

ONLINE KNOWLEDGE, INTERNET ABILITIES, AND INTERNET ATTITUDES AS PREDICTORS OF INTERNET USE

By

Gladys N. Obingba (Mrs)
Department of Science Education
Faculty of Education
University of Delta, Agbor.
Obingbagladys5@gmail.com
Gladys.obingba@unidel.edu.ng

Abstract

There is this activity in which internet users employ their own empowerment as examples of their internet ability. That is, the level of online knowledge, internet ability and internet attitudes. Evaluating the consequences of internet ability for internet use is not as simple as measuring internet access. Despite the importance of online knowledge, internet ability and internet attitudes in this context, little research has been done on the potential relationship among them. As a result, we investigated how much online capability predicted internet usage in the current study. We conducted a survey with Nnamdi Azikiwe University students. We gathered information about the subjects' socioeconomic backgrounds and verified and confirmed the consistency used in our study. We used an ordinary least square regression model to discover that online knowledge, internet ability and internet attitudes all predicted internet use. Only internet ability coefficient was not statistically significant. We could add to the discussion that knowing how to use the internet is not the same as knowing how to use it well. It needs to be dealt with independently and considered as a predictor of internet usage. Our results continue to support the notion that technical internet proficiency plays an essential role in internet usage. Content related online knowledge, internet ability and internet attitudes, on the other hand, are less device-dependent. They must be addressed jointly in education initiatives as the internet advances, as they are crucial in a future where information and communication are facilitated by technology.

1.0 Introduction

The internet is an important means of communication and information in modern civilization. Access to this technology has been growing year by year. Access to the internet, on the other hand, does not necessarily imply use, which is not always a uniform and equally empowering activity for all (Agresti A, Finlay B. 2019). This technology is used by people with various experiences, abilities, and goals. As a result, internet users' behaviors and their individual independence will be linked not just to their social surroundings, but also to their comprehension, knowledge, and appraisal of this technology.

This study argues that both hobbies and independence are related to people's ability to do what they are expected to do. The study adopted an American tradition in compliance with the standard, which states that effective collaboration of persons within an ecosystem is a manifestation of one's fundamental traits, which are intrinsically tied to improved job performance. An intellectual (understanding), pragmatic (knowledge), and interpersonal (activity) aspects are among these traits. We associate internet usage with knowledge, skill, and attitudes regarding it. The three notions are not insignificant, as they are key resources for internet appropriation and predictors of online benefits. It is not as simple as assessing the internet to uncover online knowledge, internet ability and internet attitudes, and their consequences for internet activity, (Ajzen I, Fishbein M. 2020). There is no scholarly agreement on what constitutes online knowledge, internet ability and internet attitudes. At the moment, we define internet knowledge as the level of acquaintance with terminologies required to use the internet effectively. We defined internet ability as the ability to

search, choose, appraise, and apply available information, as well as the ability to handle specific structures. Much of the early and current research on internet knowledge and abilities focuses on how socio-demographic characteristics (age, gender, education), experience, and frequency of use influence performance, or self-perception level, when completing internet tasks. According to age and education, different results are observed: young people perform better on basic assignments, but most graduates perform better on complicated tasks, (Atlas Brasil, 2020). To forecast online advantages and appraise internet use, research on internet attitudes focuses on judgments of morality, ease of use, and self-efficacy, as well as emotions of anxiousness, delight, repulsion, positivity, and pessimism. We defined internet attitudes as a person's assessment of how they use the internet, described in terms of judgments or opinions on how they utilize technology, (Brandtweiner R, Donat E, Kerschbaum J. 2019).

Deny the reality that attitude can alter internet use depending on an individual's ability, hobbies, and familiarity with the technology, little research has been done on the possible connections among them. Many scholars focused on the idea of internet ability or internet attitude in order to better explain internet use for particular purpose, such as the internet of things, or without taking into account the constructs' connections, (Brandtweiner R, Donat E, Kerschbaum J. 2019). Many researches attempt to define digital competence by combining online knowledge, skills, and attitudes, but they do not center on the internet because they tackle technology in a broad sense (e.g, Brandtweiner produced the ACM index (access, competence, and motivation). Owing to its true self evaluation measure, the writer's performance evaluation is generally closer to the self efficacy idea and does not incorporate the significance of competency, (Burin DI, Irrazabal N, Ricle II, Saux G, Barreyro JP 2018).

