

# An Influence of the Digital Native Characteristics to Acceptance of Digital Signage Engagement and Media Attitude

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## Abstract

This study aimed at investigating that Digital Native generation characteristics played any role in the acceptance of Digital signage as media. Factors of influence on Media Engagement are immediateness and familiarity. Engagement affected by Digital Native Characteristics gave not influence directly but affects to adoption intention of Digital Signage indirectly.

**Keywords:** Adoption Intention of Digital Signage, Digital Native Characteristics, Digital Signage, Engagement

## 1. Introduction

Our life was completely transformed by Digital. Marketers begin to worry what to do more than what to say. Communication strategy is on the increase for a brand, media experience, and UX (User Experience). In that respect, DOOH media as Digital Signage is recognized a supply media with an interesting experience.

Utilized Advertising of Digital Signage makes interaction higher. Also, actively search advertising information, thereby has advantage understanding of customer response process. Due to these characteristics, Digital Signage, which media brings out various user experiences by media absorbing.

According to preceding research, Digital Signage has the influence on Engagement<sup>1</sup> as well as recognition, attitude, and image formation of user experience contents<sup>2</sup>.

This study presents the trait of Digital Native on Engagement and acceptance to Digital Signage. Digital Natives is a difference the previous generation. If current

generation is Digital Immigrants who's development digital technology and utilized, Digital Native is daily digital life, provided current generation is a Digital Immigrants.

According to<sup>3</sup>, 99.6% of Korean teenage is Digital Native. Also IDI (Information Development Index) is higher more than other countries. Digital Natives are a core keyword of new growth engines, and will growth continue with the central party as a force that governs the national competitiveness. Thus, this trait is concerned importantly on marketing communications strategy. The various fearless traits of Digital Natives can expect a positive leverage to accept DOOH media.

A propose of this study is two. First is a grasp trait of Digital Native of growing main target user. Reference<sup>4</sup> divided Digital Native by baseline born year, but simple divided of born year has an impractical division. Therefore, preceding studies have divided the trait of Digital Native.

Second, Digital Native trait in this study must figure out what influence between media absorption and media intention to adopt on the Digital Signage. It would serve that effective communication strategy method is found.

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## 2. Theoretical Background

### 2.1 Digital Signage

Digital Signage is a digital media generally use. DID (Digital Information Display) which utilize entertainment information, advertising, etc. by text or video in the public place or the outside<sup>5</sup>. The reason is a decrease of traditional media, demand of a purchase, change of lifestyle, increase message delivery necessity of detailed targeting and the customer's external activity<sup>6</sup>.

Current Digital Signage has blending technologies of mobile, high-speed Internet, touchpad as well as expose simple information and advertising. Thus, in this convergence phenomenon, customers can directly take part in the brand experience. It has been developed by level of experience do not watch advertising or information. Therefore, Digital Signage of other countries utilizes useful media for a stimulation of customer action.

In Korea, according to<sup>7</sup>, 84.1% of adult 19~ 59 ages both men and women have been experienced in contact of DOOH media as Digital Signage. 73.2% looked for the media easy, 30% responded did not remember the media. But 34.2% responded good feeling about DOOH advertising. The results provide implication the customer how think the media. Also, provide necessity of detailed research about accept media. The trend of the interest in the academic world about a possibility, effectiveness and receptivity of Digital Signage with advertising media has been on the rise.

Reference<sup>8</sup> searched acceptance process variables of user intention, interesting and cognition based on TAM (Technology Acceptance Model). According to the research, a demographic variable, perceived usefulness and interactivity factor have positively influenced relatively but self-efficacy, novelty-seeking tendency and degree of digital media possession had an impact on the result partially.

Reference<sup>9</sup> studied media accept about Digital Signage of interactivity, invasiveness cognition, and immersion. The result appeared in information, entertainingness and irritation of interactive outdoor advertising have an effect, and advertisement attitude and sharing intention had not.

This study should look at the influence of Digital Native trait in Digital Signage utilization. There is a need to examine closely the Digital Signage trait and other media acceptance process.

