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If a mobility transition is what we want, transport research should....

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Since the middle of the last century the discipline of transport research has evolved into a mature academic field. Several high quality journals have been founded and landmark conferences have been setup. A range of theoretical perspectives have appeared, and several sophisticated methodological techniques have been developed and applied. Much of this research has contributed to innovations on the ground. This is an achievement we should be proud of as a community!

This does not mean, however, that we can simply sit back and enjoy the ride. On the contrary, innovation in transport is needed more than ever. Mobility is still increasing exponentially throughout the world. And with a rapidly growing and rapidly urbanizing world population this is very likely to continue, especially in the Global South. We know that mobility forms a vital component of how we organise our lives, our businesses and our societies. But we also know that current mobility patterns and trends are unsustainable. Globally, mobility causes around 14% percent of the greenhouse gases related to climate change (Team et al., 2014), and this impact – contrary to other sectors – is growing. Mobility is a cause of no less than 1.35 million fatalities and a multitude of severely injured worldwide, year after year after year (World Health Organisation, 2018). And then there is the impact of current mobility practices on air and noise pollution, lack of movement, inequality reinforcement, public space encroachment, land degradation, energy depletion, or waste creation – to name but a few. In short, our planet cannot afford mobility to proceed on this

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unsustainable path. We are in need of a radical change in the way we move around people and goods, that is, of a transition to sustainable mobility.

If we agree that this is the case, and most do, this also has implications for the future of transport research. However, we do not believe that the research community is drawing these implications forcefully enough. Accordingly, the aim of this commentary is to trigger a deeper, further reaching debate in this community to which we also belong, by means of three statements and a final challenge. Each statement draws an implication for transport research, following the assumptions that (1) we need a transition to sustainable mobility, and (2) we want our research to enable the transition. For each of the statements we discuss the outcomes of a voting session with transport academics during the scientific conference mobil.TUM that took place on 14 and 15 June 2018 in Munich. We used the online voting tool Mentimeter (<https://www.mentimeter.com/>), that enabled anybody with a smartphone or laptop to cast one vote for each statement. We hope these statements and the final challenge will make the reader reflect, but better engage in an ongoing conversation with us and others!

The first question we asked is if the audience agreed with our observed need for radical change. A large majority agreed, but it is worth noting that 18% disagreed with this statement (figure 1).

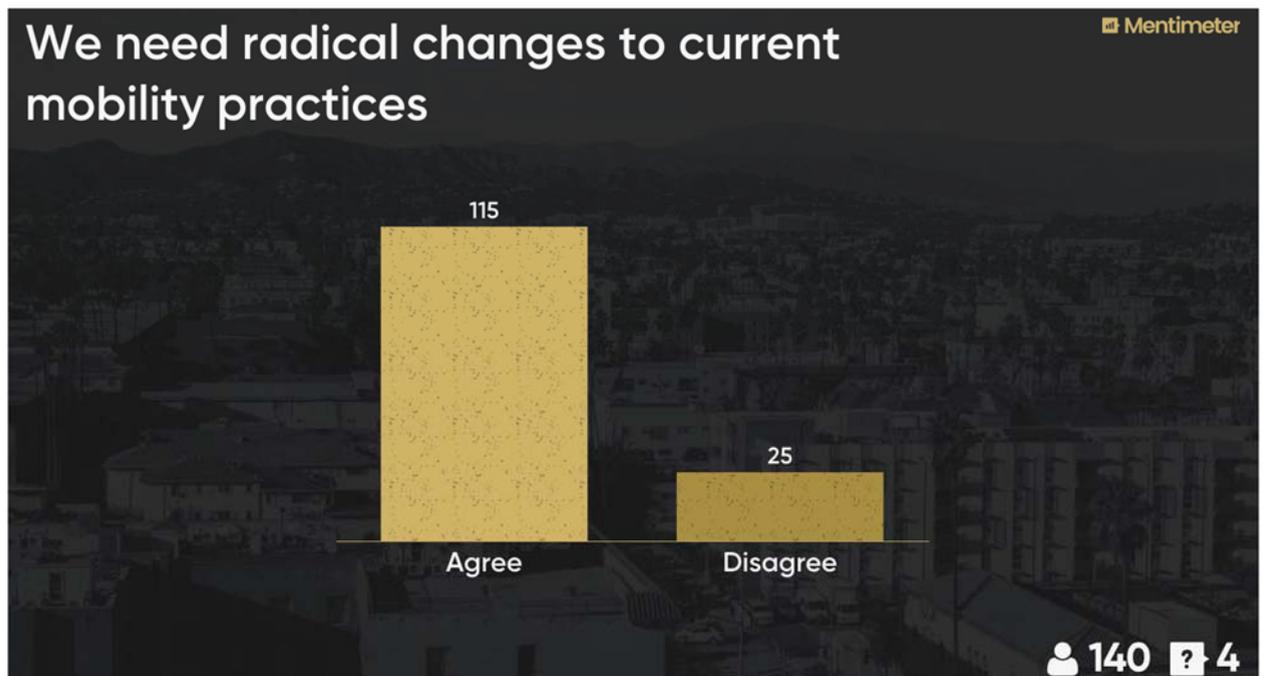


Figure 1: Is radical change needed?

First, dare ask the difficult questions

If a transition towards sustainable urban mobility is what we want, transport research cannot just assume that it will contribute to making mobility more sustainable, as the knowledge generated could also be irrelevant, or even have a perverse effect, whatever the rigour by which questions are answered.

