

# Communities' Attitudes towards Telecentre and Its Impact on Rural Tourism

May-Chiun Lo, Peter Songan, Sharon Cheuk, Azuriaty Atang, and Alvin W. Yeo

**Abstract**—It is undeniable that ICTs play an important role in alleviating poverty as it has the capacity to generate more income for the local communities and subsequently increase their standard of living. Past researchers have evidenced that community support is crucial in ensuring long-term success especially in rural tourism development and the fact that it is impossible to sustain tourism to a destination that is not supported by the local people. No known research in the past had been found to have sequentially examined the impact of communities' attitudes on telecentre and subsequently the role of telecentres in tourism development. 105 respondents comprising of residents of rural tourism destination in Sarawak, Malaysia took part voluntarily in this study. To assess the developed model, *SmartPLS 2.0 (M3)* was applied based on path modelling and then bootstrapping with 200 re-samples was applied to generate the standard error of the estimate and t-values. Interestingly, the findings suggested that local communities were most concerned with the perceived usefulness and the result demonstrability of a telecentre, and that the telecentre has a very strong impact on rural tourism development. Implications of these findings were further discussed.

**Index Terms**—Communities' attitudes, rural tourism, telecentre.

## I. INTRODUCTION AND LITERATURE REVIEW

It is a well-documented fact that ICT plays an important role in to ease poverty in rural communities (e.g. [1]-[3]). However, all initiatives to develop a rural community need to be supported by the community itself to ensure their success.

In the case of the telecentre, community support equates to their continued usage of and the derivation of benefits from the said centre. Past literature documented cases where telecentres had, or had not, been supported by rural communities, leading to their success or failure. For example, telecentres met with largely supportive communities in Tunjang, Malaysia [4], as well as in the Phayao and Lampang Provinces of Thailand [5]. On the other hand, disconnection of the local community was considered the main challenge in the implementation of a school-based telecentre in Uganda [6]. Problems have also been noted in the building of telecentres at Larapan and Buayan, Malaysia, whereby local participation and community support could not be garnered [7]. Reference [8] noted that less than successful community

informatics projects are associated with the failure to link the said projects with local economic activity and to unite community efforts behind strong leadership. Reference [9] appeared to agree, and suggested that the characteristics of communities, and the stock of social capital, were the most potent influence on the success of community telecentres.

In view of the foregoing, it is clear that community support is essential for the success of a telecentre at a rural destination, and especially so in its usage for tourism development. Hence, there is a need to examine, assess and measure the communities' attitudes towards the telecentre, as well as the telecentre's impact on tourism development. Past evaluations of telecentres, from the community's perspective, included Dey and Newman's study [10], which took an ethnographic (qualitative) approach and evaluated telecentre performance from the users' perspectives. Reference [11] examined and measured the information, individual and telecentre characteristics that would predict the social sustainability (which is largely defined by community acceptance and support) of telecentres.

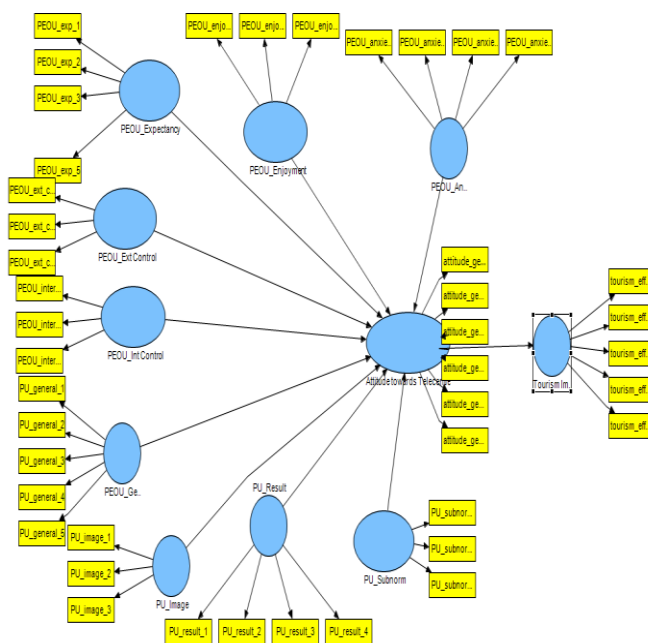


Fig. 1. Research model.