### 2.2 Digital Natives

Reference<sup>4,10</sup> categorized Digital Immigrants of the older generation and Digital Natives of accustomed to the digital environment. He named Digital Native in the people at 80~90's use digital device and language naturally sense. Digital Immigrant is the older generation of over 30s because appearing native language accent when they use digital language. Digital of Digital Native is to be, but Digital Immigrant become little critical. In other words, this two groups show different trait of the accepted posture of drastic change on society, environment.

Reference<sup>4,10</sup> got several of these Digital Native traits. First, they prefer multitask and parallel transaction through exchange information with real time, also they prefer a complex ornate multi-information of a picture, video, and sound, etc. more than text information of text centered. They have a randomize trait in approach information because network takes up all of life. They do not think discrete one between work and play.

Reference<sup>11</sup> explained the trait of Digital Native into four. First, all media and tool are part of life. Second, it is the support that digital media ownership and conjugation frequency of the younger generation are high, watching and listen to TV contents people by digital media is increasing. Third, the internet is a center of life and multitasking is a way of life. Fourth, everyone makes contents. They are not expert, have the ability make creation as photos, videos and text of online.

Overall preceding research, the trait of Digital Native may need to do a few more things. First is the trait of multitasking. That is act as if they could do two more things at once. Second is immediateness as a spontaneous reaction. They are habituated to the spontaneous reaction of other persons about creative production or one's opinion as they have in the digital world. It is also thirsty to do so much. The third is a utilizing of digital media or The internet by the tool exposing me. They interact with other persons that have a tendency to show off themselves.

Digital native was formed as a foundation for the digital media environment. They constantly have interacted with each digital media and making the network from birth. Therefore, understanding is needed about in a case of new media by made in digital technology; the media seems influence that Digital Native trait utilizes media.

### 3. Research Problems

This study proposes to examine about immersion in Digital Signage and the impact of Digital Native trait on Digital Signage. Especially, this study is looking to see the making process of positively utilizing Engagement.

Digital Native shows a high rate of early adopters for early purchase more than other generation, and they develop a new consumer culture by sharing directly product<sup>12</sup>. Also, the consume method of those media present a great contrast to the current generation. The result mean of<sup>12</sup> has disproved that an influence of four media has instead of a reduction, the rate of service about computer or play mobile video. They have the trait that fit their new contents consume, especially to value on contents experience.

Reference<sup>12</sup> poses a problem division between Digital Native and Immigrant and presented Digital Native scale of 20 questions based preceding research. To this end, it conducted a preliminary sample survey three times and finally drew four levels of 'Immediateness', 'Expressionism', 'Communicability' and 'Immersion'.

'Immediateness' is an actively pursuance trait of speed and convenience through a digital device in the daily work. 'Expressionism' is an actively expose trait of making a place of their own on the internet, and continual management and upgrade on the online. 'Communicability' is a utilize trait of digital media as a possible vehicle for communication with other persons. Lastly 'Immersion' is an important trait of Digital Native tied to how long will the media itself to take advantage of the good.

Recently, Digital Signage is advancing the type of customer interaction that was exposed making the video in public places. Also Digital Signage has changing the type of brand experience directly and utilizing vary and convergence media creative strategy by the customer. Therefore, Digital Native is likely to become very attractive media. This trait could affect experience and acceptance of Digital Signage. For example, the very method of screen touches, 'Immediateness' could affect a positive attitude formation of Digital Signage.

The trait of Digital Signage with strengthening interaction and a possible SNS interlocking strengthen Engagement by 'Immediateness'. But this is guesses, actually hard to predict what trait are the influences to

Media Engagement, attitude, and an acceptance intention.

Also, the preceding Digital Signage research of the relevant communication effects is nearly not being with an involved personal trait. Therefore, this study did not provide hypothesis, we establish research problems, and the research model and research problems follow as:

**Research problem 1. What is Digital Native tendency making immersion to Digital Signage?**

**Research problem 2. What influence on Engagement to media attitude and media intention of accepting?**

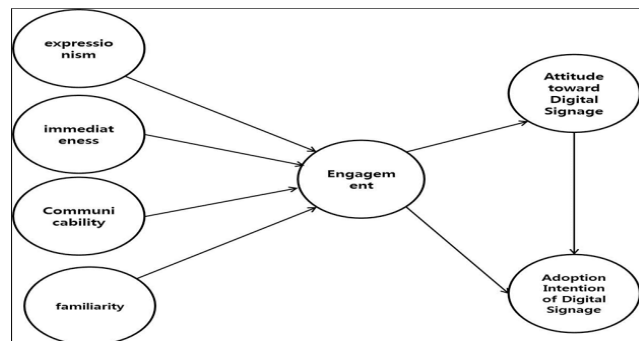


Figure 1. Research model.