Research Questions

This present work examines some research problems which was cleverly linked up to the research questions as follows:

- a) What is the relationship existing among online knowledge, internet ability and internet attitudes?
- b) Does knowing how to use the internet the same as knowing how to use it well?
- c) To what extent do online knowledge, internet abilities, and internet attitudes predict internet use?

Study Hypotheses

Deriving from the research questions above, this work states the study hypotheses as follows:

- HO₁:** There exist no statistically significant relationship existing among online knowledge, internet ability and internet attitudes.
- HO₂:** There exist no statistically significant difference between how to use the internet and how to use it well?
- HO₃:** There exist no statistically significant relationship existing between online knowledge relations and internet use.

2. Literature Review

Online Knowledge and Internet Ability

The actions that individuals use the internet can help us understand how they use it. As a result, behaviors that has the potential to strengthen an individual's social value, such as looking up health information, conducting monetary operations, working, and reading the news, have been used as a criterion for effective internet use. These can help people become more empowered, as well as gain individual and career benefits from technology. However, we must take into account its complexity as well as the methods for utilizing it, (Cox EP, 2019). The more numerous and sophisticated the activities on the internet are, the more mental materials are necessary to partake, which people build during their educational careers and as they mature as individuals. As a result, online knowledge (understanding) and internet ability (knowhow) could be a path to a greater grasp of efficient internet use, (Des Armier D, Bolliger D.U 2021).

Although the lines between online knowledge and internet ability have been blurred in previous research, they are fundamentally distinct notions. The ability to handle the language of modern technology, demonstrated by familiarity with its specialized words, is a typical approach to internet expertise. DiMaggio P, Hargittai E, Celeste C, Shafer S. (2020) for example, created a protocol of activities that needed participants to have prior knowledge, including numerous internet-related tasks such as surfing, file processing, analysis, and usage of the information available through this technology. DiMaggio P, Hargittai E, Celeste C, Shafer S. (2020) presented a set of phrases to evaluate internet abilities based on the findings, which have now been used by many other research. Nevertheless, the Hargittai assessment, which was later modified by DiMaggio P, Hargittai E, Celeste C, Shafer S. (2020) is an estimate of a person's acquaintance with terminology used in frequent internet use. To put it another way, this statistic measures online knowledge instead of talents. A "general level of acquaintance with terminology related to the internet (e.g., 'browsers' and 'cookies') may be vital to the growth of a person's online knowledge," according to Potosky, who included a declarative knowledge dimension in her iKnow measure. Recabarren presented the expert knowledge model for the internet, which uses four dimensional areas to convey an individual's understanding of internet activities, (Donat E, Brandtweiner R, Kerschbaum J. 2019).

Internet Attitudes

Internet attitudes have a significant role in understanding human behavior. As a result, views, assessments, judgments, or just internet attitudes are significant complements to online knowledge in predicting internet use. Internet attitudes encompass feelings like anxiety, delight, aversion, curiosity, contentment, anxiety, positivity, and negativity, etc and views about internet use including subjective norm, simplicity of use, consciousness, or behavioral intentions, (Dutton WH, Reisdorf B.C. 2019).

Brandtweiner, Donat, Kerschbaum (2019) looked at attitude hinged on utility, passion (emotions and fear about web usage), behavioral intention (confidence with one's capacity to use the internet) Gerpott and Thomas (2018) point of view centered on value (conceptions of rewards from internet use), admiration (perceptions of satisfaction about web usage), fear (perceptions of unpleasantness

and incompatibility with the internet), and self-efficacy (preconceptions of ability to utilize the internet). Applying this concept, Ho discovered that service quality significantly moderated the effect of perceptions on internet searching activity, (Gerpott and Thomas, 2018).

