

Digital Trust Gap

The differences in perceptions of trust between experienced and inexperienced users

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Abstract: This study examines the relationship between an information and communication technology (ICT) environment developed by strong national policy and the level of user trust in cyberspace in South Korea, using a secondary data analysis of a national survey dataset. We categorised a subsample into the following types of online activities: ‘content creation’, ‘transaction’ and ‘communication’. Each category was analysed by the types of information and the users’ experience while using the internet. The results revealed that the more internet experience a user had, the less they trusted information in cyberspace. In contrast, less experienced users perceived information in cyberspace to be more trustworthy. This was especially evident during transaction and content creation activities. These results differ from existing studies, which showed that developments to the ICT environment with increased internet usage were strongly correlated with increased trust. We present some suggestions drawn from the results of this study that focus on online trust in relation to the ICT environment.

Keywords: Information communication technologies (ICTs); digital trust; online activity; South Korea; secondary data analysis

Introduction

The term ‘digital society’ has become a commonly used expression to define our current technology-driven lifestyle. In common with other developed economies, South Korea (hereafter Korea) has experienced remarkable changes in its society over the last few decades due to its visibly changing and accelerating digital economy. South Korea tops global rankings

in terms of number of households with access to the internet (99.5%), as recorded by the Information and Communication Technology (ICT) Development Index from the International Telecommunication Union ([ITU](#)) in 2019. The latest Index notes that 96% of the population had used the internet at some point in 2018 ([ITU,2019](#)). South Korea has developed a strong digital culture, with digital technology becoming one of the most frequently used sources for obtaining information. According to the Korean Press Foundation ([2019](#)), TV (53.2%) is the most trusted form of media in terms of information gathering amongst South Koreans, followed by the internet (39.1%). This result suggests that a universal digital culture has been cultivated; a paradigm shift which has transformed Korea into a highly knowledge-based society and reduced the inequality of information access found previously. In fact, the Korean Government has implemented digital inclusion policies for several decades. As a result, the internet access gap has narrowed significantly, and the Korean Government's policy is considered by many countries to be an exemplary case of a strong government drive in this field ([Park & Kim, 2014](#)).

Currently, the Korean Government defines its country as a highly advanced information society. Their national information and communications technology strategy has aimed to create a balanced knowledge information society in which information literacy plays a key role in users being able to select reliable knowledge-based resources. In this regard, there is an emerging ability to not only access social resources through digital technology, but also to create information value. In order to establish a society with a balanced digital culture, it is essential to ensure that every person can make effective use of the internet in their daily lives and can generate digital opportunities to engage fully in the consumption and production of digital content.

Paradoxically, criticism of the current ICT environment and cyberspace outcomes have been gradually increasing in Korea. While the ICT environment has developed exponentially, concerns over its negative aspects are also being raised. In particular, there is growing concern about personal information security and increasing distrust of online transactions. This may be due to expanding knowledge of cybercrimes, such as scams and identity theft, which have been increasingly reported on the news. Consequently, despite increasing dependency on the internet, its reliability is still perceived as being relatively low when compared to other forms of media, such as TV and newspapers. For instance, in the 2013 Korean Information Culture Indexⁱ, the digital trust index was assigned a score of 66.3 out of 100, a figure which is relatively lower than other indices such as online digital tolerance (80.1). This result may imply that a highly developed ICT environment may not be enough to guarantee strong user trust in cyberspace. That is, there may not be a strong correlation between ICT outcomes driven by policy and trust in the ICT environment. If so, previous studies that propose a correlation

between development levels and trust may be inaccurate. Moreover, the negative aspects of online technology and resulting distrust can lead to wider distrust within society, including of social organisations and individuals. As society has increasingly moved forward online and the boundaries between the online and offline world become blurred, the accumulated distrust of online activities can have a critical effect on social trust, which is an integral element of social capital (Coleman, 1988).

This study therefore attempts to examine the relationship between an internet environment developed by strong national policy and the level of user trust in Korean cyberspace by approaching the issue from the perspective of its users. We begin with an overview of the concept of trust and its relationship with the internet environment.

