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Learning from abroad: An interdisciplinary exploration of knowledge transfer in the transport domain

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ABSTRACT

A growing body of work conceptualizes study visits or study tours as a tool to accelerate policy transfer of, for example, best practices. Participation in study tours appears increasingly common for city management and decision makers involved in transportation policy. This paper extends current research to explore how knowledge gained from study tours transfers to an organizational or inter-organizational level. We aim to generate insights about specific characteristics of study tours that facilitate knowledge transfer. To do so, this study conceptualizes study tours as "trainings", borrowing concepts and metrics from human resource development (HRD) literature on "learning transfer". We employ a mixed-method approach. A survey was conducted ($n = 109$) with US-based city management and officials who participated in study tours on cycling policies. Results demonstrate four influential characteristics of study tours: individual learning, leadership participation, knowledge integration activities, and positive group dynamics. In-depth interviews ($n = 15$) suggest nuances of these mechanisms. The paper concludes with a reflection of how transportation organizations learn from study tours.

1. Introduction

Policies needed to achieve sustainable mobility are well-known (Banister, 2008), yet barriers to implementation seem ever more powerful. To overcome barriers, leveraging organizational, political and public support are fundamental elements of successful policy implementation (Stead, 2008) – and the lack thereof might produce failure (Banister, 2005). One of the underlying issues remains *how* to cultivate such support or acceptance. Fundamentally, as Banister (2008) notes, "a deeper understanding of acceptability is needed" (p. 79). This invites us to explore which interventions, mechanisms, or forces might be most impactful for cultivating support that matches the scale of change required. In essence, how can decision makers, stakeholders, and citizens reshape understandings that prompt support and acceptance of sustainable mobility? This article aims to unpack a topic central to this invitation: learning.

One way to manage these challenges is engaging in policy transfer, a process by which knowledge about policies – but also administrative systems, institutions, and ideas – move from one context to another. Dolowitz & Marsh (1996) usefully systematize policy transfer processes with their widely-cited policy transfer framework. Considered a subset of *policy learning*, scholars challenge whether this framework can adequately explain policy learning (Dolowitz & Marsh, 2012; Evans, 2009). Marsden & Stead (2011) offer a merged conceptual framework for policy transfer *and* learning for transportation. With a hint of dissatisfaction, they conclude "Remarkably little is understood…about the precise role of learning from elsewhere and its influence on processes of policy reform" (p. 499). However, evidence of policy learning resulting in implementation has emerged, i.e., emissions policies (Arbolino, Carlucci, Cirà, Ioppolo, & Yigitcanlar, 2017), bicycle share systems (Ma, 2017), and road pricing (Attard & Enoch, 2011; Glavic et al., 2017). Although these studies offer valuable insights regarding patterns of policy adoption, actual learning experiences of individuals, or the transfer of learning from the individual to wider circles, remain largely unexplored.

At least some of the dissatisfaction may stem from the tendency to utilize the policy transfer framework which does not necessarily assess learning processes. Although few (if any) other assessment frameworks are available, using classification systems to assess or explain learning generates challenges. For one, policy transfer and learning are often bundled, not necessarily as one process but lack of distinctions (for example, between phases of learning) muddle the ability to

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operationalize and measure learning. Second, outcomes of the process – either learning or transfer – emphasize policy reform of specific (often technical) solutions, while 'mechanisms' of *learning* remain obscured. Here, 'mechanisms' refer to "concepts that explain how a phase in the learning processes is triggered or activated" (Heikkila & Gerlak, 2013, p. 487). We address these challenges by bifurcating the learning and policy transfer process. While we do not undermine the value in understanding specific technical solutions sought or transferred (or not), by focusing attention on the *learning process*, we can more finely investigate mechanisms in this situation.

In particular, this article focuses on the widespread practice of (international) study tours, also called study visits, fact-finding missions, or scan tours, and generally defined as organized group visits to another place, "usually focused on work-related learning" (Cook & Andersson, 2018, p. 111). Experiencing a policy "in action" can "draw lessons" (Rose, 1993), but is also critiqued as "policy tourism" (Cook, 2008). Study visits are the subject of an emerging body of academic work, mostly in policy and geography (Gonzalez, 2011; Hudson & Kim, 2014; Wood, 2014). In transport policy research, study visits are recognized as influential in single-issue qualitative cases on policy transfer (Attard & Enoch, 2011; Bok, 2015; Ma, 2017; Marsden, Frick, May, & Deakin, 2011), however rarely examined as a unit of analysis or from a quantitative approach.

Moreover, an expectation reckons that these visits can unlock "potential to improve their organizations" (Montero, 2017, p. 366), insinuating some form of organizational learning or that learning transfers from the individual into wider circles. While previous work has applied organizational learning theories to conceptualize policy transfer (Wolman & Page, 2002), also in transportation planning (i.e., Giezen, Bertolini, & Salet, 2014), insights have not been generated about effectiveness of study tours or specific characteristics that facilitate knowledge transfer to the organization.

To address these gaps, this article unites discussions from multiple disciplines to investigate the practice of study tours, paying close attention to mechanisms of knowledge transfer. The following research question guides this paper: How do transportation organizations learn from study tours? Using an analytical framework derived from theory on organizational learning, the well-established "transfer of learning" theory (Baldwin & Ford, 1987), we operationalize this with two subquestions: (a) What characteristics of study tours facilitate learning transfer; and (b) How do these characteristics facilitate learning transfer?

The paper is organized as follows. First, we clarify the theoretical foundation with contributions from business management and human resource development (HRD). Next, we provide an overview of the practice of study tours on cycling policy in "best practice" urban environments. Third is a description of the research design, followed by limitations. In the findings section, we identify which characteristics of study tours affect learning transfer, proceeded with an in-depth exploration, using interview data. After a succinct conclusion of empirical evidence, we end with a discussion, linking back to theory, and propose directions for future research.

2. Theoretical approaches to learning in organizations

To give theoretical structure to this research question, we use theories developed in the fields of business management and human resources. Since the 1980s, knowledge transfer (KT) and organizational learning (OL) have become ubiquitous notions in the fields of business management and HRD; however, no single theory predominates (Fiol & Lyles, 1985). These bodies of literature are vast, each with its own vocabulary and defining features, for example "double-loop learning" (Argyris & Schön, 1978), "absorptive capacity" (Cohen & Levinthal, 1990; Zahra & George, 2002), the "learning organization" (Senge, 1990), and "knowledge creation" (Nonaka & Takeuchi, 1995). While empirics are more often dedicated to assessing private firms and firm performance, empirical applications include a variety of contexts, such as NGOs (i.e., Ebrahim, 2005), academic institutions (i.e., Da Silva & Davis, 2011), and the public sector (i.e., De Vries, Bekkers, & Tummers, 2016; Moynihan & Landuyt, 2009).

Generally, organizational learning is defined as the ability and capacity of an organization and its members to identify, examine, and resolve problems. KT can occur between individuals from different units or organizations communicating about *explicit knowledge*, or specific problems and procedures (Argote & Ingram, 2000). Explicit knowledge can be abstracted, stored, and transferred, and easily communicated and understood. However, the effective communicating of explicit knowledge is not enough to generate learning on an organizational level (Cohen & Levinthal, 1990; Nonaka & Takeuchi, 1995; Senge, 1990; Zahra & George, 2002). Organizations must also demonstrate an ability to recognize the value of that information and then assimilate it into existing practices. The assimilation process requires, what Nonaka and Takeuchi (1995) call "externalization" – the sharing of *tacit knowledge* through dialogue and collective reflection, critical mechanisms discussed more below. While tacit knowledge is gained through experience and cannot be articulated, when dialogue and collective reflection occur, shared tacit knowledge becomes explicit.