A baseline study was conducted on communities' attitudes towards the telecentre in a rural destination more than a decade after the said telecentre was set up, using a qualitative approach [12]. This study will extend their findings and specifically measure communities' attitudes on the telecentre, and subsequently the role of the telecentre in tourism development. The variables involved will be used to develop a model, which will be quantitatively tested and validated. To

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assess the developed model, *SmartPLS 2.0 (M3)* was applied based on path modelling and then bootstrapping with 200 re-samples was applied to generate the standard error of the estimate and t-values. Partial Least Squares (PLS) path modelling was used as it is a robust Structured Equation Modelling technique which is flexible in handling.

The significance of this study lies in the fact that no known research in the past had been found to have **sequentially** examined and measured both elements: attitudes towards the telecentre and its impact on tourism.

TABLE I(A): LOADING AND CROSS LOADING

	Attitude Towards Telecentre	PEOU_Anxiety	PEOU_Enjoyment	PEOU_Expectancy	PEOU_External Control
Attitude_Telecentre_1	<b>0.774</b>	0.377	0.296	0.306	0.351
Attitude_Telecentre_2	<b>0.791</b>	0.380	0.340	0.385	0.390
Attitude_Telecentre_3	<b>0.856</b>	0.358	0.280	0.345	0.311
Attitude_Telecentre_4	<b>0.577</b>	0.187	-0.028	0.277	0.103
Attitude_Telecentre_5	<b>0.517</b>	0.206	0.091	0.292	0.269
Attitude_Telecentre_6	<b>0.200</b>	-0.024	0.040	0.138	0.037
PEOU_Anxiety_1	0.361	<b>0.833</b>	0.465	0.212	0.300
PEOU_Anxiety_2	0.294	<b>0.829</b>	0.427	0.212	0.227
PEOU_Anxiety_3	0.354	<b>0.838</b>	0.381	0.338	0.433
PEOU_Anxiety_4	0.405	<b>0.825</b>	0.457	0.246	0.472
PEOU_Enjoyment_1	0.336	0.472	<b>0.910</b>	0.374	0.474
PEOU_Enjoyment_2	0.268	0.465	<b>0.907</b>	0.345	0.390
PEOU_Enjoyment_3	0.142	0.438	<b>0.791</b>	0.211	0.199
PEOU_Expectancy_1	0.372	0.239	0.309	<b>0.844</b>	0.484
PEOU_Expectancy_2	0.377	0.287	0.355	<b>0.784</b>	0.320
PEOU_Expectancy_3	0.238	0.134	0.142	<b>0.598</b>	0.131
PEOU_External_1	0.329	0.329	0.293	0.380	<b>0.825</b>
PEOU_External_2	0.335	0.355	0.362	0.388	<b>0.904</b>
PEOU_External_3	0.368	0.427	0.452	0.350	<b>0.804</b>
PEOU_General_1	0.416	0.384	0.547	0.472	0.451
PEOU_General_2	0.316	0.363	0.488	0.476	0.393
PEOU_General_3	0.327	0.389	0.497	0.404	0.383
PEOU_General_4	0.308	0.424	0.484	0.449	0.313
PEOU_General_5	0.438	0.459	0.551	0.324	0.282
PEOU_Int.Cont_1	0.193	0.253	0.331	0.377	0.309
PEOU_Int.Cont_2	0.453	0.231	0.304	0.503	0.396
PEOU_Int.Cont_3	0.435	0.497	0.484	0.396	0.460
PU_Image_1	-0.003	-0.019	0.021	0.173	0.010
PU_Image_2	0.074	-0.006	0.067	0.246	-0.010
PU_Image_3	0.056	0.075	0.175	0.245	0.030
PU_Result_1	0.337	0.281	0.420	0.270	0.148
PU_Result_2	0.433	0.502	0.463	0.316	0.156
PU_Result_3	0.383	0.513	0.459	0.403	0.376
PU_Result_4	0.293	0.362	0.343	0.211	0.256
PU_Subnorm_1	0.278	0.160	0.343	0.326	0.282
PU_Subnorm_2	0.332	0.117	0.234	0.337	0.201
PU_Subnorm_3	0.237	0.164	0.149	0.269	0.088
Tourism_Effect_1	0.434	0.279	0.179	0.377	0.301
Tourism_Effect_2	0.557	0.456	0.355	0.272	0.312
Tourism_Effect_3	0.676	0.485	0.362	0.318	0.430
Tourism_Effect_4	0.510	0.220	0.333	0.372	0.393
Tourism_Effect_5	0.529	0.281	0.282	0.302	0.460

II. METHOD

The population of the present study consists of local communities currently residing in a rural tourism destination in Sarawak, Malaysia. A total of 150 questionnaires were distributed to the local communities and only 105 questionnaires were used for analysis. To assess the model developed (see Fig. 1) the study used the *SmartPLS 2.0 (M3)* which is based on path modelling and then the bootstrapping ([13]-[15]) with 200 re-samples were used to generate the standard error of the estimate and t-values.

