Research on the Relationship Between Characteristics of AI Recommendation Services and Usage Intentions
− With a Focus on the "Perfect Day" −

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Abstract — Previous research on application characteristics has shown that the perceived value of some characteristics of mobile applications has a significant impact on users' intention to use them. However, the existing studies have focused on the relationship between mobile application characteristics and users' intention to use, and there is a lack of research on the relationship between AI recommendation service system characteristics and intention to use.

Therefore, this study focuses on the value−based acceptance theory to identify the characteristics of the AI recommendation service of the 'Perfect Day' application that utilizes the AI course recommendation system, and conducts an empirical analysis of the factors that affect the intention to use the service by using the functional and hedonic values perceived by the users as parameters and the degree of experience as a control variable. We conducted in−depth interviews with 7 users of the 'Perfect Day' application, and extracted 4 final characteristics (Massive Information Quantity, Context based provision, Expectation Satisfaction, and Easiness) from the significant keywords extracted through topic modeling.

A survey was conducted on 100 people, and the hypotheses were tested using JASP's SEM path analysis. Through the test, all but two of the independent variables were accepted except for the hypotheses that Context Based Provision has a positive effect on both functional and hedonic value, and Massive Information Quantity has a negative effect on hedonic value, confirming that the remaining characteristics have a positive effect on the parameters and intention to use.

The significance of this study is that the existing e−SERVQUAL attributes were extracted and matched through topic modeling based on in−depth interviews with users. In addition, by understanding how the independent variables actually affect users' perceived value and usage intentions, we expect that the above findings can be used to advance AI in various applications and services, not only in the "perfect day".

Keywords—
AI Recommendation service, usage intention, perceived value(hedonic/functional) , topic modeling, SEM−PLS

I. INTRODUCTION
Previous research on application characteristics has shown that the perceived value of some characteristics of mobile applications has a significant impact on users' intention to use them. We'd like to collaborate with the company Newruns. specializes in building AI−powered applications and programs, and providing data to support their customers' businesses. Newruns team developed 'A Perfect Day' application ' which is recommends personalized Date places based on your preferences but they ran into some issues that has low users and retention rate. However, the existing studies have focused on the relationship between mobile application characteristics and users' intention to use, and there is a lack of research on the relationship between AI recommendation service system characteristics and intention to use. Therefore, we set our research purpose to find characteristics of AI recommendation service and try to link with the user's continuous intentions to the AI recommendation app. Also, we'd like to suggest a solution to the Newruns to apply our research to solve the problem about 'A Perfect Day.'

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II. METHODS
A. We extracted four idependent varaibles through topic modeling about 'A Perfect Day' users interview.
First topic is based on words like "enough," "information," and "diverse." We interpreted this topic as pertaining to the amount of information.Therefore, we used the tangibility factor

from SERVQUAL to model this topic as "massive information quantity."

The second topic is based on words like "place," "important," and "good." We extracted the independent variable of "expectation satisfaction" derived from SERVQUAL's assurance factor.

The third topic is based on words like "time," "easy," "convenient," and "quickly." We identified characteristics related to time-saving and ease of use. Therefore, we extracted the independent variable "easiness" from SERVQUAL's responsiveness to needs.

The fourth topic is based on words like "course," "interest," "recommendation," and "place." This topic pertains to providing information // relevant to one's interests. We defined this as "context-based provision," derived from SERVQUAL's empathy.

B. Reasch model

*Only hypotheses related to massive information quantities were set as negative influences.
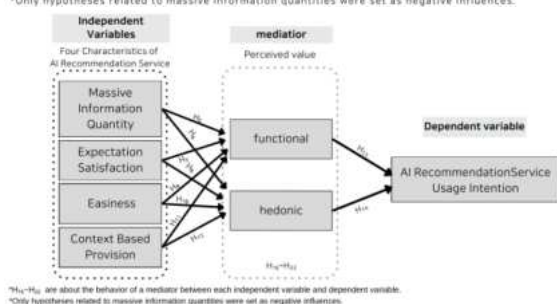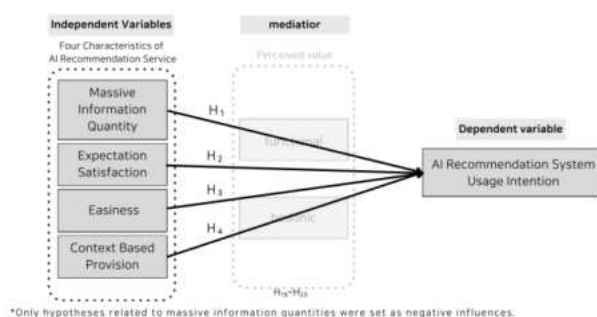
The first picture concerns hypotheses 1 through 4 about the path from the independent variable to the dependent variable.

The second picture you'll find hypotheses related to mediation effects.

In particular, hypothesis 15 through 22 are about the behavior of a mediator between each independent variables and dependent variable.

To validate the survey, we put each independent variable into model 4 with parallel mediation.

III. RESULTS

.The direct effects of the independent variables on the dependent variable were not statistically significant.

However, as we will explain later, some characteristics had full mediation effects, influencing usage intention through perceived value.

The following table tests the hypotheses from the independent variable to the parameters and from the parameters to the dependent variable.

Massive information quantity is statistically significant only for functional value,

while context-based provision is not significant for both functional and hedonic values.

Expectation satisfaction and easiness are statistically significant for both functional and hedonic values.

Functional and hedonic values each have a significant effect on the dependent variable, usage intention.

Based on the mediation effects,

expectation satisfaction is significant because the path to the dependent variable

through each of the mediators (functional and hedonic) is less than 0.05.

Easiness affects usage intention only through the hedonic value.

The remaining independent variables do not have mediation effects,

so their hypotheses are rejected.

Furthermore, the adopted results are all fully mediated.

We further confirmed that the accepted results are all fully mediated.

IV. CONCLUSION

To summurize our research,

first Extracting four characteristics of AI recommendation services,

Massive Information Quantity, Context Based Provision, Expectation Satisfaction, and Easiness,

by topic modeling in English based on the results of in-depth interviews.

Second, Hypothesis testing revealed

that none of the traits had a direct effect on usage intention,

but Expectation Satisfaction and Easiness were fully mediated, meaning they had a defining effect on Usage Intention only through perceived value.

Lastly, Expectation Satisfaction's relationship with Usage Intention was significantly mediated by both Functional and Hedonic, while Easiness's relationship with Usage Intention was significant only by Hedonic.

Our work has academic significance.

This is because we found the following interesting facts

Both functional and hedonic values had significant mediating effects on the relationship between expectation satisfaction and usage intention.

In contrast, only hedonic value had a significant mediating effect on the relationship between perceived easiness and usage intention.

Practically, we extracted accurate independent variables through interviews with actual AI recommendation service users

and identified how these variables affect perceived value and usage intention.

Our research can be applied to develop AI recommendation services in various applications, not just "A Perfect Day."

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