



From Reticent to Regular Rider - Using a Behavior Change Model to Design Effective Bike Programs

Q&A with Jessica Roberts

I'm assuming that this Behaviour Change Model assists in increasing the modal share to NMT, i.e. the infrastructure for this mode is in place. Can you use this model to get people out of their cars and embrace NMT to inform infrastructure provision?

It sounds like your goal is to change policy and/or affect planning and design projects. This is less of a behavior change goal and more of a persuasion goal. I don't think that Stages of Change is the best way to think about this type of change (of opinion or position). I also have not seen any papers applying Stages of Change in this way, which seems to validate that position. (I always make sure to state, though, that while I am constantly scanning the literature, I absolutely do not claim to be an expert on the entire range of literature out there, so I may have missed something!

Please do send me any studies you find on this topic.)

I think a more relevant tool for your situation would be the Diffusion of Innovations theory, which speaks to how new ideas take hold (or fail to take hold) within a society or community. Here's an excellent [blog post](#) from PeopleForBikes talking about how they designed their Green Lane Project around Diffusion of Innovations theory, and here's one example of an [academic paper](#) that applies DOI to the uptake of bikeshare.

In an employee commuting context, would you segment your audience by distance to work even before the stages of change survey? Or just let those too far away respond that they are precontemplation?

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If you wish, you can use Stages of Change along with another method. For example, perhaps you're already working with a subset of your entire population (e.g. employees who arrive during shifts that are not well served by transit), and then using SOC on top of that. However, I'd argue that if you're really wanting to work with SOC, then do the segmentation and only then make observations about how other variables (e.g. home distance from the workplace) seems to correlate with the stage. In other words, why do people the disservice of assuming that a 10+ mile commute means they aren't interested? Let them tell you through their segmentation response.

I've seen research, though I apologize that I'm having trouble finding it right now, that shows that peoples' Stage of Change around transportation is affected by the built environment, and can change if they move to somewhere better or worse for multimodal transportation. Which is to say, the built environment certainly does impact what stage you're in.

But you don't necessarily have to guess or assume; you can (if you want) just use self-reported SOC, knowing that people who live on a bike path are more likely to have a higher stage than those with a long and auto-oriented commute.

I'm advocating in a small city. I have 6000 subscribers to my email list. Where can I find good info on how to design this kind of survey?

I assume you already know low/no cost surveying options like Google Forms and SurveyMonkey. So you just need to pick the "flavor" of question (see the two options in the slides from my presentation), make any adjustments if needed depending on your goals and audience, and send it out.

Be sure that, when people reply, you get their contact information (assuming you do in fact want to deliver interventions/programming to specific segments - if you're just wanting to do segmentation e.g. for research or evaluation purposes, you don't necessarily need to be able to follow up with people, though I'd argue that it's still valuable to be able to see how specific folks changed stages).

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In Southern California, we have to survey all commuters each year to determine our Average Vehicle Ridership. Is it dangerous to add these questions to that survey, or do we risk reducing the response rate for the required AVR survey?

I understand your concern, and I don't have a definitive answer for you. I assume you're talking about Rule 2202 compliance or similar, and I know that the survey is inflexible, long, and confusing already, so you are right to be concerned.

If you have enough respondents, you could always try splitting them into two (randomly-assigned) groups next time you survey, add the segmentation questions, and see if response rates decrease. Just be sure to check that you have enough people to get a statistically significant result (here is one [sample size calculator](#) you can use to check this, though you'll need a basic understanding of how this works to make sense of the results).

If survey response rates don't suffer, then by all means add it in the future if you feel you can make good use of the data you collect.

The other thing I'd point out is that - assuming you're not collecting contact information - this information could only be used to evaluate whether people are changing their stage of change in the aggregate; you wouldn't be able to follow up to offer people stage-specific interventions (aka program offerings you've designed for that stage).

If you have a lot of turnover, and thus the survey respondents aren't the same from year to year, I'd be concerned that your survey results wouldn't really tell you if you're succeeding in moving people along the SOC journey. So, it may be useful, but consider carefully before going to the trouble.

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Any tips for increasing survey responses?

Incentives! I suggest marketing with a drawing to win a ~\$100 gift card to a grocery store (note, we intentionally don't want to give away bike paraphernalia, since those in precontemplation won't bother to take the survey). In an institution or employer, you can also try to get top-down messages from those in positions of authority (e.g. if their supervisor asks them to please be sure to take this survey, they are more likely to do so). Keep in mind that you may need to incent the post-program survey more heavily to get enough responses. (Note: behavioral science research generally shows that a higher-value drawing is more motivating than guaranteed individual rewards. But be sure a drawing would not violate any union compensation agreements if you are working in a unionized environment).

How do you measure progress in Contemplation and Preparation stages? Survey based metrics?

Yes, you will need to ask the same survey question again after your intervention is complete, or at regular intervals depending on your evaluation and reporting plan.

At an employer level, segmenting your audience seems easy enough, how do you apply this at a population scale (i.e. county/region)?