III. FINDINGS

A. Assessment of the Measurement Model

The study conducted a confirmatory factor analysis (CFA) to assess reliability, convergent validity, and discriminant validity of the scales. As shown in Table I and II, most item loadings were closed to or exceeded 0.5 (significant at  $p < 0.01$ ). All Average Variance Extracted (AVEs) exceeded 0.5 [16]. The Composite Reliability (CRs) exceeded 0.7 [17] while the Cronbach alpha values 0.7 [18]. Thus, the study ensured convergent validity because all the indicators loaded much higher on their hypothesized factor than on other factors (own loading are higher than cross loadings [13], [19]) (see Table I). In addition, the square root of the AVE was tested against the intercorrelations of the construct with the other constructs in the model to ensure discriminant validity ([13], [19], [20]) and all the square root of the AVE exceeded the correlations with other variables. Thus, the measurement model was considered satisfactory with the evidence of adequate reliability, convergent validity, and discriminant validity. Next the study proceeded to test the hypotheses generated for this research.

TABLE I(B): LOADING AND CROSS LOADING (CONTD)

	PEOU_General	PEOU_Internal Control	PEOU_Image	PU_Result	PU_Subnorm.	Tourism Impact
Attitude_Telecentre_1	0.380	0.382	0.046	0.367	0.242	0.585
Attitude_Telecentre_2	0.466	0.441	0.066	0.426	0.280	0.497
Attitude_Telecentre_3	0.408	0.386	0.093	0.469	0.222	0.638
Attitude_Telecentre_4	0.076	0.229	0.071	0.170	0.226	0.339
Attitude_Telecentre_5	0.120	0.193	-0.069	0.124	0.086	0.303
Attitude_Telecentre_6	0.033	0.141	0.068	0.071	0.176	0.131
PEOU_Anxiety_1	0.397	0.282	0.065	0.424	0.196	0.383
PEOU_Anxiety_2	0.415	0.299	0.099	0.479	0.156	0.341
PEOU_Anxiety_3	0.424	0.350	0.058	0.435	0.068	0.382
PEOU_Anxiety_4	0.472	0.414	-0.086	0.462	0.104	0.360
PEOU_Enjoyment_1	0.573	0.457	0.129	0.522	0.247	0.384
PEOU_Enjoyment_2	0.541	0.361	0.058	0.462	0.171	0.302
PEOU_Enjoyment_3	0.518	0.363	0.165	0.427	0.194	0.313
PEOU_Expectancy_1	0.453	0.452	0.137	0.292	0.292	0.383
PEOU_Expectancy_2	0.405	0.409	0.237	0.334	0.216	0.288
PEOU_Expectancy_3	0.247	0.302	0.250	0.249	0.272	0.220

y_3						
PEOU_External_1	0.320	0.531	-0.053	0.190	0.226	0.340
PEOU_External_2	0.382	0.349	0.025	0.269	0.140	0.401
PEOU_External_3	0.401	0.358	0.043	0.286	0.170	0.458
PEOU_General_1	<b>0.840</b>	0.520	0.308	0.449	0.377	0.457
PEOU_General_2	<b>0.830</b>	0.441	0.278	0.492	0.256	0.324
PEOU_General_3	<b>0.868</b>	0.322	0.280	0.420	0.241	0.324
PEOU_General_4	<b>0.866</b>	0.426	0.286	0.498	0.271	0.343
PEOU_General_5	<b>0.776</b>	0.447	0.088	0.408	0.247	0.402
PEOU_Int.Cont_1	0.409	<b>0.618</b>	0.216	0.392	0.340	0.359
PEOU_Int.Cont_2	0.412	<b>0.896</b>	0.108	0.232	0.377	0.550
PEOU_Int.Cont_3	0.477	<b>0.867</b>	-0.003	0.336	0.369	0.482
PU_Image_1	0.155	0.155	0.647	0.271	0.547	0.056
PU_Image_2	0.268	0.105	0.942	0.323	0.404	0.113
PU_Image_3	0.265	0.077	0.901	0.393	0.463	0.052
PU_Result_1	0.408	0.263	0.436	0.682	0.362	0.312
PU_Result_2	0.422	0.328	0.259	0.892	0.318	0.422
PU_Result_3	0.422	0.328	0.221	0.836	0.321	0.433
PU_Result_4	0.453	0.189	0.305	0.686	0.285	0.258
PU_Subnorm_1	0.318	0.419	0.397	0.400	0.926	0.289
PU_Subnorm_2	0.330	0.436	0.452	0.374	0.963	0.316
PU_Subnorm_3	0.287	0.355	0.422	0.365	0.877	0.268
Tourism_Effect_1	0.318	0.358	0.138	0.362	0.196	0.706
Tourism_Effect_2	0.424	0.509	0.016	0.364	0.178	0.848
Tourism_Effect_3	0.410	0.528	-0.027	0.365	0.247	0.862
Tourism_Effect_4	0.382	0.502	0.159	0.424	0.338	0.801
Tourism_Effect_5	0.266	0.422	0.140	0.362	0.314	0.773

