

The Effect of Google Drive Use and Educational Information Technology on the Effectiveness of Student Document Management with Self-Efficacy as a Mediating Variable at the Faculty of Economics and Business, Universitas Negeri Jakarta

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Abstract. This study aims to analyze the effect of using Google Drive and Educational Information Technology on the effectiveness of student document management, with self-efficacy as a mediating variable. The background of this research is based on the importance of efficient document management in supporting academic activities and the increasing role of digital technology in higher education. This study uses a quantitative approach with a survey method through an online questionnaire distributed to active students of the Faculty of Economics and Business, State University of Jakarta. The sampling technique used purposive sampling, and the data were analyzed using Structural Equation Modeling (SEM). The results showed that the use of Google Drive and Educational Information Technology had a positive and significant effect on the effectiveness of document management.

Keywords: Google Drive, Self-Efficacy, Document, Management.

Introduction

The rapid development of information technology has driven transformation across various sectors, including higher education. One critical aspect is the effectiveness of student document management, which is essential for supporting academic processes. Google Drive, a cloud-based storage service, has become widely used by students due to its ease of access, real-time collaboration features, and integration with other Google services. However, further investigation is needed to understand the extent to which Google Drive usage truly enhances academic document management.

Despite its advantages, the use of Google Drive also presents several limitations. Students often face issues such as limited free storage capacity, dependence on stable internet connections, and concerns over data security and privacy. Cases of sudden file loss or unauthorized access highlight the system's vulnerabilities, especially for students who rely heavily on the platform to complete academic tasks.

In addition to Google Drive, Educational Information Technology (EIT) plays a significant role in supporting students' academic activities. EIT includes various systems and software designed to facilitate teaching, learning, and academic information management. However, the success of utilizing such technologies does not solely depend on infrastructure but also on internal factors such as students' self-efficacy. Students with high self-efficacy tend to be more confident, independent, and organized when using technology to manage their academic documents.

Therefore, this study aims to analyze the influence of Google Drive usage and Educational Information Technology on the effectiveness of student document management, with self-efficacy acting as a mediating variable. The research is expected to provide both theoretical and practical contributions, particularly in developing strategies to improve document management efficiency in higher education settings, specifically within the Faculty of Economics and Business at Universitas Negeri Jakarta.

Literature Review

Google Drive Usage

In his research, (Christanto et al., 2023) said that the use of Google Drive has the potential to have a wider impact in the world of education. Through digital storage and sharing of documents on the cloud platform, educators can easily access, distribute, and manage various types of learning materials. This also supports efforts to overcome space and time constraints, as materials can be accessed anytime and anywhere. In addition, collaborative features such as real-time document sharing and commenting allow the process of developing learning materials to be more interactive and efficient. (Sopiana et al., 2024) added that Google Drive is one of the most popular cloud storage platforms and has the potential to be an effective solution to document storage problems in the school environment. This service has advantages in terms of ease of access, data security, and collaboration capabilities that support more efficient archive management. In addition, Google Drive is also equipped with supporting features such as sophisticated search and integration with various other applications, which can support increased user productivity.

According to William H. DeLone and Ephraim R. McLean (1992), as cited in the study by (Trilaksono, 2020), there are several key indicators used to assess the utilization of information systems, including Google Drive. This model was later refined in 2003 by incorporating three primary indicators that are frequently used by experts to evaluate user satisfaction: information quality, system quality, and service quality. First, information quality refers to the quality of output produced by an information system. This includes aspects such as data completeness, ease of understanding, level of personalization, relevance of the information to users' needs, and the security of the data presented. Second, system quality describes the performance and functionality of the information system itself, which is assessed based on the system's adaptability, availability when needed, operational reliability, response speed, and user-friendliness (usability). Third, service quality focuses on the quality of services provided by the information system provider. Indicators of service quality include assurance in the services offered, empathy toward users' needs, and the promptness and responsiveness in addressing user requests or issues. These three indicators serve as essential benchmarks for evaluating the effectiveness of using Google Drive as a technological tool in both educational and business contexts.

Educational Information Technology

Information technology is a set of facilities, infrastructure, systems, or methods used to obtain, store, process, and convey information effectively and can be accounted for truth and accuracy. The use of information technology opens up opportunities for the implementation of distance education, which in turn encourages the creation of equitable access to education throughout Indonesia, including in areas that have not been reached by land transportation (Husaini, 2014). The role of information technology in the learning process not only makes it easier for students to access and understand the material, but also makes a significant contribution to teachers, especially in the utilization of various facilities that support the improvement of the quality and effectiveness of teaching activities (Haris Budiman, 2017).