Therefore, effective knowledge transfer and assimilation can result in knowledge creation, and then perhaps on a higher level, organizational learning (Argote & Ingram, 2000; Nonaka & Takeuchi, 1995). Organizations that can transfer and assimilate knowledge effectively retain competitive advantage, maintain higher productivity, and more likely to endure external pressures than organizations less capable of knowledge transfer (Argote & Ingram, 2000; Cohen & Levinthal, 1990; Nonaka & Takeuchi, 1995).

2.1. Antecedents to learning in organizations

Landmark theoretical frameworks identify several mechanisms of OL, sometimes referred to as 'antecedents,' that generally describe structural and interpersonal dimensions. A recent interdisciplinary review of literature on learning and capacity building (Glaser, te Brömmelstroet, & Bertolini, 2019) found four discrete but interconnected antecedents to learning in organizations. First, clear, consistent and strong *communication* channels both internally, vertical and horizontal, but also externally with key partners and stakeholders. These channels create layers of knowledge from which learning can more readily emerge. Face-to-face interaction and collective reflection are necessary communicative mechanisms. Second, internal and external *relationships* and the ability to build relationships strongly predicts an organization's capacity to learn. These relationships develop through trust and shared experiences.

Third, human and financial *resources* dedicated to learning (including dedicated staff or incentives) demonstrate to staff the importance of learning. Such resources stimulate an environment conducive to group problem-solving and elicitation of new ideas. Finally, *leadership* encouraging learning, described as "collaborative" or "distributed", supports cohesion, engagement, and commitment among teams. Empirical studies have found that organizations with these dimensions exhibit higher levels of employees' job satisfaction and productivity, decreased turn-over, and enhanced profitability (Egan, Yang, & Bartlett, 2004; Watkins & Marsick, 2003). These four mechanisms can be magnified through interventions or capacity-building activities, such as trainings. In this paper, we use the above antecedents to explore how organizations might learn from study tours, by conceptualizing study tours as "trainings."

2.2. Interventions in the learning process: "trainings"

In HRD literature, trainings enable organizational learning and have been studied for decades (Baldwin & Ford, 1987; Holton III, Bates, & Ruona, 2000; Nafukho, Alfred, Chakraborty, Johnson, & Cherrstrom,

2017). Trainings are defined as programs or courses "designed specifically for individuals to obtain additional knowledge and skills for one's profession" (Nafukho et al., 2017, p. 329). The "transfer of learning" framework operationalizes trainings as interventions aimed to enhance individual and team performance and contribute to organizational success (Baldwin & Ford, 1987; Holton & Baldwin, 2003; Meyer, Lees, Humphris, & Connell, 2007). Organizations invest financial and staff resources in trainings with the hope that individuals transfer new knowledge and skills from trainings to their workplace, thereby enhancing individual, team, and ultimately organizational performance (Baldwin & Ford, 1987). This argument therefore assumes a direct relationship between trainings, performance, and organizational learning.

However, moderating factors in Baldwin and Ford's (1987) model, what they deem the "system of influences," include several inputs of trainings which affect learning transfer outcomes. Since publication of their model, these inputs have been studied and debated extensively. Inputs include *individual characteristics,* e.g. motivation and personal learning outcomes, such as changes in perceptions and behavior (Burke & Hutchins, 2007; Nafukho et al., 2017). *Group dynamics* and team building qualities are also cited as an input, e.g. building trust and shared visions (Olsen Olsen Jr., 1998; Rouwette, Vennix, & Van Mullekom, 2002). *Design and delivery characteristics of the training* are included here in their model, e.g. preparation, explicit learning goals, and relevance to one's profession (Burke & Hutchins, 2007). *Work environment characteristics* act as another category of input, but can also be seen as a condition of learning transfer, e.g. support from peers and supervisors and opportunities to use new knowledge and skills (Burke & Hutchins, 2007). The present study focuses on these elements to assess learning transfer, retrospectively. Doing so begins to provide some understanding around what characteristics of study tours might facilitate transfer of knowledge from the individual to the organization.

2.3. Conceptualizing study tours as "trainings"

In the recent decades, the US transportation sector continues to experience intense pressure to develop its workforce and respond to rising demands (Cronin, 2011; Cronin & Alexander, 2019). Technological advances and demographic and market changes, for example, create challenges for transportation organizations. Expertise and skillsets are quickly evolving (Transportation Research Board, 2003), and calls have been made for transportation organizations to find innovative ways to train staff and provide experiences that fit today's needs (Cronin & Alexander, 2019). Improving expertise involves professional development or capacity-building activities, of which traditionally include (online) trainings, courses or conferences. Due to their descriptive similarities, we conceptualize study tours as "trainings," where a group of professionals from the same city undergo professional development in an another (international) context.

A historic tradition of international transport study tours persists today – with various goals, agendas, and types of study tours. The U.S. Department of Transport (DOT) and Federal Highway Administration (FHWA) uses "technology scanning" study tours to global destinations to advance employee knowledge on a range of topics such as road safety and active transport. Upon returning, reports highlight technical and policy solutions sought.[1] Besides national organizations, delegations from cities or groups of cities have also traveled and 'learned from abroad', for example, see Mild & Schlossberg, 2013 for specific technical solutions learned from cycling study tours.

In this paper, we do not intend to generate assumptions about internal or organizational expectations or rationales for participating in these trips nor do we question the advanced professional procedures of designing and executing such trips. Rather, we aim to build on the small but growing scholarly base by exploring and measuring learning: outside of gathering technical solutions, what characteristics of study tours might facilitate knowledge transfer? Study tours are broadly defined as "short visits in which a delegation of people travels to another place to experience something with potential to improve their organizations" (Montero, 2017 p. 336). The normative goal of organizational improvement appears to be the dependent variable; similar to trainings, as previously described, there is an assumed relationship between participating in a study tour and organizational learning. We therefore extend this body of work by investigating this relationship.

3. Cycling study tours in "best practice" environments

Cycling is increasingly seen as a promising sustainable urban transport mode, especially in car-dominant countries like the U.S. (Pucher & Buehler, 2017). However, major barriers to implementing cycling policy objectives include low levels of technical expertise and support or commitment by mid-level managers and engineers (Dill, Smith, & Howe, 2017). At the same time, many cities in the Netherlands and Denmark, especially Copenhagen, are internationally known as "best-practice models for cycling" (Sheldrick et al., 2016, p. 2740), due to their high cycling rates and traditions of integrated planning and transport (Bertolini & le Clercq, 2003). Around 27% of all journeys in the Netherlands are taken by bicycle[2] and up to 66% of all trips in certain neighborhoods of Amsterdam (Harms, Bertolini, & te Brömmelstroet, 2014). In Copenhagen, 41% of trips to work or school are by bike (Copenhagen, 2016). For US-based professionals working on transport-related issues in urban areas – where bicycle commuting mode share peaks at 6% in Portland (OR) (Pucher, Buehler, & Seinen, 2011) – Northern European trends demonstrate considerable differences.

Some cities in Germany and Sweden are also sought as leading examples (Pucher & Beuhler, 2012; Pucher & Buehler, 2007). Additionally, Seville (Spain) increasingly hosts foreign delegations (M. Calvo, personal communication, May 2, 2019). Marqués, Hernández-Herrador, Calvo-Salazar, and García-Cebrián (2015) explain that in only 5 years, cycling in Seville dramatically increased from effectually 0% of all trips to "more than 5%" (p. 32). While this mode share is much lower than that of Amsterdam of Copenhagen, Seville's recent and rapid implementation of a bicycle network – 164 km of 'segregated cycle-tracks' built in about 18 months – and the simultaneous roll-out of an extensive public bike-sharing system are unique (see Marqués et al., 2015).

