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Exploring Students' Perceptions Of Information Technology In Profession –Curriculum And Learning Basic Course Of Higher Education: Platforms And Usage

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A b s t r a c t

Information technology has become commonly used by society at this time. Students with various purposes applied them to seek, share, and discuss certain topics at any level of education. Integrating information technology into the basic professional-learning curriculum course (MKDP-Kurpem) has not been developed into the new format of instructional design by involving technology. This study aims to explore students' perceptions of the platform and usage of information technology on MKDP-Kurpem. It is a quantitative descriptive study which measures students' perceptions of information technology in certain subjects. The results of the study showed that 67.5% of students with an age range of 20-21 years stated that the most suitable platform to be integrated in MKDP-Kurpem learning was Google form. While the most significant usage related to this integration was in the aspect of effectiveness and efficiency of learning which reached 74.5% by the age range of the respondents' from17-19 years. Information technology has penetrated almost all aspects of life as well in the field of education. From the results of this research, it is hoped that it will be used as a basis reference for the development of information technology integration in MKDP-Kurpem to maximize student learning outcomes.

***Keywords**: Students' Perception, Information Technology, Platform, Usage*

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A b s t r a k

Teknologi informasi sudah menjadi hal yang umum digunakan oleh masyarakat saat ini. Siswa dengan berbagai tujuan menerapkannya untuk mencari, berbagi, dan mendiskusikan topik-topik tertentu di setiap jenjang pendidikan. Mengintegrasikan teknologi informasi ke dalam mata kuliah Kurikulum Pembelajaran Profesi Dasar (MKDP-Kurpem) belum dikembangkan ke dalam format desain pembelajaran yang baru dengan melibatkan teknologi. Penelitian ini bertujuan untuk menggali persepsi mahasiswa terhadap platform dan penggunaan teknologi informasi pada MKDP-Kurpem. Ini adalah studi deskriptif kuantitatif yang mengukur persepsi siswa tentang teknologi informasi dalam mata pelajaran tertentu. Hasil penelitian menunjukkan bahwa 67,5% siswa dengan rentang usia 20-21 tahun menyatakan bahwa platform yang paling cocok untuk diintegrasikan dalam pembelajaran MKDP-Kurpem adalah Google form. Sedangkan penggunaan yang paling signifikan terkait integrasi ini adalah pada aspek efektivitas dan efisiensi pembelajaran yang mencapai 74,5% dengan rentang usia responden 17-19 tahun. Teknologi informasi telah merambah hampir semua aspek kehidupan termasuk dalam bidang pendidikan. Dari hasil penelitian ini diharapkan dapat dijadikan sebagai acuan dasar pengembangan integrasi teknologi informasi di MKDP-Kurpem untuk memaksimalkan hasil belajar siswa.

Kata Kunci : Persepsi Mahasiswa, Teknologi Informasi, *Platform*, Penggunaan

A. INTRODUCTION

Universitas Pendidikan Indonesia (UPI), which was previously a development of the Bandung Teaching and Education Institute (IKIP), has always been and continues to strive improving its education system, including curriculum and learning. Various efforts have been made by conducting seminars, workshops and conferences. In 2010, UPI held an International Conference on Redesigning Professional Teacher Education which presented experts in the field of teacher education from abroad, such as Hong Kong, Europe, America, China, Japan, Korea, including Indonesia. Based on the results of the conference, a new decree Number 001/Senate Akd./UPI-SK/VIII/ 2011 was made by the UPI Academic Senate 2011 Edition regarding the Basic Provisions for UPI Curriculum Development. The redesigned of professional teacher education is in line with the benefit by incorporating the use of technology in the instructional process which has direction to change the nature of socializing, purchasing, communication, entertainment and learning (Abdullah, Ward, and Ahmed, 2016). One of the subject groups in the UPI Curriculum Structure is the Basic Professional Courses. The aim is to improve the proficiency of the profession which includes the Basic Professional Courses (MKDP) (UPI Curriculum, 2011). The MKDP group includes Curriculum and Learning courses, Educational Foundation, Student Development, Education Management, Guidance and Counseling. There is a limitation on the scope of subjects in this study, namely the Curriculum and Learning courses. It is also based on the reason that is course has an essential aspect of instructional process involving the pedagogy gained more possibilities to expand with the innovative tools of classroom activities by the assistance of IT (Information Technology) (Becker and Ravitz, 1999).

