

ANALYSIS OF STUDENT PERCEPTIONS OF USING YOUTUBE VIDEO TUTORIALS IN COMPUTER SYSTEMS AND NETWORKS PRACTICUM LEARNING

Bambang Karyadi^{1*}, Abiyan Abdul Raihan², Dieo Sigit Suseno³

^{1,2,3}Teknologi Pendidikan, Universitas Ibn Khaldun Bogor, Indonesia

*bambang.karyadi@gmail.com

Abstrak

Mata kuliah Sistem dan Jaringan Komputer menuntut pemahaman visual dan prosedural yang mendalam, seperti penggunaan baris perintah (*Command Line Interface/CLI*), serta pemecahan masalah (*troubleshooting*) instalasi dan konfigurasi pada webserver dan database server. Penelitian ini bertujuan untuk menganalisis persepsi mahasiswa terhadap penggunaan video tutorial YouTube sebagai media pendukung pembelajaran mata kuliah sistem dan jaringan komputer. Dengan menggunakan pendekatan kuantitatif deskriptif berbasis kerangka *Technology Acceptance Model* (TAM), penelitian ini mengukur dua dimensi utama yaitu Kemudahan Penggunaan yang Dirasakan (*Perceived Ease of Use*) dan kemanfaatan yang Dirasakan (*Perceived Usefulness*). Data dikumpulkan melalui kuesioner berskala Likert 1–5 yang disebarkan kepada 50 mahasiswa peserta mata kuliah praktikum jaringan komputer. Hasil penelitian menunjukkan bahwa persepsi mahasiswa berada pada kategori "Tinggi", dengan nilai rata-rata *Perceived Ease of Use* sebesar 3,81 (76,8%) dan *Perceived Usefulness* sebesar 3,72 (74,32%). Fleksibilitas akses lintas perangkat (HP/Laptop) dan kegunaan secara keseluruhan sebagai media pendukung utama diidentifikasi sebagai faktor kunci yang meningkatkan kemandirian praktikum dan keyakinan diri (*self-efficacy*) mahasiswa. Implikasi penelitian ini menyarankan integrasi playlist video terstruktur sebagai media komplementer resmi dalam modul praktikum vokasi dan teknik.

Kata kunci : YouTube, Persepsi Mahasiswa, *Technology Acceptance Model* (TAM), Praktikum Jaringan Komputer, Media Pembelajaran Digital.

Abstract

The computer systems and networks course requires in-depth visual and procedural understanding, including the use of the Command-Line Interface (CLI), as well as troubleshooting installation and configuration on web and database servers. This study aims to analyze students' perceptions of YouTube tutorial videos as a learning support medium for the computer systems and networks course. This study uses a descriptive quantitative approach based on the *Technology Acceptance Model* (TAM) framework; this study measures two main dimensions: perceived ease of use and perceived usefulness. Data were collected through a 1–5 Likert scale questionnaire distributed to 50 students participating in the computer networks practicum course. The results showed that students' perceptions were in the "High" category, with an average value of *Perceived Ease of Use* of 3.81 (76.8%) and *Perceived Usefulness* of 3.72 (74.32%). Flexibility of access across devices (cellphone/laptop) and overall usability as the primary supporting medium were identified as key factors enhancing student practicum independence and self-efficacy. The implications of this study

Submitted: 07-27-2026 Disetujui: 07-28-2026 Dipublikasikan: 07-29-2026



Citation: Karyadi, B. (2026). Analysis of Student Perceptions of Using Youtube Video Tutorials In Computer Systems and Networks Practicum Learning. Educate: Jurnal Teknologi Pendidikan, 258-264.

suggest the integration of structured video playlists as an official complementary medium in vocational and engineering practicum modules.

Keywords: YouTube, Student Perception, Technology Acceptance Model (TAM), Computer Network Practical Class, Digital Learning Media.

I. Introduction

Information technology today has brought significant transformation to the higher education ecosystem, where audio-visual learning media increasingly dominate the knowledge transfer process. One digital platform widely utilized to support university lectures is YouTube, as it offers flexible access, diverse content, and convenience for students to engage in independent learning (Purnamasari & Hafnita, 2019; Prayogi, 2025). As a video-based platform, YouTube does not merely serve as an entertainment medium; it has evolved into a structured and interactive educational video database (Saurabh & Gautam, 2019). The presence of this platform enables educational institutions and lecturers to enrich conventional learning methods by providing material visualisations accessible to students anytime and anywhere.