Asking the question isn't the problem here, it's more about how you create efficient programs at scale. Large-scale programs (e.g. statewide) can't spend person time writing emails, so they already generally have some sorts of solutions for efficiency, such as web-sites, opt-in/intake forms, CRM (customer relationship management) software to track responses and communications, surveys, and email lists/newsletters.

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Use those same tools to survey folks, track their Stage of Change, track any stage-specific program offerings you send them (e.g. if you send everyone in your CRM as well as whether folks respond), and track any changes in their stage over time.

Ultimately, it might be possible to build an entirely automated online program based on Stages of Change. Such programs already exist for e.g. smoking cessation. In this case you'd have to anticipate all the possible replies people have and allow them to interact with the website, chatbot, text interface, or whatever you use in a sort of "choose your own adventure" style. However, generally people have to be very personally motivated to engage in this type of self-paced online program, or have it be assigned to them (e.g. as a condition of their employment or from a counselor), and I'm not sure we can assume the same level of independent motivation when it comes to bicycling for many people.

Managing individuals' journeys through programs, time, and stages of change sounds complicated and time consuming. Do you use a CRM? If so, which one, and how do you manage it ongoingly?

As consultants, we have to use whatever system each of our clients wants. So we would use any CRM (e.g. Salesforce) that our clients use. They're all a little bit different but ultimately accomplish similar functions, so I'm not sure it matters which one you use.

Can it be advantageous to communicate with folks about where they might fall in the theory of change? (Helping them to identify where they are in the theory of change journey.)

I think it can be helpful to explain that a specific intervention/program offering is based in research (e.g. you said you'd like to bicycle more often;

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I'm inviting you to complete this action plan because researchers have found it's a useful tool to help people take steps towards change). However, I don't think that the time it takes to explain Stages of Change theory is really worth doing. People will sense that you are providing them with useful and appropriate offerings, and they will appreciate that.

Have you validated the effect of the messages you sent out to different segments?

My team has used SOC as one of the ways we evaluate the overall impact of programs (e.g. see slide # 13 in my presentation). However, I have not evaluated individual messages as to whether they, alone, change someone's stage.

Which age groups have you surveyed?

My team mainly works with adults, because that's what our clients hire us to do. I would say that SOC doesn't make much sense for children young enough that they do not have a say in how they get around. For example, finding that children are in pre-contemplation about biking to school is far less helpful/actionable than finding out what stage of change their parent is in.

Would this work for high school students?

I am not familiar enough with the research to say for sure that it has been tested with high schoolers, but I would expect it to.

Who was the audience of your survey(s)? Employees of a company?

It depends on the program. We have used SOC in both residential and employer programs.

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With the pandemic how do you build a program on most people working from home?

I'm not sure Stages of Change is the best way to think about this activity at present, since most people are working from home because they are required to by their employer. However, you might start thinking about SOC and how it relates to a future return to office scenario. How are people feeling about the idea of starting to commute again? If there are people who really aren't happy about the idea of commuting, they could be offered appropriate support for e.g. continuing to work from home. I would generally think that the individual employees preferences are less important here than the policies and expectations of the employer, so that might be the best place to focus.

Is it possible to use this method for a university campus that sees ~70k people coming to campus every weekday (without an army of employees)?

Yes. You just have to think about how to scale. E.g. come up with program offerings for each stage that can go out in automated emails, forms they fill in, cohort email newsletters, etc.

Did the Vancouver person send this to all of the employees or a sample? If all, how could he prepare to talk with everyone who expressed interest?

Arthur Orsini (Healthy Transportation Lead, Wellness | People at Vancouver Coastal Health: Arthur.Orsini@vch.ca) has generously agreed to field inquiries about his project. I believe the survey and invitation went to every employee, though.

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Do you track individual responses before and after the survey? I.e., do you know that person A who was in the intention stage in the pre-survey was Person A who shifted to the action stage in the post-survey? Or is it all aggregate?

You can do either way. It's arguably more interesting to know how people are changing (e.g. if you see a change at the aggregate level, is it a large number of people bumping up one stage vs. a smaller number of people moving several stages), but it all depends on whether you actually NEED that level of specificity. Make it easy on yourself and only collect and analyze data you need! If you are going to provide stage-specific interventions, though, you will need to track individual stages anyway, so you can follow up with the right people. So in this case, you might as well track the post-program results at the individual level anyway, even if you roll them up for your reporting.

How do you address all this in a flyer or general communications at a university? I can't have separate collateral (flyers at tabling, digital displays, posters, etc.) targeted to all these phases.

If you're doing tabling or one-on-one outreach, I actually recommend you use SOC principles in a more organic/qualitative way. Meaning, just keep them in mind during your conversations, and use SOC ideas to inform the way you respond. (And consider brushing up on [Motivational Interviewing](#) principles while you're at it; they're not identical to SOC, but we think they go together really well). Listen for what people reveal to you about their motivation, and respond with that in mind. For general communication that goes to unsegmented audiences, it probably doesn't make sense to integrate SOC principles all that strongly, unless you've done a survey and you know that the majority of that audience (or at least the ones you're trying to reach) are in a specific stage.

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Keep in mind that SOC emerged from a one-on-one counseling setting (e.g. addiction management counseling), and a lot of the most-tested strategies lend themselves better to use in conversational settings because of that.

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