### 4. Methodology

This study is to examine that Digital Native trait effects to the variable parameter of Digital Signage on media attitude and media accept intention. This study easy to use of mediator variable, control measurement error, analyzed Structure Equation Model with utilizing Windows AMOS 8.0 statistical program.

#### 4.1 Process of Survey and Method of Analysis

This study surveyed 151 university students in Busan. And utilize analysis result about remained 149 student's response of these students without two persons. This survey was conducted online for a week. At the very first, all subjects read precautions and background of research on the site. Henceforward, fill in a questionnaire. Subjects responded to the survey after an abridged description and watching video about Digital Signage. According to a responded result, 61% of women more than men, the born year range from 1986 to 1996, average born year is 1993.15 years. This subjects can be seen as Frencky's Digital Native of prescribed 80~90 subjects.

## 4.2 Manipulated Variable and Measurement

### 4.2.1 Digital Native Tendency

Digital Native has a good command of digital language that is a native speaker, which has a trait of an immediate response and interaction tendency in the reality with cyberspace<sup>4</sup>.

Prensky has defined Digital Native since the 1980 years was born. But<sup>12</sup> suggested Digital Native trait measure of configured 20 questions with a presentation of Prensky's division problem. This study has evaluated and revise Whang's the measure. The questions made 7-point Likert scale type, 20 questions.

### 4.2.2 Engagement

Reference<sup>13</sup> explained Engagement by the level of Media Engagement, Advertising Engagement and Brand Engagement with Engagement attach to contents general qualitative experience<sup>14</sup>. In this study, Engagement measurements focus in Media Engagement. Questions measure nine questions by 7-point Likert scale measurement with interest, benefits and engagement of<sup>14</sup>, and Cronbach  $\alpha$  value of reliability analysis result appeared .88.

### 4.2.3 Media Attitude and Acceptance Intention

Accept or decision process of innovation or new technology gone through knowledge acquisition step, attitude formation step and decision-making stage<sup>15</sup>. That time, audience force to make attitude of favorably or unfavorably, decision-making stage decide accept or acceptance intention of intention to use<sup>16</sup>. Priory many studies utilize key variables of attitude and intention to use. This study utilizes a measure of media attitude and acceptance intention by<sup>8</sup>. Concretely the questions used 'Digital Signage appeals to me' (attitude) and 'I have an intention of use Digital Signage' (intent to use).

## 5. Results

### 5.1 Exploratory Factor Analysis

A research problem verification before, we execute analysis exploratory factor analysis and reliability analysis for Digital Native trait sampling. Exploratory factor analysis used varimax method for verifies validity. Finally, the item is chosen by 16 questions, five factors fall under

65% of the total variance that named 'expressionism', 'immediateness', 'communicability' and 'familiarity'. Most of reliability coefficient (Cronbach's  $\alpha$ ) appeared more than .7; reliability coefficient of fluency was .48. General standards of social science (.7 under) had excluded in research problems verification. Therefore, this analysis target studied 'expressionism', 'immediateness', 'communicability' and 'familiarity' of Digital Native trait.

### 5.2 Research Problem Verification

In this study, first research problem looks into influence on Digital Native trait to Engagement of Digital Signage. Second, Engagement is about the effects of the media attitude and intention to adopt media. The two research problems verified Structural Equating model. Evaluation method has the method of use verification and goodness of fit. But verification is sensitive sample size and null hypothesis do not underestimate model.