Students' acceptance and utilization of digital media are strongly influenced by their perceptions of such media. In measuring the acceptance level of educational technology, the *Technology Acceptance Model* (TAM) approach is frequently used to examine two primary constructs: perceived usefulness and perceived ease of use (Al-Maroofof et al., 2021). The application of the TAM model demonstrates that when students perceive an interactive multimedia tool as easy to operate and directly beneficial to their understanding of the material, their acceptance level and usage intensity increase significantly (Syafrizal et al., 2016). In this context, analyzing student perceptions becomes a crucial aspect of evaluating the extent to which video-based media like YouTube are accepted as a supporting tool for independent learning (Irmade, 2020).

The effectiveness of instructional videos depends not only on the platform used, but also on the presentation and design characteristics of the video tutorials themselves. Educational video design that is tailored to student preferences and needs has been proven to enhance their engagement and comprehension of the subject matter (Alfayez, 2021). Systematic and visual material presentation in video tutorials fosters the development of self-regulated learning strategies, while also strengthening students' achievement motivation and *self-efficacy* (Yusuf, 2011). When students possess high self-efficacy, they tend to be more confident in completing complex academic tasks through video guides that can be replayed according to their individual learning pace.

The Computer Systems and Networks Practicum course in the Educational Technology Study Program at the Faculty of Teacher Training and Education, Universitas Ibn Khaldun Bogor, possesses distinct characteristics that combine the mastery of abstract theory (such as the OSI model, IP addressing, and subnetting) with high-level practical skills (such as installing and configuring web servers and database servers on Linux-based network operating systems).

Practicum learning in the Computer Systems and Networks course requires demonstration media capable of illustrating procedural steps in precise detail. Recent research indicates that the use of video tutorials is proven effective in enhancing students' practical skills in practice-based courses (Amara & Purmadi, 2025). Specifically, the integration of YouTube as a learning medium in basic networking topics has also been shown to effectively facilitate students' understanding of foundational concepts and networking skills (Hadis et al., 2026).

Although various studies have demonstrated the effectiveness of video media in technical education and technology acceptance theories, research comprehensively analyzing student perceptions regarding the use of YouTube video tutorials specifically in Computer Systems and Networks practicum courses still warrants deeper exploration. Understanding how students evaluate the ease, usefulness, and obstacles in utilizing YouTube video tutorials for technical practical work is crucial as a basis for digital-based curriculum evaluation. Therefore, this study aims to analyze student perceptions of using YouTube video tutorials in Computer Systems and Networks practicum learning. The findings of this research are expected to provide empirical contributions for educators and media developers in designing more interactive, relevant, and effective computer practicum learning strategies in higher education.

II. Research Method

This study employs a descriptive quantitative research design. The descriptive approach was selected to systematically and factually portray student perceptions without applying specific experimental treatments.

A. Sample and Participants

The population of this study comprised second-semester students in the Undergraduate Educational Technology Study Program, Faculty of Teacher Training and Education, Universitas Ibn Khaldun Bogor, during the Even Semester of the 2025/2026 Academic Year, who had completed the Computer Systems and Networks course. A purposive sampling technique was employed, targeting students who actively used YouTube video tutorials during their practicum learning process. A total of 50 students were successfully surveyed and included in the analysis.

B. Research Instrument

The data collection instrument was a closed-ended questionnaire designed based on the Technology Acceptance Model (TAM) indicators. The questionnaire consisted of 10 statement items divided into two main dimensions:

1. Perceived Ease of Use (PEOU): Measures the ease of controlling video playback, the visual clarity of the network operating system installation interface as well as web server and database server installation and configuration, device access flexibility, material structural coherence, and ease of content searching, comprising

5 items.

2. Perceived Usefulness (PU): Measures efficiency in completing practicum tasks, independence in troubleshooting, enhanced conceptual understanding of server networking, increased confidence (self-efficacy), and overall usefulness, comprising 5 items.

Each item was measured using a 5-point Likert scale: 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), and 5 (Strongly Agree).