Trust Online

Trust is a long-standing concept which has been extensively studied across a variety of disciplines, including sociology, psychology, management and marketing (Das & Teng, 2004; McKnight & Chervany, 2002). Although there have been different ways of conceptualising and identifying the elements that make up trust, it is largely agreed that trust is relied upon when people encounter uncertain settings. Trust would seem to play a key role in diminishing uncertainty (Corritore, Kracher & Wiedenbeck, 2003).

The concept of trust has been paid considerable scholarly attention in recent years in social capital literature. Bourdieu (1986) defines social capital as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition—or in other words, to membership in a group” (p. 248). Social resources accumulated from social networks can enhance an individual’s social capital (Coleman, 1988), and social trust has been recognised as an integral element of social capital, with the two possessing a mutual relationship (Adler & Kwon, 2000). The social capital built and accumulated from social trust plays a crucial role in reducing potential risks and uncertainties in terms of social interactions and transactions (Coleman, 1990; Ellison, Steinfield & Lampe, 2007; Williams, 2006). Therefore, social trust is one of the key components of social capital, and functions in a number of ways to allow societies and individuals to avoid potential risks and uncertainties.

In an online setting, the importance of trust has received considerable attention (Beldad, de Jong & Steehouder, 2010; Corritore, Kracher & Wiedenbeck, 2003). As the online context has become an integral part of social activities and systems, including in the case of commercial and government services, increasing dependency on the internet has been noted in commercial transactions, management of social relationships and researching information. Researchers have begun to review the concept of social capital and trust as a result of

increasing computer-mediated social exchanges in online contexts ([Mandarano, Meenar & Steins, 2010](#); [Williams, 2006](#)). The risks and uncertainties might be perceived by individuals to be greater in online than in offline settings ([Cheshire, 2011](#)), due to the anonymity and invisibility of some online activities. Given the many risks and sources of uncertainty that exist during online interactions, online trust is critical for sustaining online interactions and furthering a reliable and secure digital society.

Differences in Online Trust among Users

It has been shown that there are a variety of determining factors which significantly influence online trust. In their review study, Shankar, Urban & Sultan ([2002](#)) summarise the main factors: past performance, long-term orientation, perceived information availability, perceived size and reputation, references, navigation, presentation and technology (p. 334). These can then be classified into website-related factors and user-related factors. Of the two, there has been greater focus on the former, which is concerned with provider-centric strategies to cultivate and improve customer trust. In general, the major factors that contribute to online trust include: ease of use, effective and efficient navigation, a search engine on the site, a sitemap and accurate descriptions of products ([Bart et al., 2005](#); [Chau et al., 2007](#); [Flavian, Guinaliu & Gurrea, 2006](#); [Grabner-Kraeuter, 2002](#); [Lohse & Spiller, 1998](#)). Many researchers also highlight the importance of the provision of quality information online, which includes accuracy, credibility, diversity and depth ([Kim et al., 2005](#); [Koehn, 2003](#); [Liao, Palvia & Lin, 2006](#); [Sillence et al., 2004](#); [Sillence et al., 2007](#)). In addition, recent literature emphasizes the increasing importance of policies involving privacy and security, including on-site privacy statements and third-party evaluations ([Aiken & Bousch, 2006](#); [Koufaris & Hampton-Sosa, 2004](#); [Lauer & Deng, 2007](#); [Yoon, 2002](#)).

In comparison to website-related factors, there has been relatively less attention paid to the user-related factors that may lead to different levels of trust among online users. A number of studies conducted with a focus on users have shown that different user features can have direct and mediated effects on trust in websites. For example, Shankar, Urban & Sultan ([2002](#)) summarise significant individual features influencing website trust, such as ease of use, familiarity, past performance, long-term orientation to the internet, predisposition to technology and other experiences of online use for entertainment and communication. Similarly, Corritore, Kracher & Wiedenbeck ([2003](#)) have found that the more online experience users have had, the higher the level of trust. Metzger ([2006](#)) supports this finding, identifying the positive relationship between proficiency of online usage and perceived risk online with the improvement in user trust during online transactions. However, several studies have also found that there is a negative relationship between perceived trust in online

environments and an individual's ability to use the internet, which is defined by their knowledge of online environments and confidence in using the internet ([Hankowski, Kantowitz & Kantowitz, 1994](#); [Kantowitz, Hankowski & Kantowitz, 1997](#)). In this regard, Aiken & Bousch ([2006](#)) explain that, in the initial stage, experiences of use can have positive effects on online trust; however, accumulated experience over time can turn to distrust due to a perceived lack of trustworthiness of online information and issues related to privacy.

