Identifying the effect of emotions in government-citizen online (G2C) tourism based on the HEART metrics

Tri Lathif Mardi Suryanto[a*], Akhmad Fauzi[a] and Djoko Budiyanto Setyohadi[b]

[a]*Universitas Pembangunan Nasional Veteran Jawa Timur, Surabaya, Indonesia*
[b]*Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia*

CHRONICLE	ABSTRACT
	Emotional factors in the use of technology have the potential to be studied, since the important role of user engagement in the information technology development cycle, emotional plays a role in influencing the relationship between consumers and service providers. Previous research has examined various emotional factors of a person in operating digital services through online sites, but it is necessary to find an empirical correlation between emotional variables and one's intention to reuse (IR) online services. This study aims to determine whether users' emotions affect their decision to reuse Government to Citizen (G2C) online tourism services in Indonesia through the HEART Metrics approach. Furthermore, this quantitative study distributed questionnaires using simple random sampling to respondents who had used online tourism. Then analyse 260 research data using the SEM-PLS method by running Warp-PLS 5.0. The findings of this study are among the 5 HEART Metrics factors, 3 of which affect IR, namely Engagement, Retention, and Task Success, while Happiness and Adoption empirically have no significant effect on IR. Our results show that to gain consumer engagement with online services, service providers must consider the emotional elements of the users so that service reuse goals can be achieved. Furthermore, this research can be considered as an alternative recommendation for online tourism service providers, as well as the findings of a new model proposed to contribute to similar research in the future.

1. Introduction

Government policy to keep tourism destinations open in Covid-19 Pandemic situation causing topics among the general public. Government via Ministry of Tourism and Creative Economy (Kemenparekraf) still doing their job to give tourism services for domestic and international tourist, this is seen with actively www.indonesia.travel website that gives digital information services for incoming tourist (*The Official Website of Indonesia Tourism - Indonesia Travel*, 2021). With slogan "Wonderful Indonesia", digital information services expected to draw many visitors who looking for tourism destination info via official website www.indonesia.travel which managed by Government under Kemenparekraf. Admittedly, tourism is one of sectors that have the most potential to increase National in-come (Natalia et al., 2019). With rapid growth of technology and massively social media usage, Kemenparekraf developed www.indonesia.travel as an information system for a communication place between Government and public (G2C), also an effort to promote popular tourism destinations in Indonesia. Many digital information regarding tourism that still active in the middle of Pandemic, proof that Indonesian tourism still is an interesting thing to do, along with related research (Natalia et al., 2019; Nugraha & Sudirman, 2019; Rudenko & Tedjakusuma, 2018; Yunus et al., 2018). Previous researchers have found that tourism services in Indonesia in digital form make tourism a place

in the modernization of information as well as being able to influence the existence of tourism shown. Thus, the Government's efforts through the Ministry of Tourism and Creative Economy to continue to strengthen tourism in Indonesia with technological modernization needs to be appreciated in the form of participating in continuing related research. Yet, on pre-research, we found that the young are not or not yet able to access the official website of www.indonesia.travel as their references on tourism, instead, they find Indonesian tourisms via social media that they use. Surely this is a phenomenon that can be only limitedly and thoroughly observed in the user experience aspect. What are the factors which affect those conditions and why are the young reluctant to use digital information service from the Kemenparekraf. A service connection really depends on user experience, the real problem that Kemenparekraf faces through website-based tourism information suggesting the research of user experience to use Google HEART Metrics method which was developed to get the explanation why someone uses www.indonesia.travel. According to (Hung & Parsons, 2017; Lalmas et al., 2014) every digital service / service as far as possible a measurement of its attachment, HEART Metrics is a framework to start an investigation of user experience (Rodden et al., 2010), with indication that user experience is not yet as expected as user want, can be measured with user experience measurement tool (Albert et al., 2008). Aside from HEART Metrics, some methods developed by previous research, measurements tools for user experience (Finstad, 2010), 10 Usability Heuristics for User Interface Design (*10 Usability Heuristics for User Interface Design*, 2021), HaTS (Müller & Sedley, 2014), and various user experience evaluation methods. HEART Metrics is not focused on a certain measurement tool, but on the whole framework from the program that will be tested (Illias & Kokkinaki, 2015). So, HEART Metrics method is considered suitable to test user experience as a benchmark of how people willingly use www.indonesia.travel.