The original Unified Theory of Acceptance and Use of Technology (UTAUT) model consists of four main indicators (Wahyu & Anwar, 2020), namely: performance expectancy, effort expectancy, social influence, and facilitating conditions. First, performance expectancy reflects an individual's belief that the use of a system or technology will provide real benefits in supporting their work or specific activities. This refers to the perceived usefulness of the technology in improving productivity or achieving goals more efficiently. Second, effort expectancy refers to the degree to which users find the system or technology easy to use. It encompasses the user's perception of how simple or user-friendly the system is, which can significantly influence their willingness to adopt it. Third, social influence relates to an individual's perception of social pressure or the belief that people around them expect them to use a particular system or technology. This includes encouragement or influence from peers, supervisors, or the broader social environment. Fourth, facilitating conditions describe the extent to which an individual believes that adequate infrastructure exists to support the use of the system or technology. This includes both technical resources and organizational support that help users in adopting and effectively using the technology. Together, these four indicators form the core of the UTAUT model and serve as important predictors of behavioral intention and actual usage behavior in various technology adoption contexts.

Effectiveness of Student Document Management

Effectiveness is the main element in achieving goals or objectives that have been set in an organization, activity, or program. An activity is said to be effective if the results achieved are in accordance with the targets or objectives that have been formulated previously. The level of effectiveness can be measured through a comparison between the planning that has been set and the actual results achieved. An activity is considered ineffective if the efforts, actions, or results produced do not match or deviate from the goals to be achieved, so that the expected goals are not met (Gibson JIL, 2001).

Archival management is the application of managerial principles in managing the entire life cycle of a record, which includes several main stages, namely: creation and receipt of archives, distribution, utilization, maintenance, and depreciation or destruction of archives (Hidayati, 2021). (Aprilia, 2021) in her thesis argues that the effectiveness of archive management in an agency is highly dependent on the quality of human resources involved, the availability of supporting facilities or facilities, and the allocation of funds for archive maintenance. Without a competent and professional workforce in the field of archiving, even the implementation of a good archiving system will not be able to run optimally and efficiently.

Tangkilian (2005: 140–141), as cited in the study by (Hidayana & Aisyah, 2023), outlines four key indicators of effectiveness: goal achievement, adaptability (flexibility), job satisfaction, and accountability. First, goal achievement refers to the extent to which an organization successfully meets its predetermined targets or objectives. Effectiveness in this context is demonstrated by the organization's ability to implement strategic steps to realize these goals. Second, adaptability reflects the organization's capacity to respond to and adjust in the face of various changes, whether they are internal or external. This flexibility is essential for maintaining relevance and continuity in a dynamic environment. Third, job satisfaction represents the positive feelings and sense of comfort experienced by members of the organization. High levels of job satisfaction can serve as a motivational factor, which in turn contributes to improved performance and overall organizational effectiveness. Fourth, accountability refers to the organization's ability to carry out its duties and responsibilities in accordance with applicable rules and regulations, as well as its capacity to resolve emerging issues in a transparent and responsible manner. These four indicators collectively provide a comprehensive framework for assessing the effectiveness of an organization in achieving its objectives while maintaining adaptability, employee well-being, and responsible governance.

Self-Efficacy

According to (Pendidikan, 2016), Self-efficacy is a person's belief in their ability to design and carry out the actions needed to achieve certain goals. High self-efficacy in students can encourage the emergence of awareness to learn independently. This includes the ability to manage study time, choose appropriate learning activities and strategies to understand the material, and evaluate the learning outcomes that have been achieved (Hanifah, 2019). Meanwhile, (Sunnyoto, 2015) emphasizes the level of self-efficacy in a person can be recognized through the extent to which the individual is able to solve the problems he is facing.