Friedman, Khan & Howe ([2000](#)) view trust as the user's capability to be able to control perceived risk and uncertainty in situations where the user may be vulnerable. When it comes to the online context, trust refers to users' understanding of how to safely practise online functions. In other words, it can be supposed that online-use literacy can enable users to evaluate the credibility of the online platforms and, by doing so, users' trust in the websites can be affected. Relevant literature reveals that individuals' differences in terms of their familiarity and ability to use the internet can have direct and mediated effects on trust in websites, in parallel with system-related factors ([Beldad, de Jong & Steehouder, 2010](#); [Yoon, 2002](#)). The online environment has become increasingly diverse and complex with the advancement of innovative technologies; the ability of users to evaluate the credibility of the system has become crucial, because it can explain differences in users' ability to harness the system.

It is evident that the experience of users can have a positive effect on user familiarity online, depending on the medium and frequency of use, and thus improve user confidence ([Phythian et al., 2014](#)). The experience of users can influence trust in information and resources online. On the other hand, accumulated knowledge of online information and resources resulting from experience can enhance users' capability to evaluate, as well as increase their awareness of, online issues such as security and ethics, which can negatively affect users' perception of trust. It is worth noting that either reasoning is based on the premise that an individual's level of experience online is a factor influencing increases in his/her capabilities and knowledge.

South Korea's ICT Strategy and Digital Culture

The Korean Government's information and communications technology (ICT) policy is an exemplary case of strong government drive, which led to a rapid and high penetration of broadband networks ([Kongaut & Bohlin, 2015](#); [Park & Kim, 2014](#)). Since the early 1990s, the Korean Government has established progressive master plans for the development of an information society including: the First National Informatisation Promotion Plan (1996–2000), Cyber Korea 21(1999–2002), e-Korea Vision 2006 (2002–2006), Broadband IT Korea Vision 2007 (2003–2007), and the U-Korea Master Plan (2006–2015). Since rolling out broadband infrastructure, the Korean Government has recognised digital inclusion as an

integral component of the digital economy which reduces the digital divide within its population. This has led to a series of additional policy practices including extensive computer training in rural areas, localised ICT promotion projects, and the construction of public database access systems ([NIA, 2013](#)).

As Korea becomes a fully-fledged information society, there have been increasing calls for a shift from equality of access to more effective use of the available technology throughout the entire population ([Nansen et al., 2013](#); [Shin & Jung, 2012](#)). While early ICT policies encouraged the diffusion of an information culture throughout society in order to build the foundation for a knowledge-based society, this paradigm has shifted. There has been a move away from increasing access and reducing digital inequality towards enhancing the reliability of information resources ([Kim, Shin & Lee, 2015](#)). The aim is to increase opportunities for reliable utilisation of online information resources and ultimately to produce a more mature digital society. Trust online has been deemed to be an important social recourse that facilitates a more transparent social system and enables coordinated social interaction online in the national ICT-driven vision.

In this study, we conducted a secondary data analysis of a national survey on Korean internet use and digital culture. The survey is part of the Korean Government's ongoing efforts to enhance digital culture and promote awareness of its value by continually measuring Koreans' digital life and perception of the internet, including trust in online information.

This study focuses on identifying the differences in users' perception of online trust and further examines whether there is a difference in the relationship depending on the different types of online experience, such as content creation, communication and online transactions.

Methodology

Research questions

The research questions of this study are:

RQ 1: What is the relationship between the user's experience of the internet and perceived trust of the information online?

RQ 2: What is the relationship between the types of online activities users engage in and the perceived trust of the information online?