3. Method

Awka has a 723 residents and a high Human Development Index (HDI), which takes into account factors like lifespan, education, and living standards. More than 32,000 students are enrolled in graduate and postgraduate programs at the Nnamdi Azikiwe university, Zhang Y, (2018). Data was collected using questionnaire that was self-administered. The researchers addressed the subjects, explained the study's goal, and invited participants to take part. Some who agreed to participate took roughly five minutes to answer. We were able to center on the audience research goal because of the data collection method (Gui M, Argentin G. 2017). When dealing with representative sample, it appears that this method is more effective. The emphasis on stakeholders might be deemed an acceptable sample technique when evaluating the study goal, which is to observe the association among online knowledge, internet abilities, and internet attitudes with internet use, (Guttman, Lev, Segev, Ayecheh, Ziv, Gadamo, Dayan, Yavetz, 2017).

There were a total of 247 questionnaires gathered. The study looked for mistakes like manifold replies per recycled or homogenized answers after categorizing the worksheet. No regulated or replicated replies. Multiple-answer items were treated as lost. The following parameters were used to manage incomplete data analysis: a) All issues greater than three incomplete data in same parameter were eliminated, and b) All missing variables higher than 10% data were eliminated. 9 questionnaires were removed due to 3 or more incomplete data in same parameter. As a result, the sample decreased (247 to 238) by the conclusion of such operations. The mean score of the corresponding variable was used to fill in the gaps left by incomplete data as observed and applied in a previous study, (Helsper, van Deursen, 2018).

After that, the work checked z-scores for each construct given in Table 1 to see whether there were any outliers. This present research used four as the univariate upper cut-off because of the sample size. Z-scores higher than that were studied further, along with the variable values from the other cases. One example was eliminated because it had extreme responses to the majority of the questionnaire questions. The sample was decreased from 238 to 237 cases as a result of this deletion, (Helbig N, Gil-García JR, Ferro E, 2020). Male students (52.3%) outnumbered female students (47.7%), with more people accessing the internet for 8 hours every day (59 percent). Respondents were on average 20.76 years old, with 50% of them being under the age of 18.

Measures and Instrument

Because hidden conceptions are vulnerable to deformation, evaluating them is a concern. As a result, we were concerned about relying on validated scales. It was deemed it as better strategy than inventing a new measure because it saves money, time, and could be useful for cross-cultural assessments. Thus, online knowledge (understanding) were assessed using the van Deursen, van Dijk, and Peters scale, (Hargittai E. (2019), (Van Deursen A, van Dijk J, 2019)..

Prior to employing the sample size, a pre-test with 15 people from the university where the researcher was linked was undertaken to collect input and make small modifications to the

phrasing and question order. The researcher went with an 11-point scale (0 thru 10). This is a well-known reference for the Nigerian education evaluation test range, which includes the participants who took part in the study. Furthermore, scales with seven to eleven points accurately reflect population heterogeneity and give stronger test validity, (Harambam, Aupers, Houtman, 2018).

Table 1

Online Knowledge and Attitudes Psychometric Properties

Dimension	Num. of items	Extracted var. (%)	Lower score	Alpha
Internet attitudes				
Repugnance attitudes	3	44.702	0.564	0.800
Admiration attitudes	4	44.163	0.577	0.752
Internet ability				
Operational ability	2	50.876	0.659	0.633
Formal ability	4	49.095	0.563	0.641
Information ability	2	49.640	0.654	0.655
Strategic ability	3	55.843	0.705	0.731

Source: SPSS 21, Output (2022).

Psychometric Properties of the Measures

In terms of diagnostic qualities, we anticipate retrieved variance equal to or more than 50% in each construct's levels, as well as factor analysis ratings substantially greater than 0.5. Cronbach's alpha should be equal to or greater than 0.7, reliability. Since this mean value of their individual components was combined, confirmations for online knowledge and internet use was not done, (Guttman N Lev E, Segev E, Ayecheh S, Ziv L, Gadamo F, Dayan N, Yavetz G 2017). Factor analysis and internet reliability iterations were used to determine available items for internet attitudes and internet ability in Table 1. Items AT1 and AT8 were eliminated from the first iteration of the internet attitude structure owing to reduced communality, which is consistent, (Zhang, 2018). After removing these two components, we were left with two internet attitude dimensions, as shown in Table 1. Repugnance reaction attitudes (AT2 through AT5) and admiration attitudes (AT6, AT7, AT9, AT10, and AT11) were named after them. As a result, hypothesis HO₃, which assumes that there exist no statistically significant relationship existing between online knowledge relations and internet use was divided into H_{3a} and H_{3b}. The proposed linear model was modified by these two extra components pertaining to the aversion and admiration factors.

