- can potentially influence a wide variety of behaviours
- Some specific psychological factors(Stern 2009)
 - Personal commitment
 - Perceived personal costs and benefits of actions
 - Behaviour-specific beliefs and norms

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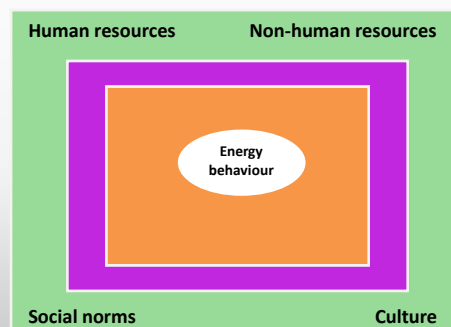
PSYCHOLOGICAL INTERVENTIONS

- Should target the ‘niches’ between powerful structural variables: when the people – environment configuration is particularly open to change
 - when behaviour is not strongly constrained by regulation, habit, matters of economic cost, convenience, and the like.

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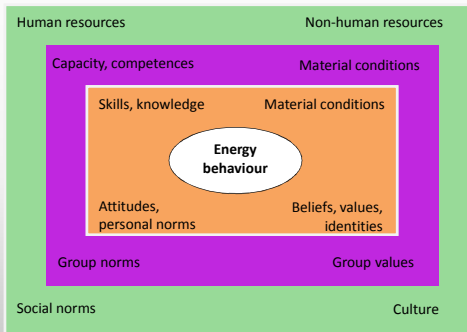
STRUCTURES



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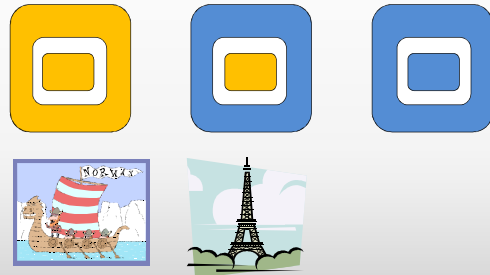
FIELD OF RATIONALITY: CONFIGURATION OF FACTORS INFLUENCING BEHAVIOUR



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EXAMPLE: MOVING FROM NORWAY TO FRANCE



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EXAMPLE OF FIELDS OF RATIONALITY: CONSUMERS VERSUS CITIZENS

- Sagoff (1988), Sen (1985) and Nyborg (2000)
- Rationalities exist in parallel
- Ex. Parents picking up children in the kindergarten (Gneezy and Rustchini 2000)
- Policies may change the "logic" for behaviour: field of rationality

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EXAMPLE: APPEAL TO "THE CITIZEN": RENEWABLE CERTIFICATES, BARENTS ENERGI

- Treatment A → Five sentences + link to NVE
Confusion, suspicions
- Treatment C → Emissions = car use
"Bad consciousness, good"
- Treatment E → The story of a role model
"I think she has a point"



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STRATEGIES FOR CHANGE

- Regulations: shifts in norms and relevant values (incandescent light, smoking)
- Taxes: know how they co-work with other factors
- Information: potential shift in field of rationality, but requires clear "translation"
- Policies must take into account the logic with which people act (made up of more factors than material constraints)

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RESEARCH PROJECT (NFR 2009-2011): DO CUSTOMER INFORMATION PROGRAMS INFLUENCE ENERGY CONSUMPTION?



:Westskog, Winther and Strumse 2011): "Addressing fields of rationality: A policy for reducing household energy consumption?"
In Markandya, A. et al.: *Handbook of Sustainable Use of Energy*. Edward Elgar Publishing Ltd.

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