For instance, research into ways of reducing congestion on the road might contribute to the maintenance of the unsustainable car dependent status quo, or even to the rise of overall mobility levels, and thus possibly even *less* sustainability than the status quo. If a transition towards sustainable urban mobility is what we want, research then needs rather to explain *how* and *why* answering its questions would contribute to a sustainability transition. In this respect, asking a *relevant* question might be more important than asking an *answerable* question. For instance, from a sustainability point of view, asking how car use in cities could be reduced by an order of magnitude is a very difficult to answer, but much relevant question. So, our fist statement is:

“If transport research wants to contribute to a sustainable mobility transition, a relevant but difficult to answer question is better than an easy to answer but irrelevant question”

So what did transport academics think about this statement? Respondents were asked to respond on a 5 point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). 78% of the audience agreed (strongly) with this.



Figure 2: Is a relevant but unanswerable question better than an answerable, but irrelevant one?

Second, open up the future by probing the present

If a transition towards sustainable urban mobility is what we want, transport research cannot just focus on describing and explaining current mobility practices, because current mobility practices are the past of a future that, in order to be sustainable, must be fundamentally different, and cannot reproduce them. Simply – quantitatively – simulating future practices in isolation from present-day mobility arrangements would also likely not suffice, as it will risk negating the complexities of the real-world, and/or reproducing assumptions supporting the status quo. For instance, even if we could fully understand why people choose to drive – which is a big ‘if’ - we would still not know for sure what would make those same people choose *not* to drive. And the latter is precisely the sort of change that a transition to sustainable mobility might require. If a transition towards sustainable urban mobility is what we want, research then needs rather to focus on exploring *in the present* the opportunities for and barriers to fundamentally different mobility practices than the current ones. It should immerse itself in the complexities of the real-world, and continuously challenge the assumptions of the status quo. For instance, by initiating and/or observing real-world experiments with alternative, sustainable mobility practices --- as in ‘living streets’ (<https://www.leefstraat.be/the-ghent-pioneering/>) and other initiatives. Our second statement is, then:

“If transport research wants to contribute to a sustainable mobility transition, it should explore change in the present, rather than try to understand the past, or to simulate the future”

The audience in Munich was ambiguous about this statement. 38% disagreed (strongly) and the largest group was on the fence.



Figure 3: Should we explore change in the present rather than understand the past or simulate the future?

Third, combine multiple ways of knowing

If a transition towards sustainable urban mobility is what we want, research cannot just use disciplinary knowledge, or even just scientific knowledge. In the face of a complex challenge as the transition to sustainable mobility, with its countless societal ramifications, disciplinary knowledge is inevitably partial, and scientific knowledge cannot alone lead to action; forms of knowledge rooted in concrete experience are also indispensable. Engaging with practitioners only at the end of the process, as in traditional research dissemination, would also not work, as the cognitive and emotional distance would then be too great to spur action, as long ago already noted by Dewey (1958). For instance, there are many different factors that lead to car driving, but single disciplines can only be able to capture a few of them. However, even if we were able to capture them all, or most of them, putting this knowledge into action would require the actual engagement in the process of those who must act. If a transition towards sustainable urban mobility is what we want, research then needs rather to pool together different forms of knowledge: different scientific disciplines but also non-scientific, practical knowledge, and do this along the whole course of the research process. For instance, by having a continuous, reciprocal and equitable dialogue between researchers from different disciplines and practitioners in *all* phases of the research, not just at the end, or only at the beginning. The benefits of such interaction go both ways. Academic critical thinking could strengthen the reflexive capacity of public and private players. Engagement with practice could trigger academics to contribute insights that can positively inform innovation. In such a relationship, academics would function as ‘honest brokers’ (Pielke, 2007), who open up and help to explore different transition pathways, while practitioners would be those actively and reflexively engaging in the exploration. Especially in early phases of innovations in mobility, such reflexive and experiential capacity could

speed up the classical ‘hype’ cycles, in which disruptive innovations are met with high expectations and critical voices often only surface after years of implementation and spent energy.

This leads us to the third and final statement:

“If transport research wants to contribute to a sustainable mobility transition, researchers from different disciplines and practitioners should contribute to all phases of the research process, on an equal footing”

Since this would imply a rather fundamental change in academic research, it is interesting to learn more about the verdict of the transport academics in Munich. 66% agreed (strongly) with the statement.



Figure 4: Should researchers/practitioners from different disciplines contribute to all phases of research, on equal footing?

What is holding us back?

If you have followed us up to this point, and you have tended to agree with our statements, or perhaps even been wondering whether we need to discuss this at all, the next question arises: What is, then, holding us back? This is a relevant question, because the kind of research these statements point to, is *not* what most transport researchers are doing, not in the mainstream at least. The mainstream of transport research – just browse through the recent issues of any international journal – is *not* aimed at asking relevant but difficult questions, proactively exploring radical change in the present, and involving other disciplines and kinds of knowledge in the full research process.

So, as a conclusion, let us play a serious game together. Just imagine, this is the last day you will spend at work. Use your imagination to come up with a dramatic reason for this. We invite you to think about what you want to be your legacy as a transport researcher. Why did you choose to spend so much of your precious time on earth on studying transport? What should we remember you for? What do you want to have given to the world? Dare to dream! Take time to answer, and do not go on reading before you have.

Once you have found an answer, write it down somewhere and ask: What is holding you back from realizing this dream? What are barriers in the organisation of your work, in the external environment, or possibly in your own psychology?

Write these barriers down as well, stop, and, finally ask yourself: How are you going to make a difference in the coming year? What can you do to achieve your dream, or at least move a step towards it? What can you do to help breaking down some of the barriers? And, perhaps most importantly, how can we, as a community of researchers, support each other in these efforts?

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