

SCIENTIFIC NOVELTY OF THE DISSERTATION

- **PhD Candidate:** Pham Truong Son
- **Dissertation Title:** Analyzing factors influencing the utilization of urban rail transit in major Vietnamese cities and proposing solutions to increase users.
- **Major:** Transport Construction Engineering
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The dissertation has developed and tested a research model of user behavior toward urban rail transit (URT) services based on well-established theories of consumer behavior and travel behavior. The novelty of the study lies in testing the model using empirical data collected from users in Vietnam, a lower-middle-income country where the public transport system in general, and URT in particular, remains insufficiently integrated and where widespread usage habits have not yet been established among the public. The findings contribute to extending the applicability of behavioral theories to the context of cities that are still in the early stages of travel behavior transition, a context that has received limited attention in the international literature.

The specific new contributions of the dissertation can be summarized as follows:

(1) *The dissertation contributes to the theoretical and methodological foundation for studying user behavior in the field of public transport, specifically users' intention to use and passenger loyalty toward URT systems* in a context where the service is still new and consumer behavior remains unstable. The dissertation selectively applies foundational behavioral theories, including Behavioral Reasoning Theory (BRT) and the Stimulus–Organism–Response (SOR) framework, to develop and test separate research models for different user groups. In doing so, the dissertation extends the application of these theories to the field of public transport in developing countries.

(2) *The dissertation develops a model explaining the intention to use URT among non-users and conducts an intercity comparison.* For the group of residents who have not yet used URT, the study adopts a

comprehensive approach to analyzing the formation of behavior, from perceptions of reasons for and barriers against using the service to attitudes and behavioral intention to use URT. By applying the key components of BRT, the research model clarifies how beliefs, personal values, and social norms influence attitudes and intention to use. In particular, the motivating factors and barriers are selected and adapted to the Vietnamese context. In addition, the study compares Hanoi and Ho Chi Minh City, identifying both differences and similarities in perceptions, attitudes, and intentions. This provides a scientific basis for developing URT policies that are suitable for the specific characteristics of each city.

(3) *The dissertation develops a model explaining passenger loyalty among users based on their service environment experience.* For current users, the dissertation emphasizes the role of the physical environment throughout the entire journey, including experiences both at stations and on trains, and analyzes the effects of these factors on perceived safety, satisfaction, and loyalty. While most previous studies have tended to focus separately on either the station environment or the onboard environment when examining passenger loyalty, this integrated approach allows for a more comprehensive assessment of the role of the physical environment in shaping passengers' continued attachment to the service. It also better reflects the connected and continuous nature of the URT travel experience.

(4) *The dissertation contributes a measurement instrument, including a set of scales and survey questionnaires, that is appropriate for the Vietnamese context and relevant to policy orientation.* This instrument not only enables accurate measurement of the factors influencing intention to use and continued use of URT, but also offers a high level of flexibility. It can be applied in future studies in cities both within and outside Vietnam that share similar public transport development conditions. Based on the research findings and international experience, the dissertation proposes policy and practical orientations to promote intention to use and strengthen passenger loyalty toward URT. These contributions support the process of travel behavior transition and help improve the operational effectiveness of the system.