Especially in the Netherlands and Copenhagen, niche industries cater to international policy makers and transport professionals wishing to learn about Dutch cycling policies. More than 200 foreign delegations per year visit Amsterdam to learn about cycling policies (Bracic, 2017). Similarly, about 105 foreign delegations (primarily public sector) visited the City of Copenhagen in 2018 – of those, "cycling is by far the most popular demand" (F. Petersen, personal communication, May 15, 2019). International inquiries have risen so drastically that both cities presently outsource many hosting responsibilities to private contractors. This industry appears rather informal, with no structured approach for managing this growing interest and none of these cities conduct systematic evaluation activities.

4. Research design and methodology

To examine our questions, we adopt a mixed-methods exploratory approach, used elsewhere to investigate policy learning in social contexts (i.e., Koebele, 2019). There were three main steps in the research

[1] For example, see FHWA. (2010). International Technology Scanning Program: Public policies for pedestrian and bicyclist safety and mobility (report). Retrieved fromhttps://international.fhwa.dot.gov/pubs/pl10028/pl10028.pdf.

[2] Harms, L., & Kansen, M. (2018). Cycling Facts. *Ministry of Infrastructure and Water Management*, 1–16. Retrieved fromhttps://www.government.nl/documents/reports/2018/04/01/cycling-facts-2018

process, elucidated in the following sections. First, a survey was developed with scales deriving from previously validated instruments. This survey identified key characteristics of study tours which facilitate transfer of learning. With these results, the second step was to investigate these characteristics through semi-structured interviews. The final step was to reflect on the findings, exploring how organizations learn from study tours using the antecedents to OL previously described (discussion section).

Two considerations are relevant to note here. First is that groups or organizations do not, per se, learn – *individuals* learn; and the accumulation of individual tacit learning is assumed to affect processes within representative circles and organizations (Nonaka & Takeuchi, 1995). We therefore indeed study individuals; however, in both the survey and interviews, we probe the individual's perception of group processes and actions. Second, evidence shows that humans have difficulty expressing, retrospectively, specifics about what we have learned because learning experiences accumulate as tacit knowledge, which cannot be codified or articulated (Duguid, 2005; Polanyi, 1966). This is especially the case when high levels of knowledge or skills have been achieved and the "expert" may no longer be able to intuit incremental increases in such knowledge or skills (Dreyfus & Dreyfus, 1986). As such, we purposefully steer away from assessing what specific lessons were learned or how specific projects have been affected due to the challenges around articulating, retrospectively, tacit knowledge. Such a study would benefit from an experimental approach with pre-test/post-test evaluation (see Rouwette et al., 2002) or longitudinal process-tracking analysis. Instead, as explained below, survey data were deemed suitable to systematically explore learning mechanisms derived from the literature (i.e., codifiable processes) and interviews allowed for expansion of personal experiences (i.e., tacit processes).

4.1. Survey instrument development and analysis

4.1.1. Survey development

Within urban and transportation planning, there are no validated instruments to measure learning transfer. Therefore, we compiled existing validated instruments from other disciplines (Table 1). We then adapted the scales, for example, by changing "training" or "intervention" to "study tour." Items covered the period before, during, and after the study tour, from preparation to knowledge integration follow-up activities. The 10-year recall limit was set to maximize sample size; the survey requested respondents to answer all questions based on their *most recent study tour experience* to increase the accuracy of their responses.

4.1.2. Sample population and dissemination

A database of 321 possible respondents was generated with several organizations which plan, guide, or host international study tours focused on cycling policy. Two were well-established private consultancies based in the Netherlands; additionally, a U.S. non-profit organization, People for Bikes, which also organizes study tours for U.S. cities involved in their projects. Each organization retains signed participant waivers for those who consent for future inquiries. To minimize ethical concerns, the database contained only consenting participants.

Possible respondents, at the time of the study tour, represented a range of public and private organizations in numerous U.S. cities in urban transport policy, planning, public policy, consulting or other related advocacy or non-governmental organizations. In gathering professional background and geographical origin data, our aim was to ensure inclusion of various perspectives and experiences of learning transfer, not to draw comparisons between cities, organizations or professions. Students were explicitly excluded from the sample. Using Qualtrics, the survey was sent to 312 people due to nine invalid email addresses and remained open for 2 months (April–June 2018).

Table 1
Survey instruments used.

Item	Source	Description of items
Learning Transfer System Inventory (LTSI)	Bates and Holton (2012)	Learner readiness and motivation; peer and supervisor support; the opportunity to use learning after the training
Predicting workplace transfer of learning	Nafukho et al. (2017)	Changes in personal behavior; gain in procedural knowledge
Evaluating dimensions of group dynamics	Rouwette et al. (2002);Olsen (1998)	Duration of intervention; group size; atmosphere; working processes

4.1.3. Survey data analysis

To explore which characteristics of study tours enabled learning transfer, seven independent variables (see Table 2) were measured with either 5-point Likert-scale (strongly disagree to strongly agree), categorical or binary yes/no responses. Of these, three Likert-scale variables contained scales which were averaged for each respondent for the analysis. Due to an underlying relevance among items in a scale, averaging scales validated by Cronbach's alpha is common practice (Taber, 2018) and used in survey research in many domains, including learning transfer (i.e., Nafukho et al., 2017) and organizational learning (i.e., Moynihan & Landuyt, 2009).

The seven variables were tested against the dependent variable measuring *learning transfer* from the study tour, using the same 5-point Likert-scale and averaged per respondent. The dependent variable is a scale of six items that share the assumption that individuals use knowledge to ultimately advance the organization, as explained in the theoretical section previously. Originally, we included a seventh item ("My organization hired new personnel as a result of the study tour"); however, after closer examination we decided not to use it as it didn't correlate strongly with the other six items, which demonstrates that the item may represent what we believe to be a different and indirect outcome of the study tour. Cronbach's alpha[3] for the six-item scale of the dependent variable was 0.808, indicating robust internal reliability. Following guidance from an extensive review on use of Cronbach's alpha in learning evaluation (Taber, 2018), for transparency, we include the underlying correlation matrix of the scale in the results section (Table 4).

The relationship between the dependent and the independent variables was tested in two ways in SPSS software: correlation analysis for Likert-scale variables and *t*-test for the remaining independent variables (categorical or binary).

In total, 124 completed surveys were returned (39.7% response rate). Fifteen surveys were excluded because of invalid/incomplete answers, leaving 109 valid surveys (34.9% response rate). During analysis, one question returned an anomalous number of blank responses compared to other fields. In response, this question was analyzed using a smaller sample ($n = 77$), indicated accordingly in Table 6.

4.2. Semi-structured interviews

Using the quantitative survey as a foundation, we conducted further research through semi-structured interviews (Lewis-Beck, Bryman, & Futing Liao, 2003; Yin, 1994). The specific goal was to systematically address the research themes and contextualize survey findings, offering an elaboration of individuals' study tour experiences and explanatory factors for knowledge transfer. Therefore, the interviews are illustrative

[3] Cronbach's alpha is a calculation used to determine the internal reliability across a multiple response to Likert scale survey questions (Cortina, 1993). The Cronbach's alpha returns a value between 0 and 1, where 0.60 is generally considered acceptable and above 0.80 considered strong (Bryman, 2008, pg. 151).

