Transport culture and curriculum: What’s stopping walking and cycling from being mainstream?

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Entrenched practices and cultural barriers

Two types of research:

1. Current generation

86 LinkedIn profiles of ‘heads of transport’ in Local Authorities used to identify:
   • Who’s in charge
   • Background / training
   • Perceived kudos of skills – major highways, walking, cycling design, etc.

2. Next generation

Equipped with right skills for sustainable design? Comparison Transport MSc syllabi*

*level of academic requirements for CEng was changed from a Bachelor’s degree to a Master’s degree in 1997

Engineers are more likely to apply to do Transport MSc
**Head of Highway Infrastructure: London Borough Council**

| **Summary:** | A chartered civil engineer with over twenty-five years’ experience in London's highways and transport industry. Recently involved in change management, borough transport and highways service integration programme between London Boroughs and helping to shape the future direction of the transport and highways services. A dedicated and focused manager with a track record for delivery of a broad range of projects and programmes. |
| **Current Role** | Head of Service responsible for: Highway Capital Projects, Maintenance, Bridges, Street Lighting, Traffic Design, Traffic Orders, Parking Projects |
| **Previous Roles:** | • Deputy Head of Highways  
• Team Leader Traffic Infrastructure  
• Group Manager–Engineering Projects  
• Principal Engineer  
• Project Engineer |
| **Self-selected skills:** | Project Planning, Public Sector, Rail, Public Sector, Bridge, Highway Design, Project Delivery, Infrastructure, Feasibility Studies, Management, Road Traffic, Policy, Stakeholder Engagement, Construction Management, Cost Management |
| **Education:** | Civil Engineering B.E (1982–1986) |
Bachelor’s degrees by subject held by Heads of Transport in local authorities. Derived from LinkedIn sample, 2016

69% had engineering qualification (HNC, HND, Bachelors)
Master’s degrees held by Heads of Transport of local authorities
Derived from LinkedIn sample, 2016

- Transport related: 29%
- Planning related: 4%
- Engineering: 2%
- Management: 24%
- Law: 9%
- Design related: 2%
- Medical Physics: 2%

Legend:
- Transport related
- Planning related
- Engineering
- Management
- Law
- Design related
- Medical Physics
11% of MScs were transport related
Only 2% of the stated affiliations were with the Transport Planning Society (TPS)
Not so well-regarded? Newer Institute (TPS since 1997, CIHT founded 1930)
Designing for car held in higher regard than walking/cycling/urban design
Road safety was more likely to be mentioned than walking/cycling/urban design combined
• Heads of Transport = 91% male, 9% female

• More skewed than the gender imbalance among Chief Executives of Local Authorities: 23% women and 77% men (Wilkes, 2013)

• Equal representation of women in transport could help promote walking and cycling
Gender and cycling in England

Cycling by gender and age

% who had cycled (any length or purpose) in the last 4 weeks

Age
16-24 25-34 35-44 45-54 55-64 65+
Males 27 23 27 22 15 8
Females 13 11 14 11 7 3

All ages average: Males 20%, Females 10%
Do today’s Transport MScs teach how to design for people walking and cycling?

Nine MSc courses selected for analysis:

- Cardiff University
- Edinburgh Napier
- Imperial College /University College London
- University of Leeds
- Newcastle University
- Salford University
- Southampton University
- University of Westminster
- University of West of England
Policy modules vs Engineering modules, 2013–16
Proportion of module guides which mention (explicitly or implicitly) different types of infrastructure

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Road Safety:

• Routine

• As in LinkedIn profiles – engineers mention road safety more than walking / cycling

• studied in isolation from pedestrian and cycle traffic

• Conceptual split problematic - walking and cycling excluded from mainstream highways engineering.

Walking and cycling:

• often ‘add-on’ topic

• conventional highways standards covered rigorously
12 elements, 1 directly covered walking and cycling:

* Traffic Parameters and traffic flow theory on highway links
* Traffic data collection, surveys and automatic detection systems
* Junction types and layouts
* Traffic analysis at road junctions: gap acceptance, capacities, queues and delays.
* Design and evaluation of priority junctions
* Design and evaluation of roundabouts
* Design and evaluation of traffic signals
* Urban Traffic Control: Principles and practice
* Design and evaluation of gradeseparated intersections
* Designing facilities for vulnerable road users (pedestrians and cyclists) and buses
* Case Study: Road junction design
* Designing for safety
* Geometric Design of Highway Links
* Human Factors in Transportation Engineering
Critiquing the car / visioning: much less common in Engineering MScs
Transport MSc courses

• Need to integrate walking and cycling, esp. into engineering
• Engineering-based transport MScs need to encourage students to think of alternatives

Transport profession must diversify

• Routes into transport are well sign-posted for engineers, but are less clear for those from other disciplines
• Complex challenges require more diverse skills /individuals than before.