National survey on Korean internet use and digital culture

As mentioned above, this study conducted a secondary analysis of a national survey dataset in order to answer the research questions. The original dataset was collected using face-to-face

structured interviews with those who had used the internet via a personal computer (laptop/desktop) and mobile devices, such as a smartphone or tablet, during the last month. The participants were selected in 2013 in South Korea using a multi-stage, stratified random sampling method. Gallop Korea (<http://www.gallup.co.kr/>), who were commissioned by the National Information Society Agency (NIA), conducted the survey. Overall, 4,650 Koreans aged six years old or over were surveyed in 17 major provinces. Of these, we selected 3,641 subjects aged over 20 years for this study, thereby confining our analysis to adults. Of the 3,641 participants, 53.2% were male and 46.8% were female. The age distribution of participants was as follows: 20-29 (22.8%), 30-39 (27.0%), 40-49 (27.0%), 50-59 (16.2%), and 60 or over (7.5%). A breakdown by education level showed that 44.9% were educated at the high school level or lower, 44.6% at the undergraduate level, and 1.5% at the postgraduate level.

The original questionnaire consisted of 40 items in three parts, including six sub-parts: internet use (digital life and participation), cognition (digital trust and tolerance), and norms (ethical awareness, and ethical attitude and behaviour). For this study, we selected the online activities and trust in online information variables. The measurements of the variables used are outlined below.

Online activities. Engagement levels in content creation, transactions and communication activities with ten items were measured on a 5-point Likert-type scale (Tullis & Albert, 2013) of (1) 'more than once a day', (2) 'more than once a week', (3) 'more than once a month', (4) 'less than once a month', and (5) 'never'. These frequency variables were reverse-coded and used as a continuous variable. Content creation activities included 'post or reply to something online', 'upload photos or videos', and 'share posts/photos/videos of others.' Transaction activities included 'online banking', 'online purchasing or booking', and 'requesting public documents online'. Communication activities included 'email', 'online communities', 'social networking sites (SNS)', and 'instant messaging (IM)'. The mean score for the items in each activity (content creation, transactions and communication) was calculated and respondents who scored 'less than 1' were categorised into the non-user group, whilst those scoring '2 or more' were placed into the user group. We divided the user group in two – infrequent users (less than 3) and frequent users (3 or more). The non-users were excluded from the analysis.

Trust online. Participants were asked how much they trusted online information published or presented on (1) e-commerce websites (online shopping sites or companies' websites), (2) government and public service websites, (3) news media, and (4) SNS. All items were answered on a 5-point Likert type scale (1= not at all, 5= very much).

Results

Differences in perceived trust between different demographics

We compared the perceived trust levels between different demographics, including gender, age and level of education. Interestingly, there was no significant difference between those with a high school level of education or below and degree holders. Also, no significant generational gaps in trust of online information (except news) were observed. In terms of online news, younger respondents were less likely to trust this domain than older respondents. There were some gender differences in perceived trust. A higher level of trust was observed among female respondents in e-commerce (M=3.19) and online information from SNS (M=3.20) than in male respondents (Table 1). There was no significant difference when it came to sources from government and news organisations.

Table 1. Gender difference in perceived trust of online information

Gender	N	E-commerce		Government source		News		SNS	
		M	SD	M	SD	M	SD	M	SD
Male	1,937	3.09***	0.790	3.54	0.809	3.50	0.812	3.14**	0.796
Female	1,704	3.19***	0.735	3.54	0.798	3.55	0.781	3.20**	0.733

*p < 0.05 **p < 0.01 ***p < 0.001

Differences in perceived trust between internet non-users and users

T-testsⁱⁱ were conducted to examine the relationship between the experience of online activities and the perception of trust in online information. We divided respondents into two groups, those engaged in creating content, transactions or communications online (users), and those who had not engaged (non-users). As shown in Table 2, higher trust of online information was observed among the user group. However, the pattern of trust differences between the two groups differed by the type of online activity the group was engaged in. For content creation, there were significant differences in perceived trust between the two groups: those who had engaged in content creation activities online (M=3.57) were more likely to trust in government sources, news and in information from SNS (M=3.21) than non-users. However, trust of e-commerce showed no significant difference. In terms of transactions, there was a significantly higher trust of e-commerce (M=3.16), government sources (M=3.58) and news (M=3.54) among those engaged in transactions online, while no significant difference of trust in information on SNS was observed. For communication, there were significant differences of trust in e-commerce (M=3.14) and online information from SNS (M=3.17) when we compared the two user groups.