2. Literature review and theoretical framework

2.1 Government to citizen (G2C)

Basically, G2C terminology is built for electronic commerce carried out between the Government and its citizens or consumers, including paying taxes, registering vehicles, providing information and services in a digital way. In Indonesia, G2C services have been implemented in various fields such as tax payments https://djponline.pajak.go.id/, copyright management https://www.dgip.go.id/, driving license processing http://sim.korlantas.polri.go.id/, to those who are going to https://www.indonesia.travel/ and many others. Various researchers have taken a role in capturing the performance results of G2C tourism, showing the quality of information is directly proportional to the quality of the website to be able to affect satisfaction so that consumers decide to visit the destination (Nugraha & Sudirman, 2019), while the perception of convenience has a significant effect on perceptions of usefulness in operation of online tourism (Natalia et al., 2019).

2.2 HEART metrics (UXQ)

HEART Metrics approach which is empowered by Google Researchers (Rodden et al., 2010). EART Metrics have 5 variables that describe user Experience Quality (UXQ), such as Happiness, Engagement, Adoption, Retention, and Task Success. Starting from the findings of Rodden (2010), leading to research which was followed up by previous research, (Boy et al., 2015) HEART became a web analytic parameter which was then added to visualization of exploratory information with narrative visualization and storytelling to help engage users in exploration, (Lachner et al., 2017) Adapting UX metrics based on the HEART framework to establish direct communication with users, and (Conlen et al., 2019) The HEART framework for measuring user experience of web applications is not fully applicable to studying interactive articles. As stated (Illias & Kokkinaki, 2015) that HEART Metrics is not focused on certain measurements but on the whole structure of program that is about to be tested, therefore, it is very likely if the HEART Metrics become a whole framework for seeing general illustration of UQX that has influence on something, so in this paper, HEART Metrics is an independent variable that on hypothesis showed as positive, can affect Intention of Reuse (IR).

2.3 Intention to reuse (IR)

Issues related to repurchase or repurchase intentions have been raised by (DeLone & McLean, 2004, 2003) from which an Information System Success Model theory (ISSM) framework has been compiled. research in the field of human computer interaction (HCI), such as (Hsu et al., 2014) IR is influenced by satisfaction with websites, satisfaction with sellers, and perceptions of website quality, (Suryanto et al., 2016, 2017) in the case of service implementation. campus digital, IR is influenced by system quality and information quality, (Lee & Kim, 2018) in the case of the Tourism Information app in China, IR is influenced by customer satisfaction, (Park, 2019) in the case of airline digital services, customer satisfaction and inflight experience customers determine overall customer satisfaction and IR, and (Min Tun, 2020) pin the case of mobile banking, IR of mobile banking services is significantly influenced by p social influence, user satisfaction, and perceived efficacy.

In cases that have been observed by previous research, it is very possible when related research develops IR variables that are influenced by emotional technology, in this study a framework is formulated that proposes a measurement of emotion in the use of technology represented by variables from the HEART framework, namely Happiness, Engagement, Adoption, Retention, Task Success which are hypothesized to influence Intention Reuse.
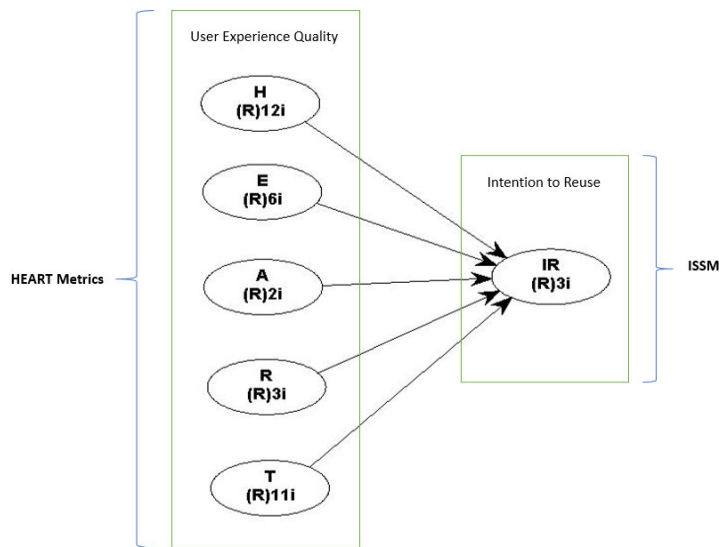
Fig. 1. Research Model Hypothesis

