The Impact Of Socio-Economic Factors On The Perception Towards Solar Energy

Viraj Malik
Delhi Public School International, Saket

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ABSTRACT

Solar Energy is an upcoming solution to one of the world's biggest problems The lack of clean energy This research paperfocuseson understanding the factors that influence the perception of Indian respondents toward solar energy,in orderto fill in the gap in the data regardinghow basic socio-economicfactors such as age,educationand incomelevel can influence one's thoughts towards revolutionary technologies such as solar energy This is a mixed-method study that aims to draw relations and trends between the abovestatedfactorsandthe perceptionsof the respondents It wasconcludedafter analysing a dataset of 140 respondents, from different income and educationlevels,that therewas a positive relation between Educationlevel and awareness as well as Income and Likelelood of adoption Other factors such as age and gender of the respondentshave also beentaken into accountin the study.

INTRODUCTION

Solar technologiesconvert sunlight into electrical energy either through photovoltaicpanelsor through mirrors that concentratesolar radiation. This energy can be used to generateelectricity or be stored in batteries or thermal storage.

This researchfocuseson understanding how the socio-economicbackgroundof Indian respondentsaffects their perceptionof solartechnology It is believedthat richer and economicallystable householdswith less binding budget constraints are more likely to have a positive outlook towardsnewtechnology,in the form of solarmicro-grids.
One of the major problemsfaced by New and upcoming energytechnologiesacrossthe world is Socialand Economic acceptability and according to most data this is what restrictsthe implementationof thesetechnologies

My interest overlap in Sustainableenergy and economics motivatedmeto pursuethis researchstudy.

METHODOLOGY AND MATERIALS

This researchstudy is mixed-method researchthat used surveysand secondarydata that was collectedusing various methodssuchas online and paper-basedsurveyforms, and interviews
Theindependentvariablesthat wereusedin the study were the demographic and economic information of the respondents,which includes the following: age, level of education,profession,areaof residenceand monthly income (both wereusedto identify the socio-economicbackground of the respondents
A rather unconventionalmethod was usedto collectdata as using regular online-basedforms would haverestrictedthe audience to only those who are literate and have the equipmentto fill onlineforms.

	Students	Working Professionals
Awareness of respondent	4.614	4.988
Degree of perceived benefit	6.250	5.588
Likelihood of Adoption	5.614	5.765

Table 2- Comparison of Students and working professionals

RESULTS AND DISCUSSION

The dataset was then analyzed on basis of the age of the respondentswhere data was divided into 4 different categories and meanswerecalculatedfor responsesto different questions A general upwards trend was seen for Awarenessand perceived benefit as the ageof respondentsincreasedwith an exceptionin the "Below 18" agebracket This is likely becausethe incomesof peopleare likely to grow as they becomemore experiencedand hencesolarenergymight becomemoreaffordableto them.

Thedatasetwasthen analyzedbasedon Incomeasan identifying variable,the datafor all studentswasexcludedfor this variableas noneof the studentswasearningand hencethe data would have been skewedas the responsesof students and those who are working professionalsbut don't earn differ by a high margin. Therewas a positive correlation betweenincomeand the other identification variablesthat wereusedto capturethe perceptions of respondentswith an exceptionin the "Not earning at the moment" bracket

Thelast variableusedto analysethe datasetwas educationlevel, educationlevel relatesdirectly to the awarenessof peopleabout things going aroundthem. Educationis closelyrelatedto the level of income and self-awarenessof happiness Education is also closelyrelatedto economicfreedom(Stryzhak,O. O. (2020)). This is supported by analysis of the dataset with education and perceptionof solarenergy,having a positivecorrelation

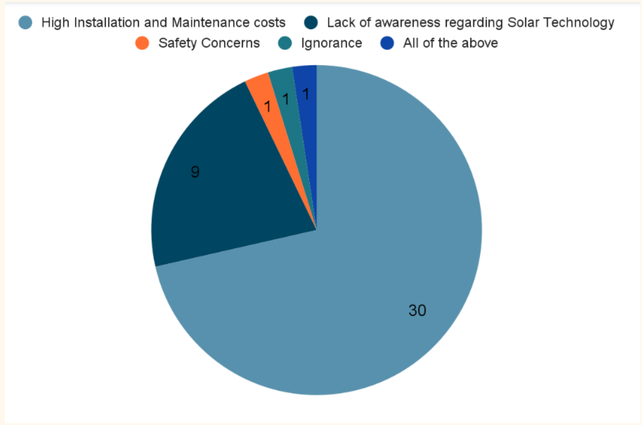

Figure 1:Key Driving Reason for Low Solar Adoption Rates(Students)

Source	Primary and High school Students	Masters or PhD	t	p
	M / Var	M / Var		
Awarness	3.21 / 2.18	5.61 / 1.54	1.697	3.85E-07

Table 3- T Test Between Awareness of Low and High Education Level

CONCLUSIONS

Fromthe resultsof this study,it canbeconcludedthat both the hypothesishold true, this can be said as a direct relationship has been established between education level and the awarenessof the respondents

A similar relationshipwas derived betweenthe likelihood of adoption and the income of the respondentswhich supports the other hypothesis The socio-economic background of Indian respondentsaffectstheir perceptionin a way wherethe peopleliving in the higherclassesof the economyand arebetter off financially will haveа more positive outlook towards new and upcomingtechnologiessuchassolartechnology
. Someother findings during this study were that the general trendsso not apply to the responsesfrom the studentsasdata from student responsesshowedthat they had a more positive outlook towards solar energy compared to working professionals

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