The policy of the UPI Academic Senate has an impact to all educational students who must take contract in the specified semester. In MKDP Curriculum and Learning, students learn theories, concepts and models of learning and curriculum development, both theory and practice in class, such as micro teaching using certain models. One of the weaknesses of learning in MKDP-Kurpem at UPI is the lack of students using information technology. It leads to students' learning achievement is less than optimal. The phenomena include (a) lack of focus of student attention when attending lectures, (b) low student interest (c) lack of motivation to learn, and (d) assumptions or perceptions as complementary by students. There is also a mismatch or imbalance of the ratio of students and lecturers which comes to unfavorable teaching and learning activities. There is an impression from students that in learning, lecturers tend to just carry out their obligations of attendance, lecturing, question and answer activities and ending the course. The phenomenon is the lack of variation in media or learning methods applied by lecturers which has an impact on students' boredom. The application of the learning method is perceived as only to fulfill the teaching to test, and does not pay attention to students' holistic skills. In fact, the standard of the learning process is "inspiring, interactive, challenging, fun, access to creativity, initiative, and independence in line with students' talents, psychology and interests, as well as physical development in motivating students to actively participate" (PP. 19/2005 on National Education Standards).

The phenomena above show that the importance of in-depth tracing and analysis of the use of information technology in MKDP-Curriculum and Learning, namely:

1. Critical-thinking and problem-solving skills of lateral, systemic and critical

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thinking in the perspective of solving problems;
2. Communication and collaboration skills of working together and communicating effectively to all parties;
3. Creativity and innovation skills of creativity developed that leads to innovative outputs;
4. Information and communications technology (ICT) literacy in using of ICT to encourage maximum activity and performance;
5. Contextual learning skills of learning has the ultimate goal of independent personal development;
6. Information and media literacy skills of using of communication media for various activities.

As the reasons above, students must understand and make the best use of information technology in learning in order to improve performance on daily learning activities. The use of information technology is not only to meet the demands of the MKDP-Curriculum and Learning competencies but to make it easier for students to carry out learning activities that in turn students can master the lecture material better.

The educational teaching tools are used to create interactive and become the resources of supplemented technology apart from the traditional ones (Sumak & Sorgo, 2016; Carbrero &, Llorente, 2018; Nagy, 2018). Further explained by Findik at.al, it can be in term of learning management system (LMS) as significantly improve the education's quality (Findik-Coskuncay, Alkis, Ozkan-Yildirim, 2018) and also supported by the tools or technology devices such as as tablet and or computers. This study aims to explore students' perceptions of the platform and usage of information technology on MKDP-Kurpem.

B. LITERATUR REVIEW

1. *Information Technology*

The instructional system where students are able to acquire knowledge or skills can be obtained through based on technology (Wang & Hannafin, 2005). In the higher education perspective, it refers to the terms of e-learning, mobile learning and learning management system. They become the key points of students' perception in achieving meaningful and effective instructional process (Ngai, Poon, & Chan, 2007). UPI has developed various programs stipulated in the strategic plan, including the development of learning based on Information and Communication Technology, whose infrastructure has been built on the UPI campus. It has revolutionized people actions, and daily life transforming within time, speed, range, and space (Cabrero & Liorente, 2015). The support and courage have been made for decades to apply information technology (IT) in the instructional process (Hepp, 2015).

The development of information technology in Indonesia has indeed begun to develop since the 1980's to be the chip or the "brain" of a personal computer. It refers to the processing of knowledge and implementing the method to transfer and make the progress of information (Karami, 2003).

