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Are There Differences in Student Competency Based on Gender, Semester Level, and Age in Applying ICT-based Guidance and Counseling Services?

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ABSTRACT

This study aimed to assess students' proficiency in utilising Information and Communication Technology-based advice and counselling services. The analysis was conducted considering factors such as gender, semester level, and age range. The research method employs a quantitative approach by utilising a questionnaire instrument consisting of a total of 33 items. The study participants consisted of a saturated sample of 32 postgraduate students, meaning that the entire population was included in the research. The data were analysed via a quantitative descriptive methodology and t-test. The results from the study showed that the competency score of male students was higher than that of females, but the results of the different tests obtained a score of 1.092 with a sign of 0.291 (> 0.05), which explained that the hypothesis was accepted, namely the two average competencies of male and female students. There is no difference. While the competence of second-semester students obtained a lower competency score compared to the fourth semester with the acquisition of a t-count value of 2.082 with sign 0.046 (<0.050), it can be concluded that there are differences in the competence of students II and IV in applying Guidance and counseling (BK) services through ICT-based media. Generation Y student competencies get higher scores in height compared to Generation X with the acquisition of t count 2.243 with sig 0.32 (<0.050), which explains that there are differences in the competence of students of Generation X and Y so that students in the age range of 22-41 years more able to apply the media of ICT-based guidance and counseling services compared to students aged 42-62 years.

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1. INTRODUCTION

Facing the times and entering the 4.0 era towards society 5.0 requires educators to use ICT in learning media technology and guidance and counseling services because they are felt to be more practical, economical, effective, and efficient. The use of ICT is a learning tool that has an impact on improving the quality and productivity of human resources who are aware of the diversity of functions

and communication technology (Shao et al., 2016), so all educators need to develop use of ICT in the world of education both during the pandemic and post-pandemic. Because of ICT, it has become a demand and necessity for society in the 21st century.

Learning conditions, guidance, and counseling services use ICT media, which is very fun and in demand by students and educators because there are more features of novelty, creativity, and ease of presentation. ICT can also act as a tool and agent of change in the provision of guidance and counseling services (Oye, N. D., Obi, M. C., Mohd, T. N., & Amos, 2012) because ICT is a means of providing services to students (Padmi & Marthen, 2020), and being a source of information which can be accessed without any time or space limits. Display form is also very varied in the form of pictures, videos, pamphlets, and leaflets so that the services provided can be understood by students even though they have different learning styles, namely visual, audio, and kinesthetic.

The results of previous research prove that the implementation of the learning and giving process Guidance and Counseling services ICT-based g has been carried out and developed by educators including guidance and counseling services are expected able to achieve student independence optimally through facilities and based services utilization of information and communication technology (Adarkwa, 2018). Guidance and counseling cannot be separated from the touch of technological developments in its implementation an integral part of education (Huda et al., 2019) and increasingly technological developments many create internet sites and applications through smartphones that provide and can access a variety of subject matter for free or paid whose purpose is not others to support the achievement of basic competencies whose target is how students can master these competencies (Ma, 2017). Utilization optimization information and communication technology can be done through online and offline media. Its implementation requires expertise (Marolla, 2018). As for the form of guidance activities and counseling, such as compiling computer-based documents so as to support data collection and instrument application as well as preparing material interesting through the selection of media that is in accordance with the services to be implemented (Neviyani & Maharani, 2019).

The utilisation of ICT to accomplish diverse duties and work requirements is essential for educators to meet their professional needs (Ottenbreit-Leftwich et al., 2010). Utilising the computer as a cognitive tool enables pupils to engage in higher-order thinking (Jonassen, 2003), therefore emphasizing the importance of educators possessing advanced ICT abilities when delivering guidance and counseling services. Educators must include technology in the provision of advice and counselling services, while also implementing the principles of Technology, Pedagogy, Content, and Knowledge (TPACK) (Chen & Jang, 2014; Mouza et al., 2014). To achieve this, it is necessary for the instructors of the applicants to possess proficiency in utilising diverse ICT-based media (Maryuningsih et al., 2020).