General_3						
PEOU_					0.866	
General_4						
PEOU_					0.776	
General_5						
PEOU_	PEOU_	<b>0.733</b>	0.618	0.842	0.646	
Int.Cont	Int.Cont_1					
	PEOU_				0.896	
	Int.Cont_2					
	PEOU_				0.867	
	Int.Cont_3					
PU_	PU_Image_1	<b>0.837</b>	0.647	0.875	0.706	
Image	PU_Image_2		0.942			
	PU_Image_3		0.901			
PU_	PU_Result_1	<b>0.779</b>	0.682	0.859	0.607	
Result	PU_Result_2		0.892			
	PU_Result_3		0.836			
	PU_Result_4		0.686			
PU_	PU_Subnorm_1	<b>0.913</b>	0.926	0.945	0.851	
Subnorm	PU_Subnorm_2		0.963			
	PU_Subnorm_3		0.877			
Tourism_	Tourism_Effect_1	<b>0.859</b>	0.706	0.899	0.640	
Effect	Tourism_Effect_2		0.848			
	Tourism_Effect_3		0.862			
	Tourism_Effect_4		0.801			
	Tourism_Effect_5		0.773			

Note: a Composite reliability (CR) = (square of the summation of the factor loadings)/{(square of the summation of the factor loadings) + (summation of error variances)}. b Average variance extracted (AVE) = (summation of the square of the factor loadings)/{summation of the square of the factor loadings} + (summation of error variances)}.

TABLE II: RESULTS OF MEASUREMENT MODEL

Model Construct	Measurement Item	Cronbach Alpha	Loading	CR <sup>a</sup>	AVE <sup>b</sup>
Attitude toward telecentre	Attitude_Telecentre_1	<b>0.719</b>	0.774	0.802	0.433
	Attitude_Telecentre_2		0.791		
	Attitude_Telecentre_3		0.856		
	Attitude_Telecentre_4		0.577		
	Attitude_Telecentre_5		0.517		
	Attitude_Telecentre_6		0.200		
PEOU_Anxiety	PEOU_Anxiety_1	<b>0.852</b>	0.833	0.899	0.691
	PEOU_Anxiety_2		0.829		
	PEOU_Anxiety_3		0.838		
	PEOU_Anxiety_4		0.825		
PEOU_Enjoyment	PEOU_Enjoyment_1	<b>0.851</b>	0.910	0.904	0.759
	PEOU_Enjoyment_2		0.907		
	PEOU_Enjoyment_3		0.791		
PEOU_Expectancy	PEOU_Expectancy_1	<b>0.608</b>	0.844	0.790	0.562
	PEOU_Expectancy_2		0.784		
	PEOU_Expectancy_3		0.598		
PEOU_External	PEOU_External_1	<b>0.799</b>	0.825	0.882	0.715
	PEOU_External_2		0.904		
	PEOU_External_3		0.804		
PEOU_General	PEOU_General_1	<b>0.893</b>	0.840	0.921	0.700
	PEOU_General_2		0.830		
	PEOU_General_3		0.868		