The development of hardware technology is currently very fast, as well as software technology (software). Even now there is a technology that combines personal computers with physical networks via Wide Area Network (WAN), Local Area Network (LAN), intranet and internet. Technology is generally seen as the medium to enhance learning goals where the effects of its resources become the meaningful evaluation of courses (Cook & Ellaway, 2015; Goodchild, 2018; Pickering & Joynes, 2016).

In learning, many students use the internet as a medium as well as a learning resource because it can connect com-

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puters to the rest of the world. They are looking for various information and data for learning purposes, both independent study and structured learning, such as writing papers, articles, theses, and others. In today's condition where the Covid-19 pandemic has not yet ended, requiring them to study at home. Many research results show that students prefer online learning because of the open and dynamic atmosphere, knowing no boundaries that require meeting face to face with lecturers. Internet technology can be a very powerful and efficient solution to close the relationship between students and lecturers in the context of learning. Actually, in information technology, students can use not only the internet in MKDP-Curriculum and Learning but also the intranet. They can learn lecture material more deeply and completely. It also provides the possibilities to incorporate the pedagogy areas of IT integration in the infrastructure of instructional process (Sunkel, 2006; Silvia, Gros, Garrido & Rodriguez, 2006) and chances for developing professional teachers through supports and workshops (Contreras-Sanzana & Villalobos- Claveria, 2010; Sunkel, 2006).

The rapid development of information technology and its infrastructure globally has changed the mindset and framework of activities in various aspects of human life. It appears both in material and non-material features as available in hardware, software, and instructors (Pelgrum, 2001). To have and master innovative abilities and be active in various forms of information technology, students inevitably have to master the what, why and how of information technology itself, so that in turn students can also be actively involved in building the nation's future. The National Education Standardization Agency (2010) emphasized that "the skill that will stand out in the 21st century is the ability of connectivity, where science is increasingly narrowed, specific, and integrated and even produces hybrids". Cepi Riyana in Arifin (2015) argues that physicists are starting to find out about general theories that are able to explain four forces, namely "gravity, electromagnet, strong and weak force into strong theory that can explain all problems (theory of everything)". By so, teachers necessarily concern more on the potential roles of the use IT be incorporated during the instructional process (Blackwell, Lauricella, Wartell Robb, & Schomburg, 2013; Shen, 2018; Vinals & Cuenca, 2016). Several forms of information technology that students can use, namely (a) using computers to find and process information, which is known as computer-based training (CBT) or computer-assisted instructional (CAI). The use of IT in the classroom can gain the successful of learning performance (Prensky, 2011). This means that learning materials are arranged in software used with hardware, (b) the dissemination of learning materials or topics can use the internet with a webpage format. The material is stored on a server connected to the internet, so that students can retrieve it via a web browser, (c) use communication tools with experts to ask for explanations related to material that has not been mastered to get feedback from sources or fellow students. In the educational context, IT turns to be the vital variable to facilitate of classroom performances by any possible resources and infrastructure (Pyno et.al. 2011; Ibieta, Hinostroza, Labbe, & Claro, 2017).

In order to have conformity between student learning activities with information technology-based standards in the standard process, research on information technology must be carried out. From the results of the preliminary study on the use of information technology in MKDP-Kurpem, in general, students are very pleased and frequently used it to look for material relevant to lectures, create and complete assignments, search for source

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books in libraries, answer exam questions, and find other learning resources online. Students' life in various fields, of course, cannot be separated from the influence of science and technology itself. It means that information technology must be a basic skill for them to master. Computer and technology-based learning can be carried out by students with no time and space boundaries. Therefore, students as prospective teachers at the University of Education of Indonesia must take advantage of the information technology in MKDP-Kurpem so that they can get better learning achievement and develop interest and motivation to learn as well as a passion for learning with a more pleasant learning atmosphere. Based on the description above, this study requires cooperation from various experts, including information technology experts, curriculum and learning discipline experts in order to find forms of information technology that are practical and can be used by students in learning. Thus, the results of this study can be useful for students and lecturers in implementing MKDP-Kurpem learning at UPI.