To realize prospective educators who are competent in carrying out task-based ICT, students must have knowledge and attitude skills that can be obtained through the provision of comprehensive training to all students so that they skilled in designing and implementing ICT-based guidance and counseling services. But before being given training, it is necessary to know in advance the level of student competence, so that the focus of this research will reveal as well as answer how is the competence of students in applying ICT media in services Guidance and counseling is assessed from gender, semester level and age. The research result will be the basis for researchers to determine the group, strategy and content implementation of ICT media use training in the implementation of guidance services and counseling later.

2. METHODS

This research was conducted using a quantitative approach by distributing questionnaires to all postgraduate students of the Islamic Education Guidance and Counseling study program. The questionnaire reveals student competency in applying ICT-based guidance and counseling services.

Questionnaires are given via *google form* which is distributed to all students who are currently studying in semesters II and IV with a total number of 32 students with the following details:

Table 1. The Profile of The Research Subjects was Studied from Gender, Semester Level, and Age

	Gender		Semester		Age	
	Male	Female	II	IV	Generation Y (22-41)	Generation X (42-62)
amount	11	21	16	16	22	10
Total	32		32		32	

All students are used as research subjects (saturation sampling), namel,y by using saturation sampling, in other words, the sampling process includes all elements of the population as research samples. This technique is used because of the number of research subjects which is not very big. Besides that, in order to obtain specific and holistic data regarding student problems in applying guidance and counseling services through the media, ICT-based guidance counseling is needed. The results of the research can later be used as the basis for the birth of decisions and policies that will be made by lecturers, study programs, and guidance and counseling service units on campus so that they can increase the competence of undergraduate BKPI study programs. The questionnaire consists of 33 items using the Likert scale to express competence, which includes knowledge, skills, and attitudes (Spencer & Spencer, 1993) of students in applying ICT-based guidance and counseling services media. The results of the questionnaire were analyzed using descriptive statistics consisting of the mean, standard deviation, highest and lowest scores, and the total number. Statistical descriptive data will be the basis for determining the quality categories which are also classified into 5 categories, namely very good, good, pretty good, not good, and not good. Meanwhile, the different test analysis uses an independent sample test by differentiating the t-count score from the t-table score.

3. FINDINGS AND DISCUSSION

The questionnaire, totaling 33 items, was distributed to 32 students undergoing the process lectures in semesters II and IV. The results of the analysis of the results of the questionnaire are presented in the data with the following descriptive statistics:

Table 2. Descriptive Statistics Student Competency based on gender

Competence	N	Mean	Std. Deviation	Std. Error Mean
Female	21	116.61	17.78	3.88
Male	11	125.64	24.18	7.29

Based on statistical data, it was obtained that the competency data of female students before being given treatment obtained a mean score of 116.62. The competency of male students obtained a mean score of 125.63, while the competence of female students obtained a lower score of 116.62. This shows that the competence of male students is higher compared to that of women. The results of this study strengthened research (Schaumburg, 2001), which found women were less interested in computers. (Bebetsos & Antoniou, 2008) found women have a negative attitude towards computers. So that women are less literate in technology compared to men (Kadel, 2005); (Schaumburg, 2001). But to test whether scores obtained in this study indicate a difference? Then , to find out, a different test was carried out with the results as described in the following table:

Table 3. Independent Samples Test Results of Student Competence Based on Gender

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Competence based on Type Sex	Equal variances assumed	2.069	.161	-1.203	30	.238	-9.01732	7.49565	-24.32547	6.29083
	Equal variances not assumed			-1.092	15.830	.291	-9.01732	8.25835	-26.53950	8.50486

The score of Levene's Test for Equality of Variances shows that the data obtained shows that the acquisition of the F count is 2.069 with sig.= 0.161 (> 0.050), then the variance has no difference so a t-test with equal assumed variance is obtained with a t count of 1.092 with sig 0.291 (> 0.050)), then explaining the accepted hypothesis that there is no significant difference in the average competency of male and female students. The results of this study strengthen the research found by (Rasyidah et al., 2015) which found that the factors that influence the Information and Communication Technology (ICT) abilities of SMA/MA teachers are not employment status, teaching experience and gender so that gender is not determining factor. Competency in applying ICT, as well as research of (Perbawaningsih et al., 2013), found male and female students have relatively the same degree of ICT Literacy. While the results of descriptive statistics on student competence in applying counseling service media through the use of ICT are studied from the level/semester broken down as follows:

