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Examination Of the Scientific and Methodological Foundations of The Formation of Network Communication Culture and Digital Etiquette of Faculty Members at The University

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Abstract

This research aims to examine the scientific and methodological foundations of the formation of network communication culture and digital etiquette of university faculty members. 245 faculty members with different titles were included in our research. After obtaining information such as age, gender, years of employment, marital status, title and device usage time (DUT) of the participants, the Academic Digitalisation Scale (ADD) and the Academicians' Access to Information and Communication Technologies Scale (AAICTS) were applied. It was determined that individuals with the title of Prof. were more active in using technological tools and equipment ($p>0.05$) and the extrinsic motivation level, one of the sub-dimensions of AAICTS, was higher in individuals with the title of Prof. ($p=0.012$). A significant difference was also found between the participants in terms of skills ($p=0.047$). There is a negative relationship between age and ADD ($p=0.009$). There was a positive correlation between marital status and AAICTS ($p=.033$), extrinsic motivation ($p=0.003$), skill ($p=0.021$) and training utilisation ($p=0.025$).A positive correlation was found between the participants' ADD scores and AAICTS and its sub-dimensions ($p<0.001$). Accordingly, it is thought that incentives related to digitalisation should be provided to all academicians from the beginning of their academic career.

Keywords: *Digital Technology, Digital Educational Environment, Network Literacy, Digital Etiquette, Communication*

Introduction

Technology plays an indispensable role in today's academic world [1]. Academics benefit from the opportunities offered by technology in many areas such as research, data analysis, article writing and presentation [2]-[3]-[4]. Technological tools accelerate academic studies and make it possible to reach wider audiences [5]. Especially digital platforms and online databases support the work of academics by providing fast and effective access to information. In this context, the ability of academics to use technology effectively is of great importance in terms of academic success and productivity [6].

The importance of network communication culture in education and training activities is increasing day by day [7]. Especially during the pandemic period, the transition to online education systems has once again revealed how critical network communication is [8]. While

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network communication strengthens the interaction between students and instructors, it also increases information sharing and cooperation [9]. In order to carry out education and training processes effectively and efficiently, academicians need to have network communication skills. These skills include sharing course materials in digital environment, managing online discussion groups and motivating students on digital platforms [10].

Digital etiquette has an important place in education and training processes [11]. An academic environment that does not comply with digital etiquette can lead to various problems. For example, inappropriate language use in online courses, communication problems among students and unethical behaviours on digital platforms can negatively affect education and training activities [12]. Academics' lack of command of digital etiquette can reduce student motivation and weaken the learning process. Therefore, the adoption and implementation of digital communication and ethical rules by academics is critical for improving the quality of education.

The importance of this study is that it examines the awareness and competences of university faculty members regarding network communication culture and digital etiquette. It is aimed to analyse the development of these skills in academicians by comparing the knowledge of academicians with different titles about network communication culture and digital etiquette. The hypothesis of the study is that the competences of university faculty members in network communication culture and digital etiquette will increase the efficiency and effectiveness of education and training processes. This research aims to contribute to the development of educational policies and teaching methods by drawing attention to the importance of digital communication and ethics in the academic world.

METHOD

In this study, the survey model, one of the quantitative data collection techniques, was adopted.

Participants

In this study, the survey model, one of the quantitative data collection techniques, was adopted. In our research, 245 faculty members in the positions of professor (n=66), associate professor (n=36), doctoral lecturer (n=79) and other (n=64) faculty members in universities in different cities of Kazakhstan were included. Demographic information of the participants is given in Table 1. In this study, the minimum sample size was determined with G-Power 3.1.9.7 (Dusseldorf, Germany) programme. Accordingly, F tests ANOVA: Fixed effects, omnibus, one-way (A priori: compute required sample size- given α, power, and effect size) were selected. Accordingly, when a err prob=0.05, power (1-β err prob)=0.80 and effect size 0.23, it was determined that at least 235 participants should be included in the study.

Volunteer academics teaching in different departments of the Faculty of Humanities were included in the study. Academics working as researchers were not included in the study. Voluntary consent forms of the participants were obtained for all procedures performed in the study. The research was conducted in line with the principles set out in the Declaration of Helsinki.