2. *Research Problems*

The problem of this research will be formulated as follows (1) what are the students' perceptions of the use of information technology in the curriculum and learning subjects at the Indonesian University of Education? (2) what forms of information technology are widely used by students in the curriculum and learning subjects at the Indonesian Education University? (3) what difficulties do students experience in using information technology in the curriculum and learning subjects at the Indonesian University of Education?

C. RESEARCH METHODS

The population of this study were all of Faculty of mathematics and science education, Universitas Pendidikan Indonesia (FPMIPA-UPI) students. The sample involved were students of the Chemistry education study program who were taking curriculum and learning courses in total of 40 students. The method used is descriptive method with survey techniques.

This study used a questionnaire instrument in the form of a Likert scale, namely; Strongly Agree (SA), Agree (A), Doubt (D), Disagree (DA), and Strongly Disagree (SD). This instrument was previously carried out by expert judgment before being used in actual research, namely by Curriculum and Learning experts, and Information Technology experts. After an expert judgment, the improvements were made according to the input from them.

The statements in the questionnaire items given to students to find out their perceptions of the use or use of information technology in learning are divided into 2 aspects. The statement points are illustrated in the following table.

Table 1
Information technology statement items

No	Aspects	Questionnaire statement
1	Platform Point 10-13	Web Centric Course is a form of information technology that can be used via the internet. Lecturers and students are completely separate, however face to face is required.

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		Web Blog, 4Shared, and the internet are very appropriate for lecturers to manage MKDP learning materials- Kurpem
		To present lecture material to students, lecturers should use power points
2.	Usage	
	Learning source Point 1-4	Every implementation of MKDP-Kurpem learning must use technology information
		Information technology has high speed of access that can be used as a learning resource
		The use of information technology in MKDP-Kurpem requires tools hardware and software
		The MKDP-Kurpem Learning utilizing information technology needs special classrooms
	Effective and efficient learning	The use of information technology in MKDP-Kurpem makes the learning atmosphere more conducive.
		My study is more efficient when utilizing information technology in MKDP-Kurpem
		Information technology is very effective used in MKDP-Kurpem
		Information technology applications in MKDP-Kurpem makes me more productive in studying
		The use of information technology in MKDP-Kurpem is very flexible, because it can be done anywhere and anytime
	Meeting learners' needs	
		Utilization of information technology has high security
		The use of information technology can guarantee every student need in developing material MKDP-Kurpem learning
		The risk of using information technology in MKDP-Kurpem learning is only on hardware damage
		I want to continue to take advantage of information technology in every subject at future
		I am very happy to take advantage of information technology, because it really supports my needs in MKDP-Kurpem learning
		I got great support from friends and family in using information technology
		I would recommend to friends to always take advantage of information technology in learning
		Using information technology is not has a high financial risk

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Data collection was carried out from June 2, 2020 to June 20, 2020. After all data was collected, it was analyzed using Chi-squared.

D. Results and Discussion

1. Participants age and Education level

From the demographic point of view obtained in the field, data or information was obtained from research respondents who came from fourth semester students of the chemistry education study program, University of Education of Indonesia, with an average age of 19.5 (N = 30), of which 40% are women (N = 12) and the remaining 60% were men (N = 18). Demographic information used in this study related to the age and education level of the respondents is presented in table 2 below.

Table 2
Sample demographic data

Demographics	Mean and Standard Deviation	Percentage
Age (4th Semester)	19.5 (SD = 1. 8)	
Gender		
Male		12 (40%)
Female		18 (60%)
Education Level		
University		30 (100%)

2. Students' perceptions on information technology

Most students who have almost no knowledge of computers, telecommunications, or software find it difficult to understand some of IT concepts. Based on the questionnaire distributed to students, there were two aspects used, namely the platform (types of information technology media) and Usage (its use).

3. Platforms and Usage

In a questionnaire given to students to gather their perceptions of the integration of information technology in MKDP-Curriculum and learning were divided into two main aspects, namely platform and usage. There were several sub-aspects that have been broken down on the platform used including; web centric course, web blog including 4 shared and internet, power point and Google form. Students provided their respective perceptions of each of these platforms which could be seen from their gender and age as depicted in the following table.