Table 2
Independent and dependent variables.

Item	Type	Sub-items
Independent variables		
Professional position	Likert 5-point (1 = strongly disagree; 5 = strongly agree)	I have the power to influence important decisions on urban transport.
Preparation and motivation (α = 0.559)	Likert 5-point (1 = strongly disagree; 5 = strongly agree)	(1) I used materials to prepare myself; (2) I had a clear understanding of what I wanted to learn; (3) I hoped to acquire useful knowledge and skills for everyday life; (4) I hoped to acquire useful knowledge and skills for my job; (5) I already know a lot about the topic; (6) I spoke with colleagues about what I wanted to lean
Duration of the study tour	Categorical	Number of days
In the study tour group …	Yes/No	(1) Participants were mostly from the same company or organization as mine (2) At least 1 elected official was a participant (3) At least 1 senior level transportation City staff was a participant
Group dynamic (Pearson's r = 0.725)	Likert 5-point	(1) A sense of trust and openness developed among the group; (2) A shared vision emerged among the group
Individual learning outcomes (α = 0.720)	Likert 5-point	(1) I clearly remember the main ideas I learned during the study tour: (2) Since the study tour I engage in more sustainable transport matters in my city; (3) The study tour encouraged me to think about changing my personal mobility habits; (4) Since the study tour, I have changed my personal mobility habits; (5) The study tour helped me to expand my ideas or generate new ideas related to my work
Post-trip knowledge sharing activities	Yes/No	(1) After the tour, I met my supervisor to discuss ways to apply the study tour lessons on the job; (2) After the tour, I met my team to discuss ways to apply the study tour lessons on the job (3) After the tour, I met people I work with most often to discuss ways to apply the study tour lessons on the job (4) After the tour, I met others with whom I work closely from other departments, companies, organizations, etc., to discuss ways to apply the study tour lessons on the job
Dependent variable		
Learning transfer (α = 0.808)	Likert 5-point (1 = strongly disagree; 5 = strongly agree)	(1) I have changed the way I work as a result of the study tour; (2) Projects we do were influenced by the study tour; (3) My workplace approaches mobility issues differently as a result of the study tour; (4) My workplace set new priorities as a result of the study tour; (5) The network I made through the study tour has benefited my work environment; (6) The network I made through the study tour has improved coordination between organizations that influence urban mobility in my city.

rather than representative. We do not intend to generalize or conclude whether or not the individuals or representative organizations "learned."

To uncover learning mechanisms, a purposive sampling approach with two groups of informants from one city/region was designed: n_1 represented study tour participants and n_2 represented non-participants but colleagues of n_1. The use of such sampling, with two groups, is acknowledged in qualitative methodologies to isolate particular processes (Ritchie, Lewis, Nicholls, & Ormston, 2013) – in our case, relevant insights into how knowledge was shared and integrated from the study tour, both within and between organizations and among participants and non-participants. This design also further enhances internal validity through triangulation, producing critical overlap among different data sources and analysis (Yin, 1994). The paragraphs below detail recruitment procedures for both groups, data collection and analysis.

4.2.1. *Informant recruitment*

A list of potential interviewees was created from the original database with 312 possible survey respondents (study tour participants). Since the original database contained 28 possible respondents from the Denver region, Denver appeared fertile ground for recruiting interview participants. With further desk research, Denver seemed representative of other mid-sized U.S. cities undergoing growth and revitalization with clear ambitions for global recognition. Denver's recent focus on sustainable transport is apparent from the many planning and policy documents and studies, Mayoral committees, and successful ballot initiatives creating funding for sustainable transport facilities for cycling, walking, and mass transit (ITDP, 2019). Despite these favorable developments, city-wide commuting by bike was 2% in 2017 (City of Denver, 2017). Denver was also chosen, with other US cities, to take part in the Green Lane Project and Big Jump Project, national projects funded by a non-profit advocacy organization, which aimed to increase inclusion of protected bicycle infrastructure in city and regional transportation plans. Included in the project budget, several delegations of Denver professionals participated in international study tours. For these reasons, Denver appeared suitable as an exemplifying case (Yin, 2009).

All 28 possible Denver informants from the original survey database were invited (by email) to participate in an in-person interview, which would occur during a 2-week fieldwork visit (July 2018). Due to availability, relocation, invalid emails addresses, and other reasons, eight interviews were confirmed and scheduled (n_1). Each informant was asked to recommend a colleague, including supervisors or subordinates whom, to their knowledge, had *not* participated in a study tour but who is involved in local sustainable transport policy (especially cycling), project delivery, or advocacy. For this group (n_2) seven interviewees confirmed, including two who vacationed on their own, separately, to The Netherlands and/or Denmark (P9 and P13).

In total, ten civil servants represented the City of Denver; three represented discrete private consulting companies; two individuals represented two active transport advocacy organizations. Initial correspondence indicated that all collaborate in some respect, including supervisors and subordinates, and had participated in study tours together,

funded through the Green Lane Project mentioned previously. The details of what study tours participants have attended and their employment sectors can be found in Appendix A (all names and roles have been anonymized).

4.2.2. Interview data collection and analysis

The interview guide and protocol followed a semi-structured approach (see Appendix B), following Jacob and Furgerson (2012). Based on our theoretical framework and its indicators, the design of the interview guide was adapted according to the interviewee (participant or non-participant) and situation. The first part of the interview covered organizational practices and approaches to learning as well as achievements and challenges with implementing cycling policies. The second part of the interview was structured around study tour experiences, both individual and group learning, and knowledge integration activities after the study tour. Each interview lasted between 1 and 1.5 hours. All interviews were recorded and transcribed, except for one where notes were taken. Interview data was deductively coded by two researchers based on the results from the independent variables tested in the statistical analysis (see results Section 6.2).

5. Limitations

We acknowledge several limitations. There are inherent challenges in measuring learning, especially social learning, an area of debate for decades (Duguid, 2005; Polanyi, 1966). One reason for this difficulty is the demonstrated inability for individuals to articulate accumulated tacit knowledge (Lam, 2012; Polanyi, 1966). This is one reason why the present study steers away from retrospectively assessing specific technical or policy solutions learned, for which a pre-test/post-test experimental design is recommended (Rouwette et al., 2002). We however recognize that retrospective interviews cannot fully capture the extent of learning. Many informants have attained a level of expertise in their profession which generates challenges around self-reporting specific lessons learned (Dreyfus & Dreyfus, 1986). Our methodology addresses this limitation through the use of an interview schedule designed to elicit perspectives from the informant on learning processes and mechanisms – rather than specific policy lessons – and through triangulation of evidence with a non-participant informant group (n_2).

Another difficulty with measuring learning is accounting for multiple contextual factors, such as institutional norms and values (Freeman, 2007). Societal perceptions of transport mode and choices differ dramatically depending on geography, with culturally-specific symbolic connotations,[4] and this has repercussions for transfer of transport policies in the case presented in this paper. To cope with this limitation, this study was bound to a U.S. context and made use of interviews from a single city (Denver) with mode shares representative of average U.S. cities.

We also acknowledge the modest sample size of fifteen informants. No agreed-upon minimum sample size for interview data exists (Bryman, 2016, p 416–417). We however find consistency with other qualitative studies involving often limited access to management-level or elected city staff, for example, in transport policy learning (Haughton & Mcmanus, 2012; Macmillen & Stead, 2014; Timms, 2011) and transport policy and innovation (Duffhues, Mayer, Nefs, & Van Der Vliet, 2014; Sengers & Raven, 2015). While fifteen informants cannot illuminate all perspectives, the profile of both samples was deemed suitable as public, private, non-profit, and varying professional backgrounds are included.