This study evaluated a model of the goodness of fit by RMSEA, TLI, and CFI because the sample size is not sensitive, and consider a degree of simplicity. According to<sup>17</sup>, RMSEA values can be called the nice goodness of fit if less than .05, from .05 to .08 is the suitable goodness of fit and the values .10 over is unsuitable. In cases of TLI and CFI, the goodness of fit appears different from 1 to 0. If the value is .80 over, the goodness of fit is good. In this study, the goodness of fit as Table 1 is a competent level. Immediateness is statistically significant (+) with Engagement through parameter-estimated value as Table 2. Immediateness higher, Engagement of Digital Signage increases. Also familiarity is same immediateness as statistically significant (+) with Engagement but 'expressionism' and 'communicability' is not significant on Engagement. Engagement also has statistically significant with media attitude. Engagement of Digital Signage increased, increase attitude.

**Table 1.** Suitability of research model (n=149)

		Df	CFI	TLI	RMSEA
model	843.86	311	.876	.848	.012

Engagement about Digital Signage does not affect acceptance intention validity. But media attitude increases, acceptance intention higher, which intend an indirect influence. These study results, Engagement of Digital Signage influenced to attitude by mediator variable but do not influence direct to behavior variable

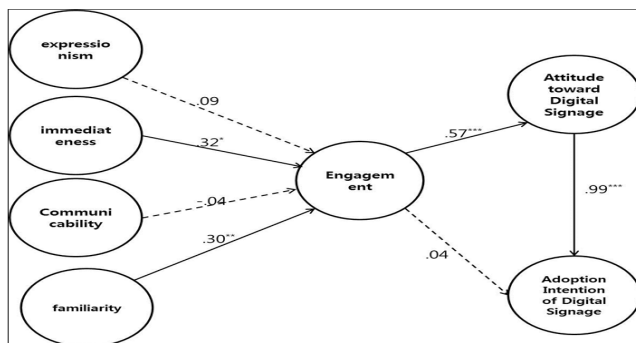


as acceptance intention.

**Table 2.** Parameter-estimated value of model

Parameter value	Parameter estimated value
Immediateness → Engagement	.544(.316)*
Communicability → Engagement	-.062(-.038)
Expressionism → Engagement	.094(.090)
Familiarity → Engagement	.306(.298)**
Engagement → Attitude	.625(.569)***
Engagement → Use intention	.038(.036)
Engagement → Use intention	.954(.993)***

Note: number is non-standardized path coefficients, standardize path coefficients suggestion bracket. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$



**Figure 2.** Digital native & digital signage path coefficient.

## 6. Conclusion

This study proposes looking for meaningful influence about the Digital Native characteristics to acceptance of Digital Signage Engagement and media attitude. The results of Digital Native tendency for verification of research problems, expressionism, immediateness, communicability, and familiarity have the meaningful trait. At these traits showed that the factors have an effect on Engagement of attitude toward Digital Signage and adoption intention of Digital Signage. Detail research results follow as next.

First, immediateness and familiarity of all values have an influence on Engagement of Digital Signage. 'Immediateness' is speed and convenience seeking tendency on daily business through actively digital media. Digital Signage bases on interaction with customers and has increasing various experience inducement media. At that time, customers could acquire information easy through Digital Signage with simple operates. This way

seems that immediate trait of Digital Native and utility values of Digital Signage prefer response immediately. 'Familiarity' means not difficulty, and can manipulate and multi-using when the customer utilize the digital device. Finally, to take interest and use about Digital Signage mean an important variable that is the degree of familiarity as frequent using and fearless application while familiarity had not effected on expressionism (to expose me) and communicability online. It seems finite that the experience customers of designed Digital Signage have attributed to limit of achievement need with communication other persons or expose myself through exposing video contents or information acquisition of simple control. Therefore, relatively it could interpret as not supply influence about expressionism and communicability to media acceptance process but it needs an investigation of the cause systematically because it is inference.

Second, appeared Engagement by Digital Native has an effect on indirectly to acceptance intention but has not effected on directly which is a reconfirmation result of advanced research. In other words, that need of the attitude toward Digital Signage within a positive attitude for media application or accommodation attitude that the higher media Engagement, the higher positive possibility.

According to research result, Engagement of Digital Signage could increase familiarity and immediateness degree of Digital Native traits by the stimulus. These study results have some theoretical and working-level implications.

First of all, this study was confirmed that Digital Native trait was able to utilize for acceptance process of Digital Signage. Henceforward, this research will be the start of the discussion about advertising media with Relative influence and significance of each tendency.