Table 3
Sample data

Gender	No	%	Age	No	%
Male	12	40	17- 19	12	40
Female	18	60	20- 21	10	33.3
			22- 23	8	26.7
Total	30				

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Table 3 shows that the total respondents used as the research sample, the composition is quite dominant in one aspect of reviews. There were 12 male students or 40% from the total sample. If it is compared to the number of female students, there appeared to be a quite large difference where the total number of female students was 18 or 60%. By referring to age, most students were in the age range 17-19 years old.

Table 4
Information technology platform in terms of gender and age

Age years	Web centric course		Web blog		Power point		Google form	
	F	M	F	M	F	M	F	M
17- 19	23.4	43	40	50.9	60.1	68	67	64
20- 21	40	56.2	35.6	45	58	70	70	72
22- 23	35.7	52	55	50	65	59	69	70
Avg.	29.55	47.5	47.5	50.45	62.55	63.5	68	67

F= female; M = male

Table 4 shows that type of information technology most frequently used by students is google form with 68% of female students and 67% of male students, followed by power point of 62.55% of female students and 63.5% of male students, web blog for 47.5% female students and 50.45% male students and the last was a web centric course amounting to 29.55% female students and 47.5% male students. It showed that users, in this case students, tend to choose the goggle form as a source or media of information technology to be used in facilitating learning activities in basic professional-curriculum and learning subjects.

Regarding to the terms of age and gender, it could be seen that students in the age range of 20-21 years use information technology on cross-platform by 56%, 22-23 years at 52.85% and the lowest was at 17-19 years old at 43.7 %. Meanwhile, if it is seen from a gender perspective, most respondents who were female chose the Google Form platform as a means or media for learning which part of information technology.

In the aspect of usage or utilization of information technology in student learning activities, there were several points of concern for the perceptions given by them. Learning sources, learning effectiveness and efficiency, and meeting learning needs were the three sub-aspects successfully explored from the respondents.

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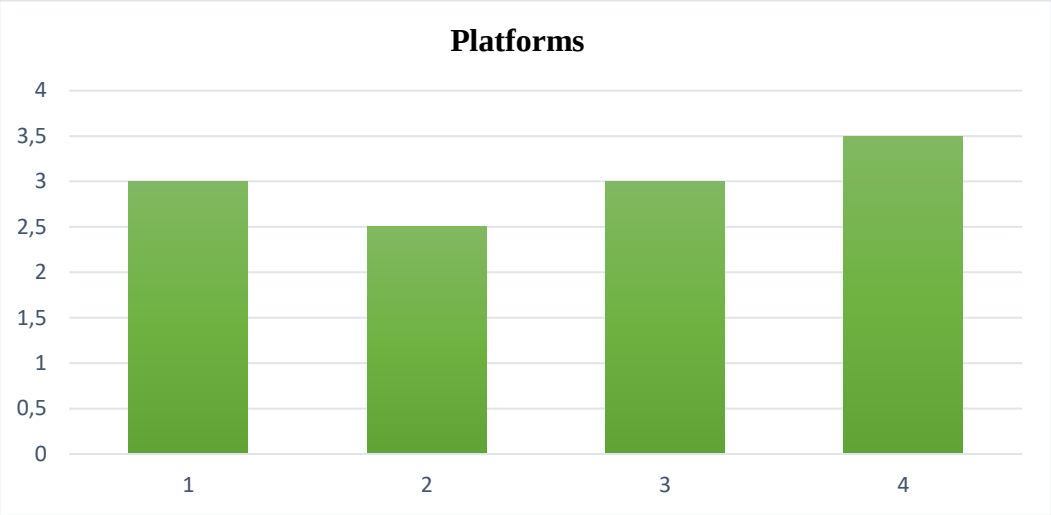
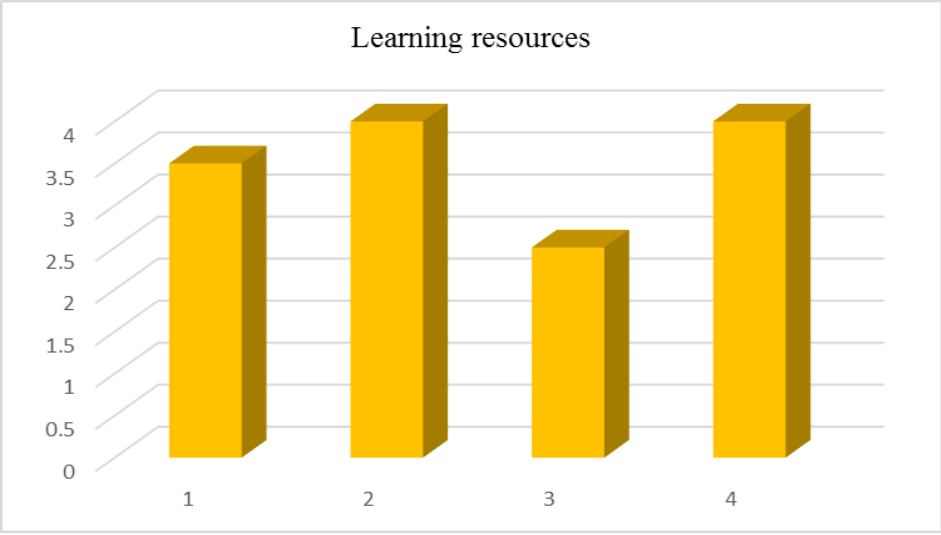