The four dimensions recommended by Gui M, Argentin G. (2017) for online knowledge were suggested in the initial iteration. Since communality and component scores relative to the rest of the items were low, the information proficiency IS1 and IS3 items were indeed eliminated after two cycles. Finally, since social solidarity and constituent scores were low, the SS1 and SS5 strategic ability items were each eliminated, Ho L-A, Kuo T-H, Lin B, (2019), Zhang Y, (2018).

4. Results

We performed regression analysis to test our hypothesis at this point. To reduce mistakes, we used the ordinal least squares method to create a linear regression model. The F-test (p 0.05) revealed

no lack of normality, and the Kolmogorov–Smirnov (K-S) normality test applied to the residuals revealed no lack of normality ($p > 0.05$). 44.37 percent of internet usage was explained by the model. As a result of these findings, we were able to go forward with the research hypotheses discussions. The computed coefficients, confidence ranges, t values, and p-values are presented in Table 3.

The hypothesis HO_1 which states that there exist no statistically significant relationship existing among online knowledge, internet ability and internet attitudes was not disproved. This suggests that internet knowledge ($p 0.05$) predicted internet attitude. This finding implies that online expertise is a valuable resource for enhanced web application. To widen an individual's capacity to interact in a wider range of web activity, knowing about and being familiar with internet jargon ought to be a component of the competences development process, (Ho L-A, Kuo T-H, Lin B, 2019). The activity range carried out by this technology may be limited to some extent if a suitable level of day-to-day online knowledge is lacking, such as dangerous elements or tools for managing and aggregating data. Finally, this present work concludes that it limits an individual's potential to obtain larger advantages from internet use, either private or corporate. This is in accordance with previous research, Hoffmann T, (2018) that has found a link between these notions and university students' blogs, the heterogeneity of young adults' online activities, and the independence of internet use. The HO_2 hypothesis which states that there exist no statistically significant difference between how to use the internet and how to use it well was partly rejected, with HO_{2c} ($p > 0.05$). The remaining ones ($p 0.05$) were not rejected. As a result, improved internet use was linked to higher functional (H2a), formal (H2b), and strategic (H2d) knowledge. In terms of information abilities, we recognize that becoming conscious of internet prospects can lead to private and organizational advantages from utilizing this technology. Identifying targets, understanding how to collect, integrate, and pick suitable data from the internet, while being able to perform the essential steps are all required to take advantage of these chances. As a result, theresearch might claim that tactical knowledge is crucial for an individual's capacity to interact in more increased internet use. Nevertheless, even with rejection of H_{2c} , this would not mean that providing tailored proficiencies are useless in the world of internet use. To begin with, it was found to be strongly connected with internet usage ($p 0.05$). Second, we must evaluate the relationship's possible amplified influence of strategic ability. Table 2 shows that they had a greater correlation value, which may have helped to attenuate the effect. In particular, we ran an OLS estimation excluding strategic ability and found a significant effectiveness of information ability ($p 0.05$) over internet use. Finally, there is theoretical and empirical data that suggests improving information ability can lead to more effective internet use.

Table 2
Descriptive statistical measures

Mean	SD	1	2	3	4	5	6	7	8
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1 Repugnanc attitude	7.72	2.10	1.00								
2 Admiration attitude	8.70	1.33	0,19**	1.00							
3 Internet Knowledge	5.85	2.59	0,06	0,17**	1.00						
4 Operational ability	7.88	2.05	0,04	0,10	0,48**	1.00					
5 Formal ability	6.29	2.13	0,27**	0,09	0,02	-0,07	1.00				
6 Information ability	8.17	1.74	0,11	0,19**	0,44**	0,39**	0,02	1.00			
7 Strategic ability	7.78	2.03	0,09	0,23**	0,51**	0,41**	-0,02	0,65**	1.00		
8 Internet Use	6.24	1.52	-0,10	0,28**	0,47**	0,53**	-0,18**	0,39**	0,47**	1.00	

*p<0,05; ** p<0,01

Source: SPSS 21, Output (2022).