Data Collection Tools

Academician Digitalisation Degree (ADD)

The Academician Digitalisation Scale was developed to determine the degree of digitalisation

of academics. This scale assessed academics' use of digital technologies in education, technology and professional development, and technology use in social life. The scale has a total of 15 items and a Likert-type ("1=Never", "2=Mostly", "3=Sometimes", "4=Rarely", "5=Most of the time") response scale was used. The validity of the scale was evaluated by exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) (Hoyle, 2000; Watkins, 2018). EFA results revealed that the scale has a three-factor structure. These factors consist of meaningful and consistent items measuring the level of digitalization. Kaiser-Meyer-Olkin (KMO) test and Bartlett's test results showed that the data were suitable for factor analysis (KMO = 0.85, Bartlett's test $p < 0.001$) (Shrestha, 2021). CFA results revealed that the model showed a good fit and the factor structure was confirmed. The reliability of the scale was evaluated by internal consistency (Cronbach's alpha) coefficient. Cronbach's alpha value for the total scale was found to be 0.92, which indicates a high level of reliability. In addition, the Cronbach's alpha values calculated for the sub-dimensions ranged between 0.85 and 0.88, indicating that the sub-dimensions were reliable [13].

Academics' Access to Information and Communication Technologies Scale (AAICTS)

AAICTS was developed to measure academics' level of access to information and communication technologies (ICT). The scale is applied using a five-point Likert-type response scale ("1=Strongly disagree", "2=Disagree", "3=Disagree", "4=Agree", "5=Strongly agree"). The scale consists of 25 items and 4 factors in total: Intrinsic Motivation, Extrinsic Motivation, Informational Skill, Strategic Skill and Instructional Use. The validity of the scale was evaluated by exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). EFA results revealed that the scale had a four-factor structure (Hoyle, 2000; Watkins, 2018). Kaiser-Meyer-Olkin (KMO) test and Bartlett's test results showed that the data were suitable for factor analysis (KMO = 0.91, Bartlett's test $p < 0.05$) (Shrestha, 2021). It was found that the scale explained 66.03% of the total variance and the factor loadings ranged between 0.87 and 0.44. CFA results revealed that the model showed good fit and the factor structure was confirmed ($\chi 2/df=2.48$, CFI=0.91, RMSEA=0.077, SRMR=0.069). The reliability of the scale was evaluated by internal consistency (Cronbach's alpha) coefficient. Cronbach's alpha value for the total scale was found to be 0.90. Cronbach's alpha values for the sub-dimensions are as follows; Intrinsic Motivation: 0.75, Extrinsic Motivation: 0.78, Cognitive Skill: 0.95, Instructional Use: 0.91. These values show that the overall scale and its sub-dimensions have a high-reliability level [14].

Statistical Analysis

SPSS 25 (IBM, Chicago, USA) software was used for statistical analyses. The normality analyses of the data were determined according to the results of Kolmogrov Smirnov test and it was determined that the data showed normal distribution. For this reason, ANOVA test was applied to compare the participants' DUT, tablet use, laptop use, smart watch use and DDCU usage time and ADD, AAICTS and its sub-dimensions according to academic titles. The significance level was determined as 0.05. In the study, participants' gender, age, years of employment, marital status, and the relationship between ADD and AAICTS and its sub-dimensions were tested through Python programme.

RESULTS AND DISCUSSION

Variables	Tittle	N	mean±SD	F	*p*	Tukey
DUT (hour)	Dr.	79	3.03±1.42	3.936	.009	Prof>Assoc.Prof
	Assoc. Prof.	36	2.50±1.25			
	Prof.	66	3.34±1.12			
	Other	64	2.89±1.04			
Tablet Usage (hour)	Dr.	79	3.68±1.53	4.528	.004	Prof.>Other
	Assoc. Prof.	36	354±1.09			
	Prof.	66	4.04±1.39			
	Other	64	3.20±0.84			
Laptop Usage (hour)	Dr.	79	3.62±1.43	4.546	.004	Prof.>Other
	Assoc. Prof.	36	4.05±1.58			
	Prof.	66	4.13±1.33			
	Other	64	3.32±1.13			
Smart Watch Usage (hour)	Dr.	79	3.47±1.43	4.004	.008	Prof.>Assoc.Prof
	Assoc. Prof.	36	2.73±1.02			
	Prof.	66	3.68±1.46			
	Other	64	3.16±1.42			
DDCU (hour)	Dr.	79	3.72±1.62	10.095	<.001	Dr.>Other Assoc.Prof>Dr. And Other Prof.>All
	Assoc. Prof.	36	3.74±1.55			
	Prof.	66	4.87±1.44			
	Other	64	3.53±1.46			
DUT: Device Usage Time, DDCU: Duraion of Descop Computer Usage						

Table 1. Comparison of the types of technological tool usage of the participants according to the title

In Table 1, information about the participants' use of technological devices is given. According to this, there was a significant difference between the DUT (F=3.936, p=0.008), tablet usage (F=4.528, p=0.004), laptop usage time (F=4.546, p=0.004), smart watch usage time (F=4.004, p=0.008), and DDCU (F=10.095, p=0.001). According to the results of the posthoc test, professors' DUT and smart watch usage time were significantly higher than associate professors, tablet usage time and laptop usage time were significantly higher than other academicians, and DDCU was significantly higher than all participants (p<0.05).