C. Data Analysis Technique

Data were analyzed using descriptive statistical techniques to calculate mean scores, achievement percentages, and indicator-based categorizations. The criteria for interpreting mean scores were categorized based on the achievement percentage scale as follows:

Table 1. Achievement Percentage Scale

Percentage Range	Criteria/Interpretation
81% - 100%	Very High
61% - 80%	High
41% - 60%	Moderate
21% - 40%	Low
0% - 20%	Very Low

Formula for calculating the achievement percentage : $Mean/5 * 100\%$

III. Findings and Results

A. Research Findings

Respondent Characteristics

The demographic profile summary of the 50 research respondents is presented in Table 1.

Table 2. Frequency of Student Responses by Gender

Category	Classification	Frequency (f)	Percentage (%)
Gender / Sex	Male	19	38%
	Female	31	62%

Results of Perceived Ease of Use (Perceived Ease of Use)

The descriptive analysis results for the Perceived Ease of Use (PEOU) dimension can be seen in Table 3.

Table 3. Results of the Analysis of the Perceived Ease of Use Dimension (PEOU)

Item	Statement Indicator	Mean	Achievement	Category
1	Playback control features (pause/rewind) facilitate self-directed learning.	3.96	79.2%	High

2	Visual clarity of topology diagrams and CLI/GUI commands.	3.78	75.6%	High
3	Cross-device access flexibility (mobile/laptop).	4.04	80.8%	High
4	Coherent structure and presentation of configuration steps.	3.8	76%	High
5	Ease of searching for specific materials on the YouTube platform.	3.62	72.4%	High
	Overall Mean for the Perceived Ease of Use (PEOU) Dimension.	3.81	76.8%	High

Perceived Usefulness (PU) Perception Results

The results of the descriptive analysis for the Perceived Usefulness (PU) dimension are presented in Table 4.

Tabel 4. Analysis Results for the Perceived Usefulness (PU) Dimension.

Item	Statement Indicator	Mean	Achievement	Category
6	Accelerates the completion of practical configuration tasks.	3.84	76.8%	High
7	Assists in independently troubleshooting configuration errors.	3.6	72%	High
8	Enhances understanding of network operating system installation as well as web server and database server installation and configuration.	3.56	71.2%	High
9	Boosts confidence (<i>self-efficacy</i>) during practical sessions both in the classroom and at home.	3.62	72.4%	High
10	Overall usefulness as a primary supporting medium.	3.96	79.2%	High
	Overall Mean for the Perceived Usefulness (PU) Dimension.	3.72	74.32%	High

B. Discussion

Based on the data processing results, the average student perception score for Perceived Ease of Use reached 3.81 (76.8%), while Perceived Usefulness reached 3.72 (74.32%). Both values fall into the "High" category. This indicates that students perceive YouTube video tutorials not merely as a form of entertainment, but as an effective and crucial instructional tool in supporting computer networking practicals.

In the Ease of Use dimension, the highest-scoring indicator was "Access to practical course materials via YouTube is highly flexible as it can be accessed anytime and from various devices (mobile/laptop)," with a mean score of 4.04 (80.8%). In computer systems and networking practicals, students frequently encounter difficulties when executing lengthy configuration command lines in the CLI terminal. The ubiquitous and highly responsive nature of the YouTube application on smartphones enables students to utilize their mobile devices as a "second screen" to follow the video tutorials. This dual-screen strategy effectively minimizes workflow disruptions (context switching/alt-tabbing) on their primary laptop, allowing students to simultaneously input command lines (CLI) while referencing the video guide. This cross-device accessibility not only offers spatial and temporal flexibility (anywhere,

anytime learning), but also significantly enhances students' efficiency and focus during self-directed practical sessions.

Furthermore, in the Usefulness dimension, the overall indicator "YouTube video tutorials are highly useful as a supporting medium for computer networking practicals" obtained the highest score of 3.96 (79.2%). Students perceived YouTube as a "complete package" supporting medium that provides visual solutions ranging from beginner-level guidance (step-by-step tutorials) to problem-solving stages (troubleshooting). Theoretically, these findings reinforce the Technology Acceptance Model (TAM) framework, wherein a high overall perceived usefulness serves as a primary predictor driving students to consistently adopt digital media as a supplementary tool to support their academic success in the laboratory.

Theoretically, these high perceptions of ease of use and usefulness confirm the fundamental core principle of the Technology Acceptance Model (TAM): when a medium is perceived as both easy to use and useful, user adoption rates and continuance intention become remarkably high. The structured integration of YouTube videos effectively bridges the gap between abstract classroom theory and hands-on technical skills in the laboratory.