Surveys tend to oversimplify complex phenomena and respondents may overreport. To confront this limitation, we adapted scales from previously validated instruments. However, these instruments were designed for workplace trainings within the last year; we increased this period to ensure a higher response rate. Furthermore, the difficulty of locating former study tour participants resulted in a reliance on the contact lists provided to us, thus innumerable variables could not be held constant, for example, individual personality characteristics. Therefore, results are not conclusive or generalizable.

6. What characteristics of study tours facilitate learning transfer?

6.1. Overview of characteristics

Table 3 reports an overview of the survey sample ($N = 109$), including descriptive statistics. The prevalence of international study tours focused on cycling was 1.48 per person. Over two-thirds (67%) of respondents attended a study tour between 2015 and 2018, therefore a majority of respondents were recalling information only from the last 3 years; of the remaining, only 10% before 2011. The Netherlands was reported as the most common destination, with Denmark and Spain following.[5] The respondents spanned 22 different states, most commonly Oregon (22), California (13), Colorado (12); 46 municipalities were represented (Appendix C), most commonly Portland (18), Denver (8), and Memphis (8). Professional backgrounds demonstrated a spectrum of those working on transport issues in public and private organizations. A majority reported traveling in a group (11–15 participants), mostly composed of individuals from several organizations within their city.

Table 3
Overview of survey sample characteristics ($N = 109$).

Item	Characteristic	Percentage (*N*)
Gender	Male	61.5% (67)
	Female	39.5% (42)
Age range	25 and under	2% (2)
	25–35	20% (22)
	36–45	32% (35)
	46–55	25.5% (28)
	56–65	17.5% (19)
	65 and over	3% (3)
Professions	Civil servants	42% (46)
	Transport advocates	23% (25)
	Consultants	12% (13)
	Academics	7.5% (8)
	Industry/Retail	5.5% (6)
	Elected officials	3% (3)
	Other	7% (8)
Study tour destinations	Netherlands	61.5% (67)
	Denmark	18.5% (20)
	Spain	10% (10)
	Multi-country (Northern Europe)	6% (7)
	Other	4% (5)
Study tour duration	4 days or less	7.5% (8)
	5+ days	92.5% (101)
Study tour group size	6 participants or less	2% (2)
	7–10 participants	26.5% (29)
	11–15 participants	37.5% (41)
	16–20 participants	20% (22)
	20 participants or more	14% (15)
Study tour group composition	Majority of participants from same organization as respondent	17.5% (19)
	Majority of participants from different organization to respondent	82.5% (90)

[4] For in-depth examination of culturally-bound perceptions of transport modes, see: Ashmore, D.P; Christie, N. & Tyler, N.A. (2017). Symbolic transport choice across national cultures: theoretical considerations for research design. *Transportation Planning and Technology* 40(8) 875–900.

[5] See explanation fromSection 3

6.2. Results

Fig. 1 presents the distribution of the six items that form the dependent variable. The correlation matrix (Table 4) indicates that all correlations but one (between items 5 and 4) are significant and positive. Taking into account the high Cronbach's alpha score of 0.808 (Table 2), we conclude that combining those items into a single scale did not lead to meaningful loss of information.

Tables 5 and 6 summarize the analytical results. In order of significance, the following study tour characteristics demonstrated positive and significant correlations with learning transfer: individual learning outcomes; presence of political or administrative leadership; knowledge integration activities with colleagues; an emerging positive group dynamic during the study tour.

The correlation analysis (Table 5) demonstrates that participant level of preparation and motivation prior to the study tour do not correlate significantly with learning transfer. Significant and positive correlations were found with the level of reported positive individual learning outcomes and with the ability to influence decisions in their workplace. Furthermore, when higher levels of positive group dynamic emerged during the study tour, learning transfer outcomes were also enhanced.

The *t*-test results (Table 6) indicates that familiarity with study tour participants was not a significant variable for learning transfer. Positive learning transfer outcomes were revealed when respondents attended study tours with leadership present, especially management-level transport staff and elected officials. A significant and strong relationship was found between learning transfer and knowledge integration activities with both respondents' immediate team members and intra-organizational colleagues, but not with supervisors.

6.3. Learning outcomes

Responses to the open-ended question "What was the most valuable outcome of the study tour for my workplace" (85% response rate) were coded through a narrative process using five 'learning outcome' categories: conceptual, social, experiential, motivational, and (minimally) technical.[6] Responses demonstrating *conceptual* knowledge took precedence (52%), with evidence of abstract learning, for example: "can better articulate why having mobility options is vital for our city", "a higher level of expertise and vocabulary," and "better understanding of cycling best practices". Also prominent was enhanced *social* connection, particularly with colleagues (26%), i.e., "relationship building within my team", "building a transparent dialogue with colleagues", "to have my colleagues undivided attention". Many recognized boosted *motivation* (24%), i.e., "becoming more committed to effective bicycle planning". 12% of responses referred to *experiential* knowledge of "first hand user experience," and "shared experience with colleagues." Finally, 12% noted specific technical knowledge resulting from the study tour (i.e., "examples of protected intersections").

7. How do study tour characteristics facilitate learning transfer?

Using qualitative data collected from interviews with Denver-based transport professionals, this section explores *how* the above characteristics might facilitate learning transfer. Empirical examples and direct quotes from "participants" and "non-participants" are used to explore, illuminate and triangulate these findings. From this point, we refer to "participants" as those who have participated in organized group study tour(s) and "non-participants" as those who have not participated in an organized group study tour(s). Although characteristics are presented separately below, there is indeed a degree of fluidity and connectedness.

[6] Distribution does not amount to 100% due to multiple codes per response

7.1. Individual learning through acquisition of abstract, tacit knowledge

One indicator of individual learning, perhaps rarest, is behavior change. For three of eight participants, the study tour encouraged individual behavior change around mobility (P3, P10, P12). The elected official enthusiastically disclosed how the study tour "changed my life personally" (P10), and he replaced many car trips with a "family-friendly" bicycle. Physical manifestations of learning, like behavior change, does not constitute all learning, however; narrative analysis demonstrated that the *experiential* and *embodied* aspect of cycling in mature cycling environments was a central learning mechanism. For most interviewees, riding a bike is not a routine activity, and many noted this "visceral" experience (P9, P13), "looking, seeing, hearing, touching, riding" (P10), and "getting butts on seats" (P11).

All but one study tour participant (and two non-participants, P9 and P13, who have traveled on their own to the Netherlands and/or Denmark) made remarks demonstrating an acquisition of conceptually abstract, tacit knowledge. For one engineer, the study tour experience in the Netherlands "completely shifted" his perspective on designing streets: "It wasn't about transportation. It was – this is just a better way of living, and I was impressed by that" (P3). He recounted seeing a markedly different approach to engineering than he thought was possible: "I see it now, I get the vision of what's going on" (P3). For others:

> The power of the experience brings you to that next level of understanding and confidence. It gives me authenticity because I can say, I've seen it in action… (P13).
> Actually experiencing what it's like to actually move around on a bicycle in a place where there are also systems set up, help us envision what it could be like here (P12).
> It's important, I think, to actually see and experience something that may be in place that we're only thinking about or have only contemplated; touch it and feel it and maybe work in it for a little while (P7).