TABLE III: SUMMARY RESULTS OF THE MODEL CONSTRUCTS

Model Construct	Measurement Item	Standard estimate	t-value
Attitude toward telecentre	Attitude_Telecentre_1	0.774	14.232
	Attitude_Telecentre_2	0.791	15.560
	Attitude_Telecentre_3	0.856	24.126
	Attitude_Telecentre_4	0.577	4.458
	Attitude_Telecentre_5	0.517	3.912
	Attitude_Telecentre_6	0.200	1.203
PEOU_Anxiety	PEOU_Anxiety_1	0.833	15.478
	PEOU_Anxiety_2	0.829	14.059
	PEOU_Anxiety_3	0.838	21.973
	PEOU_Anxiety_4	0.825	22.797
PEOU_Enjoyment	PEOU_Enjoyment_1	0.910	6.687
	PEOU_Enjoyment_2	0.907	6.307
	PEOU_Enjoyment_3	0.791	5.245
PEOU_Expectancy	PEOU_Expectancy_1	0.844	10.796
	PEOU_Expectancy_2	0.784	7.569
	PEOU_Expectancy_3	0.598	3.153
PEOU_External	PEOU_External_1	0.825	13.780
	PEOU_External_2	0.904	23.479
	PEOU_External_3	0.804	9.712
PEOU_General	PEOU_General_1	0.840	22.364
	PEOU_General_2	0.830	12.792
	PEOU_General_3	0.868	22.749
	PEOU_General_4	0.866	22.886
	PEOU_General_5	0.776	16.028
PEOU_Int.Cont	PEOU_Int.Cont_1	0.618	4.641
	PEOU_Int.Cont_2	0.896	29.032
	PEOU_Int.Cont_3	0.867	20.689
PU_Image	PU_Image_1	0.647	1.395
	PU_Image_2	0.942	2.224
	PU_Image_3	0.901	2.339
PU_Result	PU_Result_1	0.682	8.235
	PU_Result_2	0.892	30.673
	PU_Result_3	0.836	16.000
	PU_Result_4	0.686	6.411
PU_Subnorm	PU_Subnorm_1	0.926	5.072
	PU_Subnorm_2	0.963	4.589

	PU_Subnorm_3	0.877	4.016
Tourism_Effect	Tourism_Effect_1	0.706	10.192
	Tourism_Effect_2	0.848	21.602
	Tourism_Effect_3	0.862	39.058
	Tourism_Effect_4	0.801	16.808
	Tourism_Effect_5	0.773	14.777

TABLE IV(A): DISCRIMINANT VALIDITY OF CONSTRUCTS

Constructs	Attitude Towards Telecentre	PEOU Anxiety	PEOU Employment	PEOU Expectancy	PEOU External Control
Attitude_Telecentre_1	<b>0.658</b>				
PEOU_Anxiety_1	0.431	<b>0.831</b>			
PEOU_Enjoyment_1	0.310	0.522	<b>0.871</b>		
PEOU_Expectancy_1	0.449	0.305	0.375	<b>0.750</b>	
PEOU_External_1	0.409	0.442	0.441	0.441	<b>0.846</b>
PEOU_General_1	0.444	0.488	0.622	0.505	0.437
PEOU_Int.Cont_1	0.478	0.410	0.457	0.524	0.487
PU_Image_1	0.073	0.033	0.124	0.266	0.008
PU_Result_1	0.469	0.541	0.544	0.391	0.296
PU_Subnorm_1	0.310	0.155	0.237	0.339	0.211
Tourism_Effect_1	0.686	0.442	0.385	0.404	0.477

B. Assessment of the Structural Model

Table V and Fig. 2 present the results of the hypotheses testing. The results have indicated that only one dimension namely, result demonstrability of perceived usefulness was found to have significant impact on attitudes of local communities towards the telecentre with standardized beta of 0.300. It was also confirmed that the telecentre has strong impact on rural tourism development with standardized beta of 0.667 and are significant at  $p < 0.01$ . Hence thus, H8 and H10 were supported.

TABLE IV(B): DISCRIMINANT VALIDITY OF CONSTRUCTS (CONTD)

Constructs	PEOU General	PEOU Internal Control	PU Image	PU Result	PU Subnorm	Tourism Impact
Attitude_Telecentre_1						
PEOU_Anxiety_1						
PEOU_Enjoyment_1						
PEOU_Expectancy_1						
PEOU_External_1						
PEOU_General_1	<b>0.837</b>					
PEOU_Int.Cont_1	0.524	<b>0.804</b>				
PU_Image_1	0.289	0.099	<b>0.840</b>			
PU_Result_1	0.540	0.362	0.381	<b>0.779</b>		
PU_Subnorm_1	0.339	0.440	0.459	0.410	<b>0.922</b>	
Tourism_Effect_1	0.453	0.585	0.094	0.466	0.317	<b>0.800</b>

Note: Diagonals represent the square root of the average variance extracted while the other entries represent the correlations.