IV. Conclusion

This study concludes that student perception regarding the use of YouTube video tutorials in computer systems and networking practical learning falls into the "High" category, demonstrated by the mean scores for Perceived Ease of Use at 3.81 (76.8%) and Perceived Usefulness at 3.72 (74.32%). YouTube successfully facilitates self-directed learning through its interactive features and provides tangible benefits in enhancing students' troubleshooting abilities and confidence during network configuration practicals.

1. Practical Implications: Instructors and laboratory managers are recommended to curate playlist resources or produce concise self-made video tutorials explicitly aligned with weekly practical modules.
2. Limitations and Future Research: This study is limited to measuring descriptive quantitative perceptions. Future research is encouraged to employ experimental methods (e.g., quasi-experiments) to examine the direct impact of video tutorial usage on student learning outcome scores (post-test) and practical skill retention rates.

V. References

- Purnamasari, & Hafnita. (2019). The Utilization of YouTube Media in Learning Antropology in Higher Education. International Conference on Education, Science and Technology, 5–10. <https://doi.org/10.1088/1742-6596/1387/1/012120>
- Saurabh, S., & Gautam, S. (2019). Computers & Education Modelling and statistical analysis of YouTube 's educational videos : A channel Owner ' s perspective. Computers & Education, 128(May 2018), 145–158.

- <https://doi.org/10.1016/j.compedu.2018.09.003>
- Al-Maroof, R. S., Al-Emran, M., Khalil, A. I., & Shaalan, K. (2021). Acceptance of YouTube as an educational tool during the COVID-19 pandemic: A TAM-based study. *Technology in Society*, 67, 101780. <https://doi.org/10.1016/j.techsoc.2021.101780>
- Syafrizal, A., Ernawati, E., & Dwiandiyanta, Y. (2016). Penerapan Model Technology Acceptance Model (TAM) untuk Pemahaman Media Pembelajaran Berbasis Multimedia Interaktif. *Scientific Journal of Informatics*, 2(1), 9-14. <https://doi.org/10.15294/sji.v2i1.4524>
- Irmade, o. (2020). ANALISIS PERSEPSI PENGGUNAAN MEDIA YOUTUBE DALAM PEMBELAJARAN JASMANI SECARA MANDIRI MAHASISWA PG-PAUD. *AWLADY: Jurnal Pendidikan Anak*. 6(2), 223-233.
- Alfayez, Z. (2021). Designing Educational Videos for University Websites Based on Students' Preferences. *Online Learning*, 25(2). <https://doi.org/10.24059/olj.v25i2.2232>
- Yusuf, M. (2011). The impact of self-efficacy, achievement motivation, and self-regulated learning strategies on students' academic achievement. *Procedia - Social and Behavioral Sciences*, 15, 2623–2626. <https://doi.org/10.1016/j.sbspro.2011.04.158>
- Amara, R., & Purmadi, A. (2025). EFEKTIVITAS PENGGUNAAN VIDEO TUTORIAL TERHADAP KETERAMPILAN MAHASISWA TEKNOLOGI PENDIDIKAN PADA MATA KULIAH PRAKTIK PERANCANGAN WEB PEMBELAJARAN. *EDUCATOR : Jurnal Inovasi Tenaga Pendidik Dan Kependidikan*, 5(2), 64–73. <https://doi.org/10.51878/educator.v5i2.5668>
- Hadis, H. M., Fajriani, A. ., & Razilu, Z. . (2026). EFEKTIVITAS PENGGUNAAN YOUTUBE SEBAGAI MEDIA PEMBELAJARAN PADA MATA KULIAH FUNDAMEN TI POKOK BAHASAN JARINGAN DASAR . *LEARNING : Jurnal Inovasi Penelitian Pendidikan Dan Pembelajaran*, 6(2), 1129–1138. <https://doi.org/10.51878/learning.v6i2.9703>
- Prayogi, R. A. (2025). Persepsi Mahasiswa Terhadap Penggunaan Youtube Dalam Perkuliahan Belajar Pembelajaran Di Perguruan Tinggi. *Jurnal Pendidikan Ilmu Pengetahuan Sosial (JPIPS)*, 17(1), 1-9. <https://doi.org/10.37304/jpips.v17i1.21254>