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Hybrid electric vehicles: driving towards sustainability

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Abstract

A great deal of interest in energy efficiency and social consciousness has been evidenced by the growing concerns associated with fuel consumption in automobiles, hence the development of sustainable vehicle technologies such as Hybrid Electric Vehicles (HEVs). There are many factors that affect Intention to Adopt such technologies which brings the main premise of this study to light. This study attempts to analyse the factors that may potentially affect Intention to Adopt Hybrid Electric Vehicles. The factors investigated in this study were the four dimensions of the Unified Theory of Acceptance and Use of Technology (UTAUT) model (i.e. Performance Expectancy, Effort Expectancy, Social influence, and Facilitating Conditions), as well as three additional variables of Aesthetic Appeal, Moral Justification and Environmental Concern, in predicting the Intention to Adopt HEVs. With a sample consisting of 235 third year Engineering and Psychology students and utilising an adapted UTAUT model, Semantic Differential scales for assessing aesthetic appeal, a Moral Justification scale, a Nature Relatedness scale, and an Intention to Adopt scale, multiple linear regressions were used to test the direct and interactional effects of Moral Justification and Environmental Concern on the relationship between the subscales of the UTAUT model and Aesthetic Appeal, onto Intention to Adopt HEVs. The UTAUT scales presented with good internal reliability. The Semantic Differential scale utilised in the main study from the three analysed in the pilot study proved to have a low internal consistency. The results revealed a significant direct effect of the UTAUT factors on Intention to Adopt HEVs, with no significant effect of Aesthetic Appeal on intention. The results also revealed significant interaction effects of Moral Justification but not for Environmental Concern.

Keywords: Sustainability, Hybrid Electric Vehicles, Intention to Adopt, South Africa