Table 3
OLS model

Predictors	95% confidence interval				p-value
	LB	UB	T		
(Constant)	1,74	0,52	2,97	2,81	0.0054
Repugnanc attitude	-0,11	-0,18	-0,03	-2,86	0.0047
Admiration attitude	0,24	0,12	0,35	4,09	0.0001
Internet Knowledge	0,10	0,03	0,17	2,87	0.0045
Operational ability	0,24	0,16	0,33	5,74	0.0000
Formal ability	-0,10	-0,17	-0,03	-2,78	0.0058
Information ability	0,04	-0,07	0,15	0,69	0.4890
Strategic ability	0,14	0,04	0,24	2,66	0.0084
Goodness of fit tests					
F ratio (8, 228 df) (p-value)	27.9	(0.000)			
Normality test K-S (p-value)	0.044	(0.200)			
R:	0.4602				
Adjusted R ²	0.4437				

Source: SPSS 21, Output (2022).

The studies show a link between operational ability (H_{2a}) and internet usage. As a result, even in the face of an increasing diversity of methods to use the internet, understanding how to utilize browsers, apps, search engines, and forms remains a frequent aspect in daily internet usage. This is augmented by formal knowledge (H_{2b}), which is required to navigate particular internet frameworks without getting stuck. The findings also show that having technological knowledge is necessary for increased internet usage. Ultimately, the study posited that these online knowledge are a critical asset for improved internet use, but that they are more essential in the contemporary environment of expanding mobile and wireless sensor networks internet use, given the obstacles that such devices face as their development continues. Finally, the HO₃ hypothesis which states that there exist no statistically significant relationship existing between online knowledge relations and internet use was not found to be false. As a result, larger levels of internet use can be linked to lower levels of adverse attitudes (HO_{3a}) and higher levels of admiration attitudes (HO_{3b}). In terms of how attitudes influence behavior, the findings suggest that people with more positive views, sense of trust, but less uneasiness used the internet more. This is in line with previous research, Van Deursen A, Mossberger K, (2018) on the importance of students' views toward technology in requiring internet use in Nnamdi university, Awka.

5. Conclusions

The goal of this study was to see how much online knowledge, internet abilities, and internet attitudes predict internet use. In general, the study aimed to convey the importance of specialized online abilities. Nevertheless, as technology advances, it will be imperative to fix evidenced online knowledge, internet attitudes and internet knowledge in order to promote social value and collaboration. The results reveal that the independent factors were connected with internet use from a framework perspective. The effect of information ability on internet use was an exception. We must interpret such an example with disclaimers, despite the fact that it is relatively startling. To begin with, we may wonder if the gauge was capable of measuring what was supposed to. Second, we can guess if respondents underestimated their abilities in this category, so undermining the relationship between internet use and internet ability. The study was able to discover both a linkage and an influence on internet use instead of strategic knowledge using the OLS model.

In the age of technology divide policy, finding answers to those concerns is a difficult task, as it necessitates measures that address people's technology use or the signals they receive via it. In absolute application, internet knowledge and attitude are broad and less device-specific. As a result, they cannot be dealt with independently.

Recommendations

1. Successful methods could aim to connect content accessibility and refresher courses, with an emphasis on contents that stimulates users' interest, self ambitions, and protection. This may encourage people to believe the internet can help them. For example, smart apps could play a big role in expanding services. They are increasingly participatory but have more user-friendly features, which could translate to better opinions of the internet.
2. Learning to use modern software is frequently a trial and error procedure. As a result, educational initiatives should be targeted to update syllabi to include internet competency not only in technology classes, but also in conventional subjects like history, physics, and grammar. For example, in terms of teaching languages, learners could be encouraged to use online resources like blogs, podcasts, and public records to find, organize, and analyze information.

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