Graph 1
Types of Information Technology Platforms

From Graph1 above, it could be illustrated that there were 4 types of platforms taken by students in the MKDP-Kurpem learning. The results showed that most of the respondents stated or gave the perception that they agreed with the average achievement of 3.5. It means that the information technology platform in the form of google form was very helpful for students in achieving information technology-based learning goals.

Related to the respondent's perception of the use or function of information technology in MKDP-Kurpem learning, there were 3 functions that could be extracted from the respondent which included learning resources, effective and efficient learning, and meeting learning needs. The description of the results of student perceptions regarding the benefits or functions of information technology in learning was shown in the graph below:



Graph 2
Information Technology function as learning resources

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In the aspect of the function of information technology as learning resources, it was exposed that most students thought that these facilities or media were capable of playing a role in carrying out their function as learning resources. On the achievement of the highest average perception result, it gained the average score of 3.7 which was equal to their agreement on aspects related to information technology which had very high speed and could be used as a learning resource and only about 2.5 which expressed doubts that MKDP-Kurpem requiring hardware and software.

Table 5
Benefits of information technology in terms of gender and age

Age	Learning source		Learning effectiveness and efficiency		Meeting learning needs	
	F	M	F	M	F	M
17- 19	70	69	75	70	61	70
20- 21	72	75	74	80	79	63
22- 23	60	73	82	71	75	60
Avg.	65	71	78.5	70.5	68	65

S= Sample; F= female; M = male

From the table above, most students felt that information technology was very helpful or supportive of them in the effectiveness and efficiency of learning with an average achievement of 78.5% female students and 70.5% male students. It showed that students felt to be assisted in this aspect. When viewed from the perspective of age and gender associated with the use or function of information technology, it was found that 71% of male students and 65% of female students were in the aspect of learning resources. Then in the age range, most students in the age range 17-19 years and 70% thought that information technology played a very important role as a means or media for effective and efficient learning. From the results of the data above, it could be interpreted that the tendency of students' perceptions of the benefits of information technology by involving the aspects of age and gender held a vital role in encouraging and supporting the effectiveness and efficiency of learning.

D. CONCLUSION

This study is designed to determine students' perceptions of the integration of information technology in the platform and its function or utilization in terms of age and gender. After analyzing the questionnaire, the results show that there are two main factors behind the students' perceptions of the integration of information technology into the learning of the basic courses of the profession-learning curriculum, namely platform and usage. On the platform aspect, students tend to give the perception that Google Form is able to contribute positively to achieving learning targets. Meanwhile, on the usage aspect, students have the perception that the existence of information technology in the platform are be able to support effective and efficient learning which lead to the achievement of the final goal of learning.

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