3. Research Methodology

This research uses Structural Equation Modelling (SEM) based on Variance-Based, Component/Variance-Based Structural Equation Modelling is often called Partial Least Square (PLS). This method is used to carry out causal-predictive analysis of a hypothetical finding, various procedures must be carried out to meet SEM assumptions both in the data collection process and in data processing through Warp-PLS 5. This paper is using a quantitative research method and propped up with qualitative data (Hameed, 2017; Müller et al., 2014). This research using amount of population by 452.626 users that know www.indonesia.travel and using sample data of 260 respondents who have ever accessed to www.indonesia.travel, also the sample selecting technique that has been used is simple random sampling (Müller et al., 2014) and added with respondent characteristic that has ever accessed the website www.indonesia.travel. The qualitative data is gathered by doing interviews with people that are actively related in Indonesian tourism services such as tour guides and travel & tourism agency services. After getting data from the questionnaire, the data was processed using SEM-PLS with Path Analysis approach (Kock, 2014, 2013).
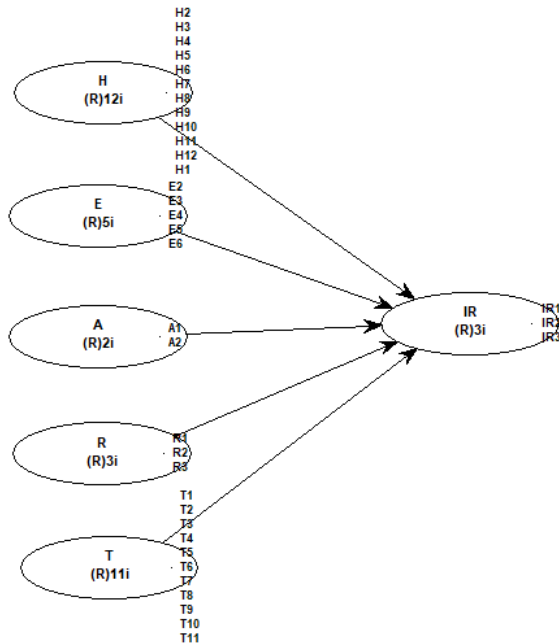

Fig. 2. Experiment Variable Model Hypothesis

4. Finding and Discussion

This is the part that contains the discussion from the research. The research result which will be reviewed is the result of quantitative data that was processed with the WarpPLS program (Kock, 2014, 2013). Quantitative data processing which shows the corresponding model will explain a condition that we are looking for. A precise suitability model for a research object will give explanation and addition on analysing correlation factor of UXQ to IR.

4.1 Outer Model Analysis

By using WarpPLS, an outer analysis model is needed to see the validity and reliability question that was obtained from HEART Metrics and Intention to Reuse, a suitability requirement that is used for outer results from Convergent Validity and Discriminant Validity findings. If the value of convergent validity > 0.6, then it can be stated that every variable has the correct indicator to form the variable. If the value of Composite reliability > 0.7, Cronbach's alpha coefficients > 0.6 and value of AVE > 0.5, then it can be stated that the model has been tested for its variable reliability and its indicator (Amora, 2021; Kock, 2014, 2013).

Table 1
Measurement Result Convergent Validity

	H	E	A	R	T	IR	P value
H1	**0.774**	-0.244	0.080	0.210	-0.021	-0.010	<0.001
H2	**0.774**	0.021	0.097	0.014	0.038	-0.204	<0.001
H3	**0.709**	-0.268	0.181	-0.062	-0.354	0.296	<0.001
H4	**0.708**	0.056	0.393	-0.237	-0.141	0.004	<0.001
H5	**0.681**	0.056	0.334	-0.144	-0.158	-0.017	<0.001
H6	**0.687**	0.404	-0.358	-0.147	-0.085	0.158	<0.001
H7	**0.720**	0.110	-0.365	0.011	0.176	-0.111	<0.001
H8	**0.751**	0.006	-0.293	0.046	0.060	-0.095	<0.001
H9	**0.762**	-0.190	-0.091	0.190	0.037	0.071	<0.001
H10	**0.784**	-0.109	0.090	0.043	-0.067	0.087	<0.001
H11	**0.757**	-0.132	0.105	-0.068	0.121	0.076	<0.001
H12	**0.688**	0.368	-0.179	0.099	0.386	-0.251	<0.001
E1	0.054	**0.814**	0.253	-0.052	-0.429	0.275	<0.001
E2	0.035	**0.842**	-0.027	0.262	-0.023	-0.303	<0.001
E3	-0.050	**0.840**	-0.030	-0.264	0.077	0.164	<0.001
E4	-0.018	**0.889**	-0.061	-0.043	0.136	-0.186	<0.001
E5	-0.019	**0.819**	-0.126	0.099	0.223	0.072	<0.001
A1	0.019	-0.025	**0.921**	-0.083	-0.087	0.157	<0.001
A2	-0.019	0.025	**0.921**	0.083	0.087	-0.157	<0.001
R1	-0.007	0.055	0.118	**0.882**	-0.065	-0.077	<0.001
R2	0.040	-0.075	-0.039	**0.919**	-0.033	0.072	<0.001
R3	-0.033	0.021	-0.073	**0.930**	0.095	0.002	<0.001
T1	-0.035	-0.040	0.258	-0.033	**0.771**	0.077	<0.001
T2	0.010	0.216	-0.155	0.409	**0.782**	-0.523	<0.001
T3	0.128	-0.139	0.104	0.001	**0.755**	0.106	<0.001
T4	-0.006	0.092	-0.079	0.213	**0.811**	-0.292	<0.001
T5	0.111	-0.140	0.111	-0.426	**0.693**	0.343	<0.001
T6	0.081	0.204	-0.156	0.211	**0.778**	-0.366	<0.001
T7	0.124	-0.102	0.204	-0.421	**0.703**	0.401	<0.001
T8	0.022	0.066	-0.056	0.133	**0.793**	-0.103	<0.001
T9	-0.125	-0.046	-0.062	-0.180	**0.775**	0.266	<0.001
T10	-0.214	0.012	-0.135	-0.038	**0.759**	0.124	<0.001
T11	-0.090	-0.187	0.007	0.034	**0.657**	0.081	<0.001
IR1	0.018	-0.155	0.037	-0.189	0.127	**0.876**	<0.001
IR2	-0.087	0.093	0.022	0.275	-0.082	**0.883**	<0.001
IR3	0.069	0.061	-0.058	-0.087	-0.044	**0.885**	<0.001