The indicators of self-efficacy refer to the dimensions of self-efficacy proposed by Bandura (as cited in Fatimah and Manuardi, 2021:28) in the study by (Ananda Muhammad Tri Utama, 2022). These dimensions include task difficulty level (magnitude), task mastery capability (generality), and strength of belief (strength). First, magnitude refers to an individual's belief in their ability to complete a task, regardless of whether the task is relatively easy or highly challenging. This reflects the confidence a person has in facing tasks of varying complexity. Second, generality relates to the extent to which an individual possesses intrinsic motivation to choose, perform, and complete the tasks at hand. Individuals with strong internal motivation tend to exhibit persistence, enthusiasm, and a high level of self-confidence when working through tasks. Third, strength describes the degree of confidence an individual has in their own capabilities when facing challenges and difficulties, including the resilience to recover after experiencing failure. This strong belief in one's abilities plays a crucial role in overcoming obstacles and maintaining consistent performance. These three indicators provide a comprehensive view of how individuals perceive and respond to tasks, which is central to understanding their self-efficacy.

Research Framework and Hypothesis

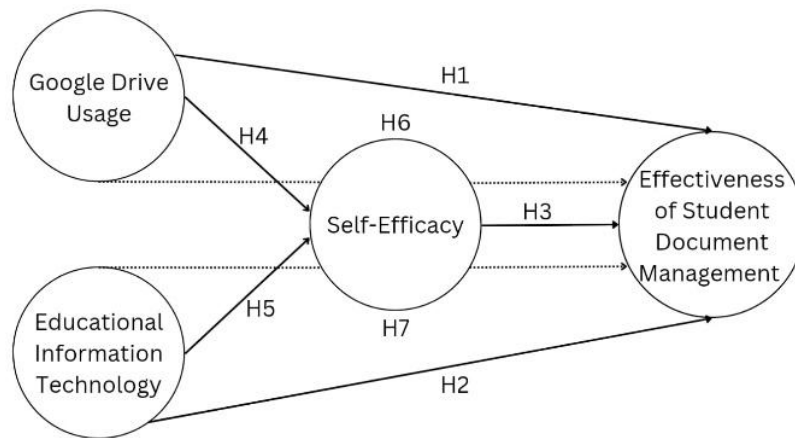


Figure 1. Research Hypothesis

This study proposes seven hypotheses to examine the relationship between the use of Google Drive, educational information technology, self-efficacy, and the effectiveness of student document management at the Faculty of Economics and Business, Universitas Negeri Jakarta. The first hypothesis (H1) states that the use of Google Drive affects the effectiveness of student document management. The second hypothesis (H2) examines the effect of educational information technology on the effectiveness of document management. Furthermore, the third hypothesis (H3) states that student self-efficacy affects the effectiveness of document management. The fourth hypothesis (H4) examines the effect of using Google Drive on student self-efficacy, while the fifth hypothesis (H5) highlights the effect of educational information technology on self-efficacy. In addition to the direct effect, this study also examines the indirect effect through the mediating variable of self-efficacy. The sixth hypothesis (H6) states that the use of Google Drive affects the effectiveness of document management through the mediation of self-efficacy, and the seventh hypothesis (H7) examines the effect of educational information technology on the effectiveness of document management through the same mediation. These hypotheses were developed to better understand the role of technological and psychological factors in improving the effectiveness of document management among university students.

Methods

This study aims to examine the influence of Google Drive usage and educational information technology on the effectiveness of document management among students, with self-efficacy acting as a mediating variable. The research was conducted over a two-week period from April to May 2025. All stages of the study—from instrument development and distribution to data collection and analysis—were carried out online to ensure broader and more efficient coverage. Google Forms was used as the main platform for questionnaire distribution. Instrument development is carried out to measure the variables in the study accurately and reliably. Instruments in the form of questionnaires are prepared based on indicators that have been determined for each variable, which are sourced from relevant theories and previous research results.

The research design follows a quantitative approach using a survey method. The primary data were collected via a structured questionnaire based on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The instrument was developed by adapting validated indicators from previous studies to ensure reliability and accuracy. The four main variables measured were: (1) Google Drive usage, assessed through information, system, and service quality; (2) educational information technology, based on UTAUT dimensions such as performance expectancy, effort expectancy, social influence, and facilitating conditions; (3) self-efficacy, using Bandura's theory of magnitude, generality, and strength; and (4) document management effectiveness, measured through goal achievement, adaptability, job satisfaction, and accountability.

The population of this study included all active students from the Faculty of Economics and Business, Universitas Negeri Jakarta. A purposive sampling technique was used to select participants who met specific criteria, including being currently enrolled and having prior experience using Google Drive and other educational technologies. The minimum sample size was estimated between 100–150 students, in accordance with statistical requirements for Structural