Table 2. Users' and non-users' perceived trust of online information

Online activities	Type of user	N	E-commerce		Government source		News		SNS	
			M	SD	M	SD	M	SD	M	SD
Content creation	Non-user	1,007	3.10	.788	3.47***	.793	3.45**	.796	3.06***	.799
	User	2,634	3.15	.757	3.57***	.806	3.55**	.797	3.21***	.752
Transaction	Non-user	621	3.04***	.841	3.38***	.808	3.41***	.774	3.15	.785
	User	3,020	3.16***	.748	3.58***	.799	3.54***	.801	3.17	.765
Communication	Non-user	147	2.98*	.762	3.47	.850	3.46	.864	3.01*	.893
	User	3,494	3.14*	.766	3.55	.802	3.52	.795	3.17*	.762

* $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

The *t*-test results suggest that trust in online information may vary depending on the types of online activities in which users are engaged. In the next section, in order to further understand the perception of trust in online information among users, we examined trust levels for each type of online information as classified by its source and for each kind of online activity among users.

Does perceived trust depend on the type of online activities that users engage in?

In order to examine the trust differences between different levels of engagement in online activities involving content creation, transaction and communication, we first divided the users into two groups – frequent and infrequent users – and then conducted a *t*-test.

As shown in Table 3, there was a higher trust of online information among infrequent users. For content creation, there were significant differences in perceived trust in e-commerce ($M=3.18$), government sources ($M=3.60$) and news ($M=3.61$), indicating that frequent users are less likely to trust in e-commerce, government sources and news than infrequent users. However, there was no significant difference of trust in information observed for SNS. When it came to transactions, regardless of the type of information, infrequent users' perception of trust online was significantly higher than that of frequent users. On the other hand, those who were more frequently engaged with communication activities online ($M=3.21$) were more likely to trust in the information from SNS.

Table 3. Perceived trust by frequent and infrequent users

Online activity	Type of user	N	E-commerce		Government source		News		SNS	
			M	SD	M	SD	M	SD	M	SD
Content creation	infrequent	1,751	3.18**	.770	3.60*	.775	3.61***	.774	3.22	.749
	frequent	883	3.09**	.729	3.51*	.861	3.44***	.829	3.18	.758
Transaction	infrequent	2,607	3.18**	.754	3.61***	.787	3.58***	.787	3.19**	.760
	frequent	413	3.05**	.702	3.38***	.846	3.30***	.844	3.05**	.781
Communication	infrequent	1,644	3.12	.791	3.54	.811	3.53	.797	3.13**	.748
	frequent	1,851	3.16	.742	3.55	.794	3.52	.793	3.21**	.772

*p < 0.05 **p < 0.01 ***p < 0.001

Discussion

With the increasing integrity of the online environment, the internet has become one of the most trusted sources of information among users along with traditional media such as newspapers and television. In particular, most developed countries such as South Korea have fully embraced the online environment in their everyday lives. The Korean government has intensively focused on ICT development across all sectors of the society by implementing a series of strong, government-driven ICT policies. However, there has been an increasing social need for the building of a mature information society, which can lead to a range of initiatives aimed at building trust and confidence in the internet. The National Information Culture Survey (NICS) is one such effort by the government to increase awareness of digital culture and reliable online information among users.

This study attempted to better understand online trust among internet users by examining the relationship between the perception of trust and online user engagement. This engagement involved different activities such as online communication and transactions.

The first finding in this study was that those who engage in online activities, including creating content, undertaking transactions and/or communication, are more likely to trust in online information, such as e-commerce, government sources and news and information on SNS, than those who do not. In the literature on e-commerce, user familiarity has been deemed to be one of the significant contributors to increasing users' trust online (Bart *et al.*, 2005; Corbitt, Thanasankit & Yi, 2003; Gefen, 2000; Yoon, 2002). While the concept of familiarity has been mainly studied on online platforms, such as websites, it seems that our results showing higher levels of trust online amongst users versus non-users is in line with these studies. However, the perceived trust among users varied depending on the types of online

activities in which users were engaged and the types of information being accessed. It is notable that those who engage in transactions online are more likely to trust e-commerce, e-government and news online, whereas those who engage in online communication via email, online communities and SNS are more likely to trust information found on SNS. This result may imply that trust in these ICT-based applications and content is, to a degree, established among users in Korea.