Table 4. Descriptive Statistics of Student Competency Based on Semester

Competence	N	Mean	Std. Deviation	Std. Error Mean
Semester II	16	112.63	17.42	4.35
Semester IV	16	126.81	20.96	5.24

Based on statistical data, the competence data for semester II students obtained a mean score of 112.62 from an ideal score of 165. Meanwhile, competency data for semester IV students obtained a higher score of 126.81. To see if there is a difference in the score acquisition if it is analyzed based on the semester level, a different test is carried out with the results as described in the following table:

Table 5. Independent Samples Test Results of Student Competence based on Semester

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Competence based on Semester	Equal variances assumed	.752	.393	-2.082	30	.046	-14.18750	6.81426	-28.10407	-.27093
	Equal variances not assumed			-2.082	29.027	.046	-14.18750	6.81426	-28.12367	-.25133

Based on the different test tables above, data was obtained showing that student competence obtained an F count of 0.752 with sig. = 0.393 (> 0.050), then the variance did not have a significant difference, so the results of the t-test used score analysis on equal variance assumed, namely the acquisition of t values count 2.082 with a sig of 0.046 (<0.050), it can be concluded that there are differences in student competency based on semester level in applying counseling services through ICT-based media. The results of this study differ from the research findings of (Perbawaningsih et al., 2013), who found no differences in the degree of ICT Literacy among students in different semesters. while the Descriptive Data on Age-Based Student Competency Statistics is shown in table 6 below:

Table 6. Descriptive Statistics of Student Competency Based on Age

	Age	N	Mean	Std. Deviation	Std. Error Mean
Competence	Generation Y (22 – 41)	22	124.8182	19.22210	4.09817
	Generation X (42 – 62)	10	108.5000	18.75130	5.92968

Based on statistical data, the competency data for students aged 22-41 (generation Y) obtained a mean score of 124.22 from an ideal score of 165. Meanwhile, the competence of students aged 42-62 (generation X) obtained a lower score of 108.50. To see if there is a difference in the score acquisition if it is analyzed based on age/generation classification, a different test is carried out with the results as described in the following table:

Table 7. Independent Samples Test Results for Student Competence by Age

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Competence based on Age	Equal variances assumed	.752	.393	-2.082	30	.046	-14.18750	6.81426	-28.10407	-.27093
	Equal variances not assumed			-2.082	29.027	.046	-14.18750	6.81426	-28.12367	-.25133

Based on the difference test table above, data was obtained showing that student competence obtained an F count of 0.002 with sig. = 0.968 (> 0.050), then the variance did not have a significant difference, so the results of the t test used score analysis on equal variance assumed, namely the acquisition of t count 2.242 with a sig of 0.032 (<0.050), it can be concluded that there are differences in student competency based on age/generation level in applying counseling services through ICT-based media.

Male students' competency in applying ICT-based guidance and counseling service media is higher than that of female students. The results of this study reinforce Edwards' findings in Jaffe et.al that computer science and computer systems analysts are mostly dominated by men (Jaffe et al., 1995), as well as Kramarae's findings in Griffin found that men participate more than women in the use Computer mediated Communication (CMC) (Griffin, 2006), so this data reinforces that male competence in using ICT is more dominant even though different test results explain competence in almost the same range. This condition can be used as data and encouragement for students and supervising teachers to continue to optimize their potential and creativity in designing and disseminating various services, interactive videos, and online counseling so that they can support the development of students' curiosity (H Hartini, 2021).