Such instances demonstrate abstract learning and reorganization of assumptions and concepts. Among participants, the experiential and embodied aspects boosted openness, intrinsic motivation, and self-efficacy or confidence in cycling policy (P2, P3, P4, P6, P7, P12). Non-participants (P1, P11, P13) corroborated these effects on participants, with whom they closely work. Many participants also cited the experience as an "eye-opener" (P2, P3, P6, P10), had "sparked new thoughts" (P6) and "ah-ha moments" (P1). These unexpected moments of insight, disclosed with positive affect (in most cases, smiles), were tied to the experiential aspect of cycling, demonstrating kinesthetic-cognition interaction.

7.2. Cultivating commitment in leadership

Study tours were described as a tool that, rather successfully (according to informants), cultivated commitment among leadership "so they start to believe it could be possible" (P9). Most participants holding management or elected/appointed positions indeed recounted a new sense of commitment to and confidence in future decision making around bicycle-related policies emanating directly from the study tour experience (P2, P3, P4, P6, P7, P12, P7). Among participants representing the City, several engineers (P3, P5, P6) expressed appreciation for being included in study tours, attributing their supervisor (P4) as "a driver" (P3).

Two non-participants (P1, P11) conceded that several formerly "skeptical" elected officials and Mayoral staff have become committed to cycling policies as a direct result of participating in the study tours. The elected official in this study voiced how the study tour "completely reshaped the whole way I think about mobility and how I've dealt with controversial projects in my district" (P10). Participating in the study

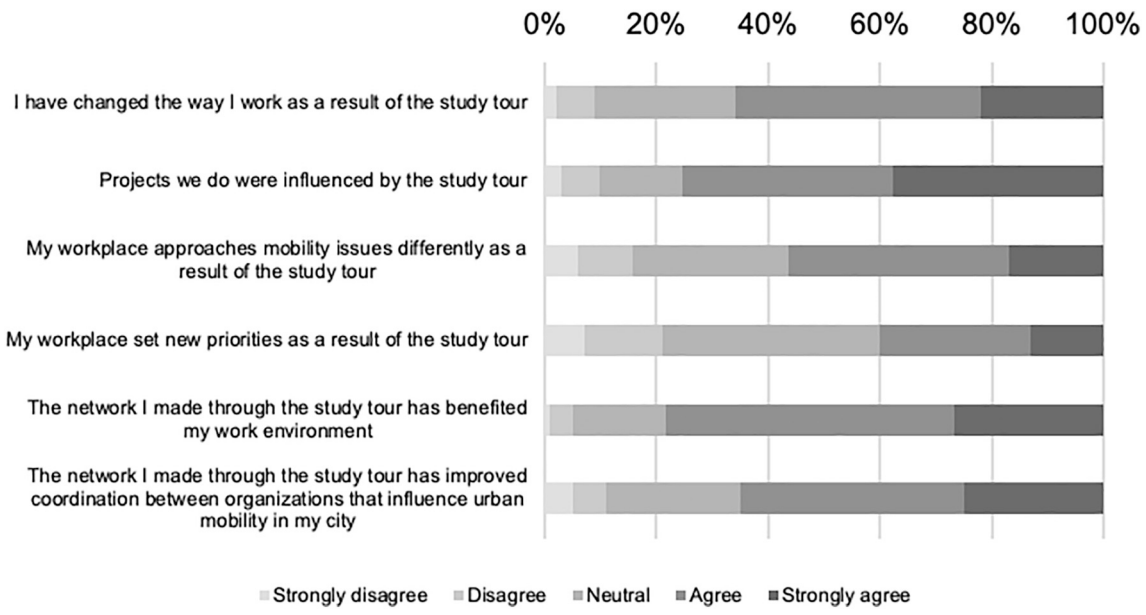

Fig. 1. Learning transfer distribution.

Table 4
Correlations among learning transfer items.

	(1)	(2)	(3)	(4)	(5)	(6)
(1)	1	0.502*	0.496*	0.365*	0.237*	0.219*
(2)	0.502*	1	0.633*	0.549*	0.364*	0.319*
(3)	0.496*	0.633*	1	0.786*	0.223*	0.376*
(4)	0.365*	0.549*	0.786*	1	0,175	0.341*
(5)	0.237*	0.364*	0.223*	0,175	1	0.495*
(6)	0.219*	0.319*	0.376*	0.341*	0.495*	1

Notes: *$p < 0.05$.
(1) I have changed the way I work as a result of the study tour;
(2) Projects we do were influenced by the study tour;
(3) My workplace approaches mobility issues differently as a result of the study tour;
(4) My workplace set new priorities as a result of the study tour;
(5) The network I made through the study tour has benefited my work environment;
(6) The network I made through the study tour has improved coordination between organizations that influence urban mobility in my city.

Table 5
Correlation analysis (with learning transfer).

Item	Correlation	*p*-Value	*N*
Study tour preparation and motivation	0.144	0.136	109
Group dynamic among participants	0.208	0.030*	109
Position of influence of respondent	0.317	0.001*	109
Individual learning outcomes	0.346	0.000*	109

Notes: *$p < 0.05$.

tour, he said, at the beginning of his first term was crucial for building confidence in his decisions and strategies.

Furthermore, interview data demonstrated that participants (P2, P3, P4, P6, P7, P10, P12) and two City staff non-participants (P5, P15) expressed a high level of agreement that the city's rapid growth demands new ways to think about transportation; the city needs to provide mobility options (P3, P5, P7) that "move more people instead of adding more cars" (P3, P6, P9). Some specifically prescribe cycling as a central solution to that vision (P3, P6, P4, P10). Many also acknowledged that services as a transportation public agency are evolving (P2, P4, P5, P6, P12, P15) because "we won't be able to solve [transportation challenges] the way we always have" (P4).

Table 6
T-test analysis of differences in learning transfer.

Item	Sub-question	Diff	*p*-Value	*N*
Influence of leadership participants (0 = No; 1 = Yes)	Same organization	−0.002	0.989	109
	Elected official	0.375	0.011*	
	Management level transport staff	0.561	0.004*	
Familiarity with other participants (0 = No knowledge; 1 = Some knowledge)	–	0.181	0.182	109
Knowledge integration: follow-up knowledge sharing activities with-(0 = No; 1 = Yes)	Supervisor	0.251	0.104	77
	Team	0.776	0.006*	
	Inter-organization colleagues	0.719	0.036*	
	Wider professional network	0.282	0.259	

Notes: *$p < 0.05$.

7.3. Knowledge integration through sharing and exchange

Eleven of the fifteen interviewees had either shared information or heard about experiences from recent tours. Such knowledge integration activities promoted the development of common understandings, or shared mental frames, through social interaction and dialogue. Sharing and exchange took many forms, some as formal, strategic meetings and others as more subtle, informal conversations; however, management initiative was a crucial driver.

Four management-level participants arranged meetings with their own colleagues (P2, P4, P10, P14). These meetings were mostly with immediate colleagues who did not participate in the most recent tour, but the goals of these meetings varied. Some internal meetings disseminated key lessons from the tour; other internal meetings with select colleagues consolidated lessons and collaborate on action steps. Two participants used photographs as visual evidence (P10, P14) to show "this is how they do it - can we just try it this way for six hours?" (P10). Another participant eagerly showed our researcher photos saved on his smartphone from a study tour in Denmark years before. Among non-

participants, many reported seeing photos, as evidence of different 'best practices' in action (P5, P9, P11, P13).