Variables	Tittle	N	mean±SD	F	*p*	Tukey
ADD (point)	Dr.	79	48.51±10.25	1.263	.288	
	Assoc. Prof.	36	46.81±11.59			
	Prof.	66	47.15±7.80			
	Other	64	50.00±8.89			
AAICTS (points)	Dr.	79	89.38±17.58	2.238	.085	
	Assoc. Prof.	36	87.23±19.48			
	Prof.	66	91.03±12.98			
	Other	64	95.35±12.28			
Intrinsic Motivation (point)	Dr.	79	10.07±2.66	.982	.402	
	Assoc. Prof.	36	10.02±2.84			
	Prof.	66	10.60±2.07			
	Other	64	10.63±2.52			
	Dr.	79	9.60±2.62	3.714	.012	Prof.>Dr.

Extrinsic Motivation (point)	Assoc. Prof.	36	9.70±3.08			
	Prof.	66	10.80±2.48			
	Other	64	10.72±2.24			
Skill (point)	Dr.	79	39.40±8.81	2.694	.047	
	Assoc. Prof.	36	39.38±8.40			
	Prof.	66	39.76±6.38			
	Other	64	42.60±5.12			
Educational Usage (point)	Dr.	79	28.55±6.22	2.233	.085	
	Assoc. Prof.	36	27.87±6.32			
	Prof.	66	29.53±4.44			
	Other	64	30.56±4.78			
ADD: Academician Digitalisation Degree, AAICTS: Academics' Access to Information and Communication Technologies Scale						

Table 2. Examination of participants' ADD and AAICTS total scores and AAICTS sub-dimensions according to title

In Table 2, the results of the participants' ADD and AAICTS total scores and AAICTS sub-dimensions according to the title are analysed. According to this, the extrinsic motivation levels of professors were significantly higher than those of assistant professors (F=3.714, p=0.012). There was also a significant difference in the participants' ability dimension, which is a sub-dimension of AAICTS (F=2.694, 0.047).

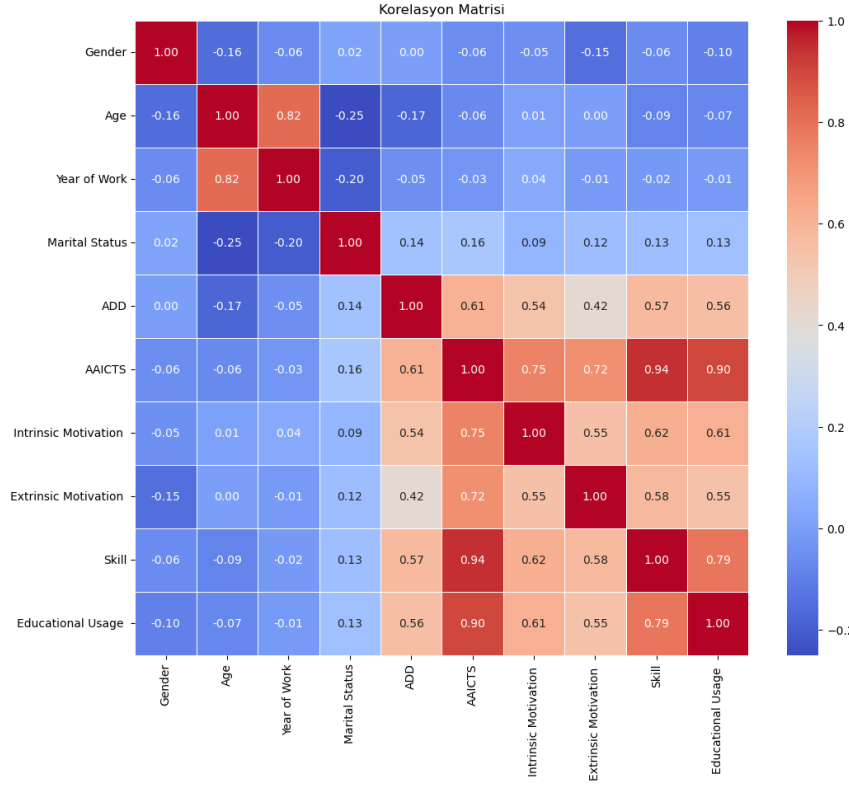

Figure 1. Analysing the relationship between demographic information of the participants and total scores of ADD and AAICTS and AAICTS sub-dimensions