In order to further understand the perception of trust in online information among users, we attempted to examine trust differences between different levels of engagement in online activities. The second finding reveals that, surprisingly, those who engage more frequently in online activities are less likely to trust online information than those who use it sporadically. This is especially the case for online transaction users who, amongst the frequent users, show significantly lower trust in all online information. However, this is not the case for online communication users: those who engage in communication activities online are more likely to trust the information found on SNS. Johnson and Kaye (2014) conclude from their studies on SNS and user credibility that the credibility of SNS is linked to the degree of reliance on SNS. This shows that frequent and loyal users find SNS more credible than less frequent users. They explain that it may be due to frequent users being more experienced and thus more adept at filtering untrustworthy information and sources. Our results above partially support such an assertion.

Although different patterns in terms of trust online were found among users, our results explicitly show that there is a 'trust gap' among some internet users, which needs to be further understood in order to continue enhancing the quality of ICT development. In many countries, including Korea, ICT policies have largely focused on the development of hardware such as networks and devices in order to improve their competitiveness in the field. It was believed that increasing the development of ICT environments in terms of hardware would lead to improvements in quality, such as narrowing social inequality between social groups and promoting openness and transparency in a society (Shim & Eom, 2008). However, the demand-side of ICT policies has been relatively neglected in the research as most studies have been focused on external growth factors in the field of ICT (Roy, Dewit & Aubert, 2001; Grabner-Kräuter & Kaluscha, 2003). Within this context, it is true that discussions relating to improvements in aspects of quality control, such as trust online, have been intermittently covered when analysing the issue of the digital divide (Nieminen, 2016; Kim & Park, 2015; Warschauer, 2004). However, the findings show that environment-centred policies and improvements in quality in the field of ICT can be another focus. In other words, the supply-side outcomes driven by ICT policy may not automatically result in mature digital cultures. Indeed, for the last decade, we have witnessed increasing online risks in parallel with the

increasingly evolving adoption of innovation technology, including the distribution of misinformation and security risks. Digital trust has become the primary focus for policy makers to develop ICT environments that balance quantity and quality in a society.

The findings in this study suggest that it is diverse factors, such as individual attributions beyond environmental factors, that influence trust in online information. Such user-focused factors should be taken into account in the furthering of research into trust online from the digital literacy perspective. For example, one possible interpretation from the findings in this study is that the digital literacy gap could lead to a trust gap, not only between users and non-users but also among users. As social interactions and exchanges are predominantly carried out online, trust online has become a crucial component in building a reliable digital society. Buell (2016) highlights that confidence in the internet is a key factor in enhancing users' trust online. In order for users to continue to trust the internet and to ensure a mature digital society, users need to be informed about online risks and ways to protect their privacy and security from the negative and harmful aspects associated with the internet. There is a critical role for industry and governments in continuing to improve user awareness to increase trust online. This will include ensuring that internet users are more aware of the online risks and dangers they face and are able to identify appropriate sources of information.

Conclusion

This study used robust national survey data on Korean internet use and digital culture to examine the relationship in South Korea between an internet environment developed by strong national policy and the level of user trust in cyberspace. It found that there is a significant gap in online trust between non-users and users as well as among users, showing the degree of scepticism about online information and content amongst frequent users of the internet. Contemporary society has witnessed a persistent growing mistrust in many areas; for example, trust in the news has continually declined in many countries, including Australia and Korea, over the last few years (Fisher *et al.*, 2019). The findings of this study may be indicative of the mistrust which has become pervasive over the last few years.

This paper is not without limitations. As previously noted, we carried out the analysis with secondary data from the NIA. While the data used in the analysis is representative of the population, having been gathered nationally and systematically, there were limitations in operationalising the concepts of trust and online engagement with the data collected originally. Secondly, the data used for this study may be somewhat dated, given that digital technology has been rapidly evolving over the last few years and society has also changed accordingly. Nevertheless, the findings of this study are well worth discussing, considering the

current circumstances surrounding digital trust, and provide insights into the pressing issue of mistrust and the digital divide.

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Endnotes

ⁱ The Korean Information Culture Index was first developed in 2008 to measure Korean informatisation capability, and the Government integrated the Index with other existing national surveys on Koreans' internet use and digital culture in 2015.

ⁱⁱ A *t*-test is a type of inferential statistic used to determine if there is a significant difference between the means of two groups.