Sharing and exchange also occurred beyond the context of a single study tour. One City participant noted an internal meeting where participants from the most recent study and those from past study tours came together, "with a lot of energy," to discuss experiences and identify priority areas (P4). One non-participant hypothesized a cascading effect of successive study tours over many years: "a critical number of people" need to experience a cycling study tour "to really make waves" (P1). Several others also spoke of this effect (P4, P10, P12). For example, one City engineer, before pitching a new street design aimed to reduce car traffic, explained the shared mental frames resulting from successive study tour experiences among a group of colleagues[7]:

> Nathan had gone [on a study tour] the year before and Enrique had gone with him and the councilperson had gone the year before. So, when we made our pitch, no one got upset or anything. They all went 'yeah that would be cool' because they had all been on the study tour and could understand it. (P12)

At the other end, an engineer, whose technical colleagues have not participated in a study tour, expressed his struggle and frustration. He feels he has to "keep pushing the mindset" of these technical colleagues "to think differently" (P3).

7.4. Forging mutual trust with positive group dynamic

Management participants from the City (P3, P4) explicitly endorsed the study tour's role in enhancing dialogue among their team, but also in the broader network of those working on transport issues. Participants often used the pronominal 'we' when discussing their experience and activities abroad (i.e., we saw, we heard, etc.), indicating group cohesion. All City staff participants explained how the experience was motivating and generated a sense of group efficacy: "We can do that!" (P3, P4, P6, P7, P10, P12). Many City staff reflected on the group and the group learning experience fondly and enthusiastically, suggesting that positive emotions, trust and openness were likely present (P2, P3, P7, P10, P12):

> I think we were all interested in learning. Very motivated to learn and very motivated to improve. (P7)
> Everybody was really willing to see how this works. (P3).
> I think it gave us a good bond. A good place to start. (P12).

Furthermore, several City participants warmly discussed (unprompted) the same stories of each other, referencing certain shared situations on the study tour (P3, P4, P10). Years after, the memories were vivid and positive. Three non-participants also recounted those same anecdotes (P1, P11, P13), indicating sharing of experiences had taken place. Several (P2, P3, P4, P10) amicably explained moments on a study tour through another participant's perspective, displaying empathy, an ability to feel another person's emotional experience: "…[he] had this epiphany…he was, like, 'you have to have the network'…I felt like he got it there" (P2).

8. Conclusion

A growing body of academic interest conceptualizes study tours as a tool to accelerate policy transfer and contribute to policy learning (Gonzalez, 2011; Montero, 2017; Wood, 2014). This body of work tends to frame study tours as a bundled practice and has not generated explanations for *how* study tours might facilitate or explain knowledge transfer. Using a mixed-method approach, we operationalize study tours as "trainings" with the "transfer of learning" framework (Baldwin & Ford, 1987) and unpack mechanisms of learning transfer from study tours. This study offers a novel, interdisciplinary framework from which to explore and measure learning, specifically among city management professionals working on sustainable transportation.

Table 7 assembles findings from both survey respondents and interviewees, succinctly summarizing the main four characteristics of study tours and their underlying mechanisms. Building on this table, our conclusions are as follows. *First*, findings showed that both groups (survey respondents and interviewees) did not, for the most part, express learning from a concrete, technical perspective. Rather, data showed a conceptual, higher-order level of learning which is more abstract and tacit in nature. In other words, learning how to build a bicycle path, for example, was generally not reported as a main outcome. A *second* key finding is that the social and experiential qualities of cycling study tours appear to play a crucial role in this tacit knowledge production. In our case, the experience of cycling and of the study tour seemed to situate subsequent group processes in specific contexts. These shared memories registered frames of mutual understandings and consensus. Finally, and *third*, levels of commitment to and motivation for achieving higher cycling levels (in Denver) were greatly enhanced from the study tour. For political and administrative leadership, this meant increased confidence in their own future decisions around mobility.

9. Discussion

9.1. How do transportation organizations learn from study tours?

Study tours have been defined as short visits undertaken by a group of professionals for "work-related learning" or to "improve their organizations". Despite their widespread use and advanced practice, there is a paucity of research examining how study tours might achieve this goal. In exploring this concept, we pivot from the idea that study tours contribute to policy transfer, as our research aim is not to uncover specific policy lessons or to illuminate a case where policy transfer has been successful. Rather, we bifurcate learning and policy transfer, and focus attention on certain phases in the learning process. Doing so allows a closer examination of learning mechanisms and how those mechanisms enable knowledge transfer. This study therefore extends current research on this topic. We not only confirm the widespread trend of the practice (also in cycling policy) but also suggest that particular, previously unexamined characteristics of study tours might influence knowledge uptake and knowledge transfer to the wider organization.

For the case of Denver, participants in leadership positions hoped that the study tours would "accelerate efforts to building bicycle infrastructure" (P4), would "help to develop a shared understanding for what's possible" (P12) and "to work as a team to push for change" (P10). It is interesting to note these expectations place value on the more subtle cooperative, collective dimensions of a learning process. The study tour

Table 7
Underlying mechanisms of learning transfer.

Characteristic	Underlying mechanisms
Individual learning outcomes	Conceptual and experiential knowledge (i.e., of riding a bicycle in a matured cycling environment) triggered emotion-cognition interaction, openness to new ideas, motivation, and self-efficacy
Presence of leadership	Political and administrative leadership experienced enhanced levels of commitment, consensus, and confidence in future decision-making around bicycle-related policies
Knowledge integration activities	Management initiative was crucial to exchange experiences after the study tours, using photographs and formal presentations to build legitimacy and evidence for decisions.
Positive group dynamic	Study tour(s) acted as an arena to build relationships and communication skills through dialogue, trust, and empathy

[7] All names have been anonymized.

seemed to act as one element to shape this process. Reflection on the findings and of these expectations demonstrate at least three implications about knowledge transfer, at least in this case of cycling policy, at the organizational and inter-organizational level.

One, the recognition among participants that responsibility to "accelerate efforts" is distributed among many organizations and actors. By congregating representatives from various organizations, the study tour itself demonstrates the complexities of a contemporary network governance approach to transportation policy. This model highlights the many and (increasingly) diverse actors involved and thus the contested, value-laden and political nature of transportation decision making that other scholars have noted (i.e., Stead, 2016). Two, relatedly, the study tour created an arena for these actors to engage in an externalization process (Nonaka & Takeuchi, 1995) which allowed for exchange of tacit and explicit knowledge, founded on a distinctly shared experience. Reported learning outcomes, therefore, were rather abstract, conceptual, and social. These characteristics chime with longer-term capacity-building processes commonly found in communities of practice (Brown & Duguid, 2000). Finally, organizational performance in this regard, therefore, might not be best measured by indicators of codifiable outputs (even in this case, for example, miles of protected bike lanes funded and built), but rather other indicators of social capital and relational contexts, for example, the range and extent of commitment from these diverse actors and organizations or levels of trust among stakeholders over time.

At the beginning of this paper, we discussed four key antecedents to learning in organizations: communication systems, relationships, resources, and leadership (Glaser et al., 2019). We now consider these to further explore how transportation organizations learn from study tours. Of all four, the strongest evidence this study has generated is the capacity of study tours to affect *relationships* and *communication systems*. Strong and active relationships, especially among influential members, and a team or group's ability to negotiate and reach consensus predict an organization's capacity to learn (Glaser et al., 2019). Both survey and interview informants acknowledged the value of uninterrupted social connection and dialogue with colleagues during the study tour. Pedagogical preparation prior to the study tour showed no significance for learning transfer, demonstrating that interpersonal and communicative dynamics took precedence over traditional educational aspects. While past work on study tours acknowledge social ties between delegates and hosts (i.e., Wood, 2014; Montero, 2017), our data indicate that this inward group reflection process might be an essential mechanism not only for transferring knowledge from study tours, but building alliances with the many and diverse stakeholders involved in local transport policy.