In Figure 1, the relationship between some demographic characteristics of the participants and ADD and AAICTS results and sub-dimensions is analysed. Accordingly, there was an inverse relationship between the participants' ADD results and age ($r=-0.17$, $p=0.009$). Likewise, there was a significant high level relationship between the participants' ADD results and AAICTS total score and sub-dimensions ($p<0.001$).

The aim of our research is to examine the scientific and methodological foundations of the formation of network communication culture and digital etiquette of university faculty members. In this context, the ADD and AAICTS results of academics with different titles at the university were analysed. According to the findings, it was determined that individuals with the title of professor were more active in using technological equipment. Extrinsic motivation, one of the sub-dimensions of AAICTS, was also higher in professors. ADD scores decreased as the age of the participants increased. There was also a positive correlation between marital status and AAICTS. Likewise, a high positive correlation was found between the participants' ADD scores and AAICTS scores and sub-dimensions. In this case, it is thought that individuals with high ADD and AAICTS scores manage a more active process in educational activities.

The fact that faculty members in universities have a network communication culture is of great importance in education and training processes. Studies by Badilla Quintana et al. [8] show that network communication skills strengthen student-teacher interaction and increase information sharing in online education systems. Similarly, in this study, it was observed that academics with network communication culture were more successful in sharing course materials in digital environment, managing online discussion groups and motivating students on digital platforms. The research conducted by Okoro [9] also draws attention to the fact that network communication skills increase cooperation and interaction in education. These findings suggest that network communication culture plays a critical role in increasing academic achievement.

The use of technological devices by academic staff according to their titles and the importance of this has been clearly demonstrated in our research. In particular, it has been determined that professors use technological devices more actively than those with other academic titles and the duration of using these devices is longer. This finding suggests that title may be a determining factor in the use of technological devices. Magulod et al. [2] stated that people with higher academic titles have higher motivation and skills in the use of technology. This emphasises the relationship between the effective use of technological devices and academic achievement. The fact that people with senior academic titles in universities take a more active role in digitalisation processes can contribute to the acceleration of digital transformation.

In our research, the link between digital etiquette and network communication culture among faculty members was also examined. It is also emphasised by Pochebut [12] that an academic environment without digital etiquette can lead to various problems. Our research shows that academics who follow digital etiquette can establish healthier and more effective digital communication and thus improve the quality of their educational processes. Mangkhang and Kaewpanya [11] stated that digital etiquette is important in academic environments and when these rules are not followed, student motivation and learning process are negatively affected. These findings clearly demonstrate the role and importance of digital etiquette in education.

The limitations of this study include the limited sample size and demographic diversity. The study was limited to universities in a specific region, and future studies with a larger and more diverse sample may increase the generalisability of the findings. In addition, due to the cross-sectional nature of the study, factors changing over time and long-term effects could not be observed. Future

research addressing these issues with longitudinal methods will allow us to better understand the development of network communication culture and digital etiquette over time. In addition, studies in different types of universities and in different cultural contexts may reveal generalisable aspects of digitalisation processes and network communication culture.

CONCLUSION

This research shows that university faculty members' competences in network communication culture and digital etiquette can increase the efficiency of education and training processes. The findings revealed that academics' degree of digitalisation and level of access to information and communication technologies have significant relationships with demographic factors such as age, gender, years of employment and marital status. In particular, it has been determined that young academics are more inclined to digital technologies and this inclination decreases as they get older. In addition, professors were found to use technology more actively than those with other academic titles. In line with these findings, it is recommended that state and university administrations should strengthen the digital infrastructure, organise continuous professional development programmes and disseminate digital ethics training. Academics, on the other hand, should be open to continuous learning about digital technologies and pedagogical innovations, promote a culture of collaboration on digital platforms, and comply with digital ethics rules. Future research can be conducted on larger and more diverse sample groups and the development of network communication culture and digital etiquette over time can be examined with longitudinal methods. This research highlights the importance of digitalisation processes in universities and provides important information for shaping educational policies. The findings obtained can be guiding in creating digital education strategies in universities and increasing the digital competences of academicians.

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