The result of convergent validity has corresponding value with its requirement that is with P-value < 0.5, while the value indicator instrument is > 0.7. Then, the statements in this research considered valid for then move forward to next step testing, that is Cronbach's alpha coefficients observing, composite reliability, and Discriminant validity.

Table 2
Measurement Result Discriminate Validity

Measurement Point	Instrument Research					
	Happiness	Engagement	Adoption	Retention	Task Success	Intention Reuse
Cronbach's alpha coefficients	0.922	0.896	0.822	0.897	0.923	0.856
Composite reliability	0.933	0.924	0.918	0.936	0.935	0.912
AVE	0.734	0.841	0.921	0.911	0.754	0.881

As stated before, to suffice reliability value as a whole and in every indicator, then it needs to observe Ca, Cr, and AVE. The discriminant validity value shows that value of Ca > 0.6, value of Cr > 0.7, and value of AVE > 0.05, it means, the reliability on question items is reliable, so the discriminant validity requirement on this research is sufficient.

4.2 Inner Model Analysis

Inner model analysis part is needed to observe the correlation of HEART Metrics to Intention to Reuse. This condition can be observed by Model Fit by considering the calculation of R-Square, Q-Square, and Goodness of Fit (GoF). The value on R-Square Contribution Ratio coefficient (RSCR) stated in 2 categories as "acceptable if >= 0.9, ideally (equal mark) 1", and value of Q-Square is suggested > 0, while for Tenenhaus Gof (GoF) stated in 3 categories as "small >=0.1, medium >=0.25, large >=0.36" (Kock, 2014, 2013).

Table 3
Measurement Result Model Fit

Measurement Point	Estimated Model	Justification
R-Square	1.000	Ideally
Q-Square	0.638	Acceptable
GoF	0.674	Large

The result shows R-Square value as 1.000, so it can be said the proposed research model correlation between HEART Metrics to Intention to Reuse can be interpreted well as 100%, while Q-Square accepted value as 64% from proposed structural model, large value of GoF indicates that observed model reliability is acceptable.

4.3 Path Coefficient Analysis

The results of data processing using Warp-PLS show the relationship between factors using the HEART Metrics conceptual approach model with Intention to Reuse related to the evaluation of Indonesian Tourism G2C measurements through the official website indonesia.travel. The P-Value value shows the significance of the correlation between variables if the P-value of P < 0.05, it is stated that the relationship between variables is significant (Kock, 2014, 2013).