Evidence also supports that study tours represent a learning *resource* and dedicating staff time for participation can strengthen interpersonal and inter- and intra-organizational capacities through, for example, knowledge integration activities – especially with successive trips over numerous years. These qualities of study tours contrast with other professional development activities, such as attending large conferences. Finally, *leadership* that focuses on collaboration and process (rather than outcomes) stimulates organizational learning and capacity-building. Our sample demonstrated increased confidence, motivation, and openness to new ideas as a result of the study tour. Motivated staff have higher rates of job-satisfaction and retention, and are also more likely to transfer learning from trainings (Egan et al., 2004). On one hand, this effect might be due to the nature of international travel, which increases self-confidence and openness (i.e., Niehoff, Petersdotter, & Freund, 2017). On the other hand, retaining talented and motivated leadership is an on-going struggle in the transportation industry and budgets for professional development are not sufficient (Cronin, 2011); it seems that participating in study tours might stoke not only motivation for their job but also support and confidence in new ideas about sustainable mobility.

9.2. Future directions for research

Findings from this study highlight at least three avenues for future research in transport policy transfer and learning. One, our findings demonstrate that study tours might not represent one, but a 'bundle' of policy-making practices, such as dialogue, group-efficacy, and trust-building. Empirically, more investigation is needed to further examine particular types or phases of the learning process. Examples from policy studies literature may be valuable here (Heikkila & Gerlak, 2013; van Doren, Driessen, Runhaar, & Giezen, 2020). Theories from management science (like organizational learning) represent one, albeit promising, avenue from which to examine overlapping boundaries between individual experience, learning, (policy) reform, and the different environments where these activities operate.

Two, we still know very little about how learning occurs nor what is precisely learned from international study tours. The present study offered one way to measure learning; however, this study did not aim to uncover *what* is learned on such study tours, in terms of technical innovations or solutions, nor the *extent* to which learning impacted projects or policy reform. To do so, experimental intervention methods or case control studies might support such future endeavors; expertise from other areas, such as group model building (Rouwette et al., 2002), energy transitions (van Doren et al., 2020), and social learning in urban planning (von Schönfeld, Tan, Wiekens, & Janssen-Jansen, 2019) provide a robust foundation. These examples also highlight the need to examine particular types or phases of learning, as previously suggested. Here, definitions and operationalizations of concepts with discrete methodological clarity may generate more transparent outcomes. Some examples for how policy researchers might engage with learning concepts from other disciplines, such as education (Dunlop, 2009) and organizational learning (Dunlop, 2015) are available in the literature – also specific to transport policy transfer (Glaser et al., 2019).

A final avenue, echoing Marsden & Stead (2011) and May (2015), includes investigating how and under what circumstances do transportation public and private sectors build 'organizational learning culture'. A necessary condition for knowledge to be applied and implemented in organizations, is a workplace culture that supports learning (Fiol, 1991; Slater & Narver, 1995). Other questions along this thread include: How do different organizational "cultures" respond to and adapt to changing policy objectives? How do actors (or agents) involved in transportation policy facilitate, translate, and localize learning? We suppose that exploring these questions requires assiduous cross-discipline efforts. Incorporating multi-system conceptualizations of learning from other disciplines, such as strategic management, policy and innovation studies, combined with longitudinal and ethnographic methods might allow for closer study of the emergent nature of policy making in transport.

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Declaration of Competing Interest

None.

Appendix A. Interviewees

	Department/Sector	Job category	Position level*	Scale	Study tours	Code
City of Denver	Health and Environment	Civil Servant	Middle	Municipal/local	–	P1
	Mayor's Office	Civil servant	High	Municipal/local	The Netherlands 2015	P3
	Mayor's Office	Civil Servant	High	Municipal/local	Spain 2018 The Netherlands 2015	P7
	Mayor's Office	Civil servant	High	Municipal/local	–	P8
	Public Works	Civil servant	High	Municipal/local	The Netherlands 2015	P12
	Public Works	Civil Servant	Middle	Municipal/local	–	P15
	Public Works	Civil Servant	High	Municipal/local	Spain 2018 The Netherlands 2015	P4
	Public Works	Civil Servant	Middle	Municipal/local	–	P5
	Public Works	Civil Servant	High	Municipal/local	The Netherlands 2015	P6
	City Council	Elected official	High	Municipal/local	Spain 2018 The Netherlands 2015	P10
Private sector	Commerce	Private Sector	High	Municipal/local	The Netherlands 2015	P2
	Research	Private sector	High	Local/regional	–	P11
	Marketing	Private sector	High	Local/regional	Denmark 2016	P14
Non-profit organizations	Walking/Cycling Advocacy 1	Advocate	High	Local/regional	–	P9
	Walking/Cycling Advocacy 2	Advocate	High	Regional/State	–	P13

* *High* indicates senior leadership roles, such as Director, Deputy Director or Senior Manager; *Middle* indicates technical or programmatic roles, such as Engineer or Program Manager.

Appendix B. Interview guide

Can you tell me about the City's main transportation policy objectives and goals?
How have these goals changed over the years (or compared to previous administrations)?
How does your organization contribute to this goal?
Has your organization needed to learn or develop more capacity to meet this goal?
How have you gone about learning? (How) does your organization support this learning?
In the last 5 years or so, what would you see as the biggest achievement or milestone in reaching this goal?
What do you attribute the success/outcome of this achievement to?
Who are the key stakeholders you work with to achieve this goal?
(For study tour participants)
Thinking back to the study tour(s), can you tell me about your experience on the study tour?
What was your main goal for participating in the study tour? Was it achieved, to you?
Do you think these types of trips play a role in the way you work on cycling issues?
Since the study tour, can you share any examples where you think the study tour has influenced the way you work on cycling issues?
(For non-participants)
Other city staff (or some of your colleagues) have gone on study tours to learn about transportation policies – (what) have you heard about these trips?
What do you think about these types of trips?
What role do you think these types of trips play for changing policy and working on cycling issues?

Appendix C. Survey respondent place of residence at time of response

Place of residence at time of response	Percentage (*N*)
Portland (OR)	16.5 (18)
Denver (CO)	7.5 (8)
Memphis (TN)	7.5 (8)
Seattle (WA)	6.5 (7)
Madison (WI)	4.5 (5)
San Francisco (CA)	4.5 (5)
Indianapolis (IN)	3.5 (4)
New York (NY)	3.5 (4)
Boston (MA)	3 (3)
Fayetteville (AR)	3 (3)
Los Angeles (CA)	3 (3)
Pittsburgh (PA)	3 (3)
Washington, D.C.	3 (3)
Chicago (IL)	2 (2)
Miami (FL)	2 (2)

(*continued on next page*)

(*continued*)

Place of residence at time of response	Percentage (*N*)
Minneapolis (MN)	2 (2)
Richmond (VA)	2 (2)
Springfield (OR)	2 (2)

$N = 108$. (One blank response given to this question).

One respondent from each of the following: Alameda (CA), Alexandria (VA), Ann Arbor (MI), Arlington (VA), Atlanta (GA), Aurora (CO), Austin (TX), Berkeley (CA), Boulder (CO), College Station (TX), Davis (CA), Eugene (OR), Fort Collins (CO), Kapaa (HI), Longmont (CO), Nashville (TN), New Orleans (LA), Newport (RI), Oakland (CA), Roslindale (MA), San Jose (CA), Sheboygan (WI), Springdale (AR), and Verona (WI).

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