Student competence in applying ICT-based guidance and counseling services was assessed based on semester level and age. It was found that conditions were not the same as age because the results of data analysis found that fourth-semester students had higher competence than second-semester students and students in generation Y in the age range of 21-41 years. have higher competence than students in generation X in the range of 42-62. The results of this study explain that the majority of generation Y students occupy lectures in semester IV which strengthens the data that students in the age range of 21-41 years have higher competence than students in age 42 – 62 years. This condition reinforces the fact that generation Y, known as the millennial generation, who was born and grew up when computerized technology was evolving (Hardika et al., 2019) is proven to have higher competence in applying ICT-based devices in carrying out their work compared to students in the X generation age range. Millennials have open communication patterns compared to previous generations, they are the generation of social media users in their lives and are very reactive to changes in the surrounding environment and technological developments (Lyons, 2003) which are factors that support competency development in applying ICT-based guidance and counseling services compared to students in the previous generation. X. This condition should be a record for Generation X, which is a generation that is tough, has an independent character, is hardworking, loyal (Jurkiewicz, 2000), respects diversity, have curiosity, and obey rules (Bencsik & Machova, 2016), and have potential (Kohnen, 2002), should be able to optimize their capabilities and be able to adapt to the demands of the times in the 4.0 to 5.0 era where all performance is ICT-oriented. To strengthen the capabilities of Generation Y and assist Generation X in developing competence in applying ICT-based guidance and counseling services, researchers need to design a training program as a follow-up effort on the results of the research conducted.

There are several things that can be used as a basis for researchers to determine follow-up research as an effort to develop student competence in implementing guidance and counseling services through the use of ICT-based media for postgraduate students, namely: 1) analyze and strengthen the knowledge, attitudes, and skills possessed. The technology that can be used in the implementation of counseling guidance includes e-mail, chat, video conferencing, and text messages or short messaging systems (SMS) using telephones, the internet, and teleconferencing (Zamani, 2009); (Sanders & Rosenfield, 1998) media pamphlets, 3D Posters, video and audio (Prayetno et al., 2022). Even in doing a need assessment before being given guidance and counseling services, students can take advantage of various features. Like the features inside Google Sites, among them *Google Docs, Sheets, and Forms,* because it is not affected by distractions, and can get information quickly uploaded by educators. (Setyawan, 2019) In addition, using *Web Blog is* very good for collecting criticism and reflection from students because it can be used as a place to accommodate feedback from students (Poore, 2015). 2)

designing training materials based on students' problems and needs. So that the services provided to students attract interest, in designing guidance and counseling services you can use Google sites and Canva applications in the form of weblogs, guidance boards, leaflets, posters, banners, interactive videos, and online counseling. The weblog is a form of social networking service that generates content for posting and is useful for building social relationships with readers (Gaudeul & Peroni, 2010). So, matter training should be in the form of knowledge, attitudes, and skills in designing weblogs containing guidance boards, leaflets, posters, banners, interactive videos, and online counseling. 3) provide training that contains information services and content mastery services. The proper use of digital technology will bring benefits to users such as easy-to-get information because any information needed can be obtained quickly from various sources, b) facilitate communication because it can be carried out more broadly without being hindered by place and time, c) stimulate creativity because children grow faster with stimulation of information received through digital media and even children can express their ideas and desires by using various digital applications and learning resources, d) facilitating the learning process because children can take part in various learning programs via the internet and can study independently to improve their abilities and skills (H Hartini, 2021). Therefore, the information services and mastery of the content provided should be able to strengthen students' knowledge and skills in using digital technology. 4) evaluate the process and the end after carrying out the training. Considering the results of the study which explained that male students, in semester IV and included in the Y generation, have higher abilities in using ICT, the process evaluation is carried out through observation and if students experience problems during practice later, students who already understand and are proficient can be used as peer tutors so that they can assist in the implementation of the training. While the final evaluation will be given a post-test questionnaire that contains the knowledge, attitudes, and skills of students in applying information and communication technology-based guidance and counseling services media.

4. CONCLUSION

The competence of male students in applying ICT-based guidance and counseling services obtained a higher score than female students. Fourth-semester students in the age range 21-41 (generation Y/millennial) have higher abilities than semester II students who are mostly in the age range 42-62 (generation X). However, based on the results of different tests explaining competence in gender, no significant differences were obtained, but at the semester level and age range, differences in student competence were found in applying information and communication technology-based guidance and counseling services. Acquisition of research data can be used as a basis for future researchers to carry out training as a follow-up effort to develop students' abilities to achieve a graduate profile that suits their needs. However, the weakness of this study is that it was only tested on a small number of research subjects, namely 32 people, so it cannot be generalized in general. Research needs to be done on a larger scale by involving various universities from various countries, cities, provinces, and even islands to generalize the research results to students' guidance and counseling in Indonesia.

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