Adoption of Technologies & Innovations - Diffusion Barriers of Electric Bicycles and Windows of Adoption.

Jessica Le Bris (Dr. des.)
Green City Projekt GmbH
1. Topic and field of research
2. Two new theoretical models: MiMP and MoKo

3. Key Findings
4. Implications for planning strategies
Technological product innovations within the 2wheel sector

Pedelecs as new mobility tool within the field of sustainable mobility options ... (UBA 2014)

Overall aim / Motivation of the PhD

To identify points of change for the promotion of sustainable mobility solutions

First step:

Understanding the actual behaviour of pedelec users

Gaining knowledge about the ADOPTION and APPROPRIATION PROCESS of the new technology pedelec
The qualitative research design

Interpretative Social Science & Grounded Theory Methodology

Empirical data base:

- 40 Pedelec owners, ca. 1h interview
- Research area: Metropolitan Region of München
- Theoretical sampling (heterogenity of the sample)
Integration of two theoretical “framing” perspectives

“How can we support and promote sustainable behaviour?”

A) Majority of mobility research from social science:
Models based on behaviour theory

- behaviour as linear consequence of attitude (ABC-Models SHOVE 2009)
- individual subject acting autonomously
- theoretical separation between “inner“ / “subjective“ and “external“ / “objective“ influencing factors
Integration of two theoretical “framing“ perspectives

“How can we support and promote sustainable behaviour?)

A) Strategies / Approaches based on behaviour theory

Planning:
Isolated strategies and departments

Individual / “internal Factors“

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<table>
<thead>
<tr>
<th>Attitude</th>
<th>Intention</th>
<th>Behaviour</th>
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“external“ Factors

“soft policies“

“hard policies“
“How can we support and promote sustainable behaviour?

A) Strategies / Approaches based on behaviour theory

Integration of two theoretical “framing“ perspectives

Planning:
Isolated strategies and ressorts / departments

Attitude → Intention → Behaviour

Individual / “internal Factors“

Routines

"external“ Factors

“soft policies“

“hard policies“
B) Implications from practice theory

- “social change” is only possible through an integrated holistic perspective
- “practice as entity“ → overcome the separation of micro- and macro sphere
- re-configuration of the arrangement of all elements of a social practice (including corporal skills, symbols, daily life interconnections…)

“How can we support and promote sustainable behaviour?”
The Model of the individual Mobility Practice (MiMP)

The pedelec practice as part of the individual mobility practice & as emergent product of the individual configuration of elements (assemblage)

feelings
meanings
discourses
interconnections from daily life

socialisation
experiences
biography
competences
corporal sensitivity
atmospheres

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The Model of individual Mobility Carreers (MoKA)

Framework to characterize the development of the pedelec practice as part of the individual mobility practice
The Model of individual Mobility Careers (MoKA)

- Pedelec Perception
- Pedelec-Purchase
- Habitual Script Formation
- Process of Adoption
- Process of Appropriation
- Pedelec Practice

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Key findings regarding the process of adoption of pedelecs

→ Everything of central meaning *before* the pedelec purchase
Positive mobility orientation towards cycling

J: “cycling is freedom, no matter if it is a pedelec or conventional bicycle” (57)

Cycling socialisation

H: “I was lucky, I grew up in a different way (no car as soon as you are turning 18), I guess it has something to do with the general attitude of your parents” (185)

Practice of cycling as significant part of the mobility biography

L: “well (...) the importance of the bicycle has always been significant, but just for practical / pragmatic reasons” (44)

→ Deeper life experience, biographies and socialisations as characteristics and pre-conditions for adoption
# Activity orientation (10): „Wish of being active“ as basic characteristic

X: „it is simply nice, that you can move yourself [...] I like DOING something“ (11)

L: „no, [E-Bike] wouldn’t be interesting for me, I do prefer to have the feeling of pedalling“ (144)
Windows of adoption that rise the probability of adoption

Changes & events in the following element fields

# Problems with the physical environment and space

H: „I thought that’s my escape“ [...] „[first reaction] I thought, of course, when living here, I MUST have it, not possible without“ (112)
**Window of Adoption: The EXPERIENCE of the pedelec!**

**A1:** "I wouldn't have guessed [that it is so great] not at all (..) but after I have ridden the first 2 km it was clear, THAT's IT“ (9)

**Y2:** "[first I thought it's a joke] then I saw my neighbour riding it, then, may I try it, then, I went up the hill, OHH, that was AMAZING (..) and THEN the idea came up, woahh, you would have so much more FREEDOM [...] you can cycle [train] outside, you don't have to you use the stationary bike any more” (236-238)
# Social risk

M: "at the beginning I have had a problem with myself, kind of an image problem, because [...] it started by old people buying pedelecs that weren’t as mobile any more, and of course, I didn’t feel comfortable with this image, I really had to fight with myself" (98)

# Corporal risk

Z: "at the beginning I had kind of a antipathy, because you raise the impression of getting lazy" (12)

# Identity related risk

Y2: "I have always thought that’s stupid (..) I don’t need help for riding or anything else, that’s stuck in the head"

Y1: "yes, we have been athlets" (236-238)

U: "you can challenge the E-Bike until its limits and then it is just fun, but you got this inner ambition to achieve everything yourself, it is a little bit like a WALKER, you have this prejudice a bit" (91)
Roadmap for the support of the diffusion of pedelecs
1) “Script based strategies”

- Long term base for the support and promotion of the pedelec practice
- The practice of cycling must become a part of the individual habits
- → creating an “pedelec friendly” arrangement
- subtil change

- No barriers should hamper the performance of the practice, the practice must be able to grow without barriers and longterm scripts must be created
- The identified adoption risks must be minimized
2) „Reflexivity based strategies“

• Supplement the script orientated strategies

• Pre-condition: reflexive openness and pre-motivation of potential users towards the new mobility alternative

  \[ \rightarrow \text{only then} \] rational advantages can be evaluated

  \[ \rightarrow \] biggest impact in specific moments during the biography („moments of change“) or in case of dissatisfaction

\[ \rightarrow \] Base “Windows of Adoption“
2a) „Reflexivity based strategies“
2b) „Reflexivity based strategies“
The experience as Break Point of the Adoption Process

- **corporal experience** with all body senses
  → Event marketing, testings, roadshows…

- **Testings** critical decision point
"The future is not pretermined and waiting to happen – it is ours to shape"
(LYONS 2012)