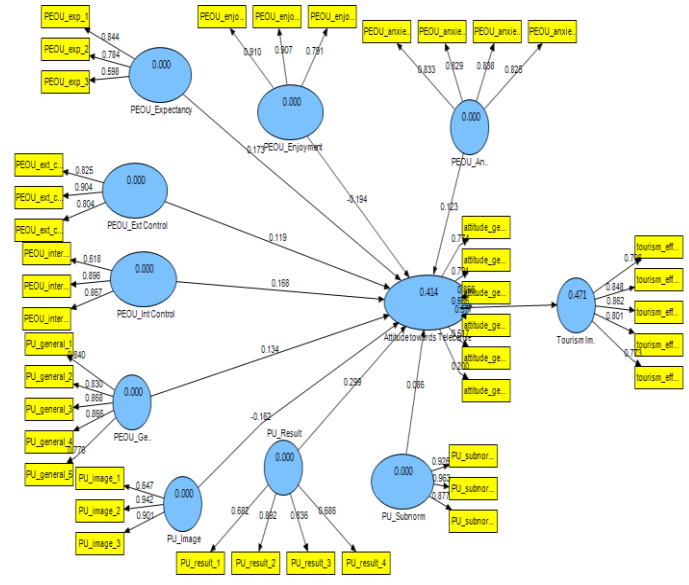


Fig. 2. Results of the path analysis.

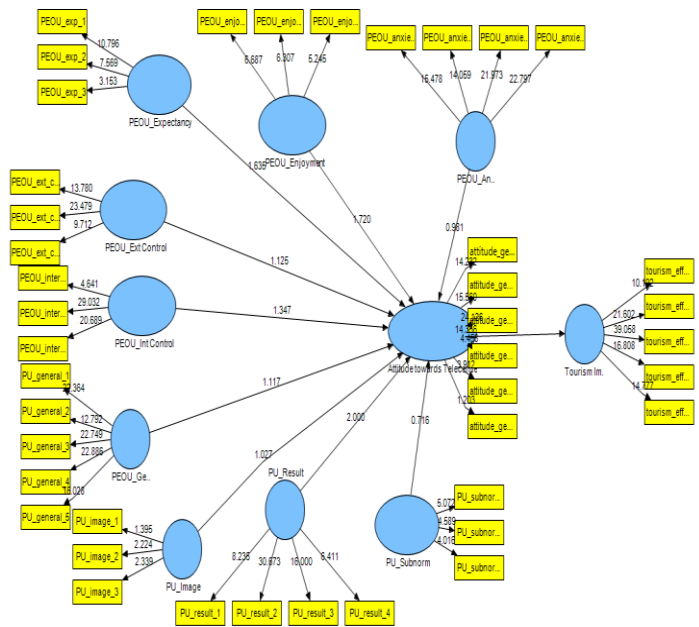


Fig. 3. Research model with t-value.

The study also conducted a global fit measure (GoF) assessment for PLS path modelling, which is defined as geometric mean of the average communality and average  $R^2$  (for endogenous constructs [14]) following the procedure used by [21]. Following the guidelines of Wetzels *et al.* (2009), the study estimated the GoF values (**see formula**), which may serve as cut-off values for global validation of PLS models. The GoF value of 0.313 ( $R^2$  was 0.471, average AVE was 0.665) for the (main effects) model, which exceeds the cut-off value of 0.25 for medium effect sizes of  $R^2$ . As such, the study allows us to conclude that this research model has better explaining power in comparison with the baseline values ( $GoF_{small}=0.1$ ,  $GoF_{medium}=0.25$ ,  $GoF_{large}=0.36$ ) (Aker *et al.*, 2011). It also provides adequate support to validate the PLS model globally [15].