Second, following these verifications of Digital Native trait influence on Digital Signage, Digital Native could supply insight to Digital Signage with making application or to concerns communications strategy.

In the relatively strong Digital Signage case of audience communication control, it is possible that non-based approach method of this trait not effective. Therefore, it is desired contents and context with consumer perspectives. In this respect, these results have meaning influence that immediateness and familiarity are influential in Media Engagement, attitude and acceptance intention. For example, it is a relevant strategy that Digital Native

cognize Digital Signage by procurable means for looking information or contents quickly. Third, that it can identify the important factors in acceptance process of Digital Signage.

Avoid the phenomenon of advertising contents has increasingly extreme by advertising cluster. Customer is learning the unexposed methods from advertising contents that capitalize on media consciously or technically. Therefore, the advertising plan is more important than ever in the establishment of a media strategy. Familiarity and immediateness of Digital Native trait appeared important elements on the accepted process of media. Thus, the degree of utilizes Digital Signage could high with construct media strategy and approach to media and intention to use actively. But this result of research needs expectation to Digital Immigrant group with research range for appropriate use.

According to preceding research, Digital Immigrant realizes a digital media to adapt. They have tendency critical review. Thus, a follow-up study needs to apprehend about Digital Immigrant, Digital Native groups difference comparison, and to accept media trait of Digital Immigrant for stimulates.

Finally, this study confirmed that Digital Native trait is influential on Media Engagement, media attitude and acceptance intention partially. But this research has not the reason of significant influence about expressionism and communicability, which need a follow-up study for investigation whether that is media trait or other mediator variables.

## 7. References

- Cardoso JCS, and Jose RA. Framework for context-aware adaption in public displays. *Proceedings on the Move to Meaningful Internet Systems: OTM 2009 Workshop*; Vila-moura, Portugal; 2009; 118–27.
- Cornwell TB, and Maogmam I. An international review of sponsorship research. *Journal of advertising*. 1998; 27(1): 1–21.
- International Telecommunication Union (ITU). *Measuring the information society report*. 2013. Available from: <http://www.itu.int/pub/D-IND-ICTOI-2013/en>
- Prensky M, *Digital Natives, Digital Immigrants: Part 1. On the Horizon*. 2001; 9(5):1–6.
- Han KS. Influence of Brand Experience by Digital Signage advertising types on Engagement. *Advertising Research*. 2013; 98:43–84.
- Yang YJ. *Advertising media Strategy in the digital age*. Seoul: Communication books; 2010.
- Digital Media Center (DMC) Report. *The contact condition and advertising effects of DOOH*. Seoul: DMC; 2014.
- Kang TC. A study of factors affecting the adoption of digital signage as advertising media. *Journal of Communication Science*. 2012; 12(4):5–34.
- Shin IG, and Shim SW. The study on interactive outdoor advertising acceptance: Digital signage Stikus Wall Case. *The Korean Journal of Advertising*. 2011;13(4):390–432.
- Prensky M. *Digital Natives, Digital Immigrants Part 2: Do they really think differently? On the Horizon*. 2001; 9(6):15.
- Rainie L. *Digital Natives: How today's youth are different from their "digital immigrant" elders and what that means for libraries*. PEW Internet & American Life Project; 2006.
- Hwang YM. *The effect of tendency at Digital natives on tourism behavior: A case study of the information search, field experience, intention of information diffusion [PhD thesis]*. Busan: Graduate School of Tong-Myoung University; 2009.
- Ephron E. *Media planning: From Recency to Engagement*. India: The ICFAI University Press; 2006.
- Malthouse E, Calder B, and Tamhene AC. The effects of media content experience on advertising effectiveness, *Journal of Advertising*, 2007; 34(6): 7–18.
- Rogers E. *Diffusion of innovations*. 7th ed. New York: The Free Press; 2003.
- Dupagne M. Exploring the characteristics of potential high definition television adopters. *Journal of Media Economics*, 1999; 23(4): 216–30.
- Browne MW, and Cudeck R. *Alternative ways of assessing model fit*. Sage Focus Editions. 1993; 54: 136–62.