Table 4
Measurement Path Coefficient Analysis

Correlation Between Variables	Path Coefficient	P-Value	Justification
Happiness → Intention Reuse	0.064	0.149	Not Significant
Engagement → Intention Reuse	0.102	0.049	Significant
Adoption → Intention Reuse	0.075	0.112	Not Significant
Retention → Intention Reuse	0.294	<0.001	Significant
Task Success → Intention Reuse	0.392	<0.001	Significant

First, the point of view from a series of findings is in table 4, where the table presents the tested factors, namely Happiness, Engagement, Adoption, Retention, Task Success on Intention Reuse. From the findings obtained, the HEART Metrics framework does not affect all factors successfully on Intention Reuse, it is found that the relationship between Happiness and Adoption on Intention Reuse is not significant, while the other 3 factors, namely Engagement, Retention, Task Success, have an influence on Intention Reuse. This study provides other findings with some of its predecessors (Albert et al., 2008; Pratama et al., 2019; Rodden et al., 2010; Santosa, n.d.), The HEART Metric that transforms into a predictor is able to influence endogenously, this means that the proposed model variables can be used as an initial reference to evaluate user experience within the scope of Confirmatory factor analysis (CFA) and exploratory factor analysis (EFA) research.

Second, with the magnitude of the HEART dimension being a predictor, finally contributing to each factor that can be calculated empirically, Task Success path values of 40%, Retention (30%), and Engagement (10%) respectively are the dominant factors to influence the Intention to Reuse. In its implementation, G2C services are considered successful when there is no or infrequent breakdown when operated by the user. This Indonesia.travel service is felt to have the ability to do that, it is not easy for interference or excessive advertising to occur. The task goes well when the expectations and performance are as expected by the user, meaning that the application of G2C Tourism services in Indonesia. travel is deemed to have performed in accordance with user expectations.

The retention factor has a positive influence on Intention Reuse, meaning that the application of Indonesia.travel is also perceived as an easy in finding, finding, storing, and executing an action, for example: looking for a tourist destination in Indonesia that is included in the top 5 national tourism categories and then ordering a tour package. to visit the tour. Significant impact Retention can provide experiences that support the process of knowledge tourism in Indonesia.

While the observations from the findings of Happiness and Adoption which have no effect on Intention Reuse while Engagement as a factor that affects Intention Reuse, various similar studies on HEART Metrics (Boy et al., 2015; Conlen et al., 2019; Hung & Parsons, 2017; Illias & Kokkinaki, 2015; Lalmas et al., 2014; Müller & Sedley, 2014; Rodden et al., 2010) describes that Happiness and Engagement often have an interrelated relationship, but the findings in this study give different results,

646

Happiness has no effect on Intention Reuse while Engagement can affect Intention Reuse. This finding provides a new contribution in involving HEART Metrics as a predictor as well as material to be re-examined in several case studies from e-gov to e-commerce.

Three, the purpose of making G2C digital services is one of them so that the information shared can be easily obtained by the public and expect the services to be provided repeatedly and continuously. In the ISSM study for Intention Reuse (Aldholay et al., 2018; Bernroider, 2008; DeLone & McLean, 2004, 2003; Hsu et al., 2014; Lathif et al., n.d.; Petter et al., 2008; Suryanto et al., 2016, 2017) often use information quality, system quality, and service quality as predictor variables. but some questions from HEART Metrics can accommodate all three qualities in ISSM, if observed through the HEART Metrics Intention Reuse predictor G2C can be influenced by Task Success, Retention, and Engagement factors. , the features in the service can be in accordance with the functionality and in accordance with the user's expectations so that in this case it creates a good relationship between the service provider, the user, and the repetition of using the service.

Meanwhile, other factors, namely Happiness, and Adoption have no effect on Intention Reuse. This phenomenon is possible because of the application conditions of users who want closer use of their expectations when operating tourism virtualization, adopting various technologies, and implementing them into G2C services, which will be more experienced and experienced, so that there is a sense of pleasure visiting via virtual and much further. closer, cheaper, more friendly, and can be used as expected.

Finally, In cases of user experience research that often involves an evaluation (Albert et al., 2008; Boy et al., 2015; Conlen et al., 2019; Finstad, 2010; Hung & Parsons, 2017; Lalmas et al., 2014; Müller & Sedley, 2014; Pratama et al., 2019; Santosa, n.d.; Tripathi, 2021) but there are still few researchers who explore the scope of this evaluation into pathway findings, thus providing a little fundamental, of course there are still many studies in this study that are expected to be used as ongoing research that explores HEART metrics as predictors.

5. Conclusion and Suggested Future Research

Based on the results of the discussions and discussions that have been presented, it is concluded that the HEART Metrics framework can be a predictor of the relationship between changes in emotions or feelings from user experience, this research model can explain 67% of these phenomena, intention to reuse online tourism G2C services based on user experience. Observing the findings of this study, it is recommended that services based on Governance to Customer (G2C) provide a good user experience with a priority scale that is in accordance with the characteristics of the service.

Acknowledgment

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648