$$GoF = \sqrt{AVE \times R^2}$$

TABLE V: PATH COEFFICIENT AND HYPOTHESIS TESTING

Hypothesis	Relationship	Coefficient	t-value	Supported
H1	PEOU_Anxiety → attitude toward telecentre	0.123	0.981	No
H2	PEOU_Enjoyment → attitude toward telecentre	-0.194	1.720	No
H3	PEOU_Expectancy → attitude toward telecentre	0.173	1.635	No
H4	PEOU_External Control → attitude toward telecentre	0.119	1.125	No
H5	PEOU_Internal Control → attitude toward telecentre	0.168	1.117	No
H6	PEOU_General → attitude toward telecentre	0.134	1.347	No
H7	PU_Image → attitude toward telecentre	-0.162	1.027	No
H8	PU_Result → attitude toward telecentre	0.299	2.000	Yes
H9	PU_Subnorms → attitude toward telecentre	0.086	0.716	No
H10	Attitude toward telecentre → tourism effect	0.666	14.356	Yes

#### IV. DISCUSSION

From the findings, we see a low correlation between the community's attitude towards the telecentre with computer anxiety, perceived enjoyment, effort expectancy, external control and internal control, perceived ease of use, image and subjective norm respectively. In other words, these eight factors did not significantly affect or influence the community's attitude towards the telecentre.

The low correlation between computer anxiety, and, conversely, perceived enjoyment with attitude towards the telecentre could be due to the availability of alternative ICT avenues, such as data plans provided for laptops and smartphones. Such avenues have increased the exposure to and usage of ICT amongst the community, thereby reducing anxiety levels and increasing enjoyment. Therefore, the telecentre has become just another avenue to access ICT and its uniqueness no longer exists; hence the community would appear to have become ambivalent towards it.

In the same vein, the greater exposure to ICT has also reduced the effort expectancy for community users; users do not appear to find it difficult to use ICT in general. Users also mostly had prior experience with ICT and a higher level of self-confidence in using ICT (high levels of external and internal control). Hence low barriers exist for telecentre usage. Together with the availability of other ICT avenues, they contribute to the ambivalence of the community's attitude towards the telecentre, as mentioned in the previous paragraph.

The availability of alternative avenues to ICT also explains the low correlation of image and subjective norm with the attitude towards the telecentre. ICT has become more common with the increasing bridging of the digital divide between rural and urban areas, and any social status or advantage that previously existed in being able to utilise ICT/telecentre has been eroded.

The above results may differ if the respondents (community users) did not have alternative ways of using ICT other than the telecentre – the ambivalence might be reduced and correlation increased. This may imply, also, that the needs of community users change over time from the

initial implementation of a telecentre as the sole means of obtaining access to ICT, to the introduction of new and alternative ICT access. As their needs change, the way they perceive and measure the effectiveness of the telecentre also changes. The implication for further research, therefore, is that the framework for assessing the performance of telecentres in areas which are more exposed to ICT, or for “mature” telecentres, should be modified to reflect the community's needs, which may have matured over time. This will be elaborated further in the next section.

Our findings show that the result demonstrability, a subset of perceived usefulness, was found to have a significant impact on the attitudes of the local community towards the telecentre. As we have noted, results demonstrability refer to the tangibility of the results arising from the use of ICT. Therefore, if a person perceived the existence of concrete, positive results from his/her use of the telecentre, he/she would be more inclined to have a positive attitude about the telecentre. This reveals the practical nature of the respondents surveyed at the rural destination, in that it was a high priority for them to see visible results in the form of better work/job performance, faster task performance, reduction in the cost of doing work/business and increased effectiveness in general. This could be explained by the fact that a significant number of telecentre users surveyed were lodge/hotel operators and tour guides who were using the telecentre to communicate with potential guests/clients, to market their services and, generally, to increase business income. One respondent cited the speed of connecting with clients as a tangible benefit, and most of the respondents agreed that they were able to communicate the benefits of using ICT and the telecentre to other people.

Conversely, however, the perceived usefulness of the telecentre was also seen in a negative way, and this pertained to the slow/problematic internet connection at the telecentre. The last factor stemmed from 2 causes: one, the telecentre is run on solar power – during non-sunny days, the battery would be depleted and weather conditions would have to correct for the battery to recharge. Hence, the telecentre would be non-functional during that downtime. Two, the internet connection is satellite-linked, and cloudy days would mean poor/slow connection. The slow connection factor is related to the perceived high cost of telecentre usage – 2 respondents informed us that telecentre usage is charged based on time, but the slow connection meant that they were paying for the ‘waiting time’ as well. This led to an overall negative attitude towards the telecentre.

From the foregoing, therefore, we can see that perceived usefulness is a very significant indicator of the community's attitude towards the telecentre; a positive view of its perceived usefulness predicts an overall positive attitude towards the telecentre, and vice versa. This finding reflects the maturity of the community in terms of ICT knowledge, which is no longer at the beginner's stage, which involves grappling with learning how to use and be familiar with ICT and the telecentre. Hence, indicators related to perceived ease of use have reduced significance. Rather, the community has evolved to a stage whereby tangible benefits and outputs need to be seen generated from the telecentre. Hence, perceived usefulness as an indicator gains a greater significance than that of perceived ease of use.

Lastly, our findings showed that the telecentre had/has a

very strong impact on rural tourism development, as perceived by the telecentre users within the community. In particular, the telecentre was seen to: have a direct effect on the increase in tourist arrivals; act as a communication link to promote the rural destination to the outside world; aid lodge owners in their logistical preparations to receive guests; raise the rural destination's profile to attract more development; and provide a place for tourists to access the internet and other ICT services. From the foregoing, we can conclude that the telecentre's economic impact is significant from a big-picture perspective. This could be due to the fact that many telecentre users (local community) were/are directly or indirectly involved in tourism within the rural destination.

## V. CONCLUSIONS AND IMPLICATIONS

The findings suggested that local communities were most concerned with the perceived usefulness and the result demonstrability of the telecentre, and that the telecentre has a very strong impact on rural tourism development.

The higher priority placed on perceived usefulness over perceived ease of use suggests that the framework for assessing the performance of telecentres in areas which are more exposed to ICT needs to be modified to allow a greater focus, or weightage, on the former indicator. The same goes for more "mature" telecentres, which have been introduced to the community for some time and have reached a state of operational maturity. Suggestions for future research would, therefore, include an investigation into the possibility of a framework spectrum that could be applied to various telecentres with various maturity levels.

In terms of telecentre implementation policy, the results of this study would imply that the role of the telecentre needs to change in line with the needs of its community. At the inception of a telecentre at a rural destination, it is usually the only way to access the outside world and hence, its value to the local community would be very significant at the outset. However, as the standard of living improves and the digital divide is bridged, usually with the availability of data plans and smartphones, which have democratised the internet with their increasing low costs [22]. Therefore, the role of any telecentre has to be planned over the long-term to ensure maximum user/community satisfaction and usage, as well as economic sustainability.

The usefulness of a telecentre can be further enhanced by conducting ICT training, specifically to business owners, on ways and means to further harness ICT to promote and increase business volume. Alternatively, there is an avenue to provide marketing services via ICT by the telecentre. In the same vein, computer classes can be designed for the community, based on a common syllabus to ensure consistency in course content. In this respect, the telecentre could be partnered with an existing IT institution/body for the offering of courses and joint certification could be issued to participants thereafter. These courses could be taught on an ongoing basis to benefit all levels of community.

For the enhancement of business model sustainability, telecentre services can be further diversified in line with the needs of the community. If services can be offered accordingly, usage can be improved. The smartphone revolution can be piggybacked on by offering related services,

perhaps to train and establish a maintenance section to service and repair smartphones owned by the community. There is also an avenue for an advisory service for the usage and downloading of apps. The telecentre can even partner with existing mobile service providers to sell smartphones together with data plans (and earn a commission on the sale). The same could be explored for laptops and tablets – again, in terms of a service centre, an advisory service and product sale. Tablets have an increasing role in bridging the knowledge gap, especially amongst the middle to late middle-aged folks, and therefore represent an opportunity in the market that can be exploited.

For tourists, the telecentre can offer an energy charging station for phones, laptops and cameras, using its solar power, together with the line of services currently being offered.

The value of this study lies in the investigation of community attitudes towards the telecentre, and a further investigation of its impact on rural tourism development, which had not been previously studied. It also highlights the changing roles of a telecentre over time, in line with the needs of the community it services. Therefore, this paper not only contributes to the literature on bridging the digital divide amongst rural communities in general, but also to the changing roles of a telecentre after the said divide has closed to a certain extent.

Despite efforts by the researchers to ensure a rigorous investigative approach and data collection techniques for the purpose of a sound research, the findings of the present research, like those of any empirical investigation, are subject to limitations. Generalisability can be further improved with a larger sample, and sampling at more rural destinations which house telecentres at different stages of maturity. Other limitations include the low percentage of people aged between 20 - 30 years in the sample, as these might be more active users of the telecentre. The use of cross-sectional data methodology focused only on the periods of primary investigation and provided a 'snapshot' of one particular group at one moment in time. Thus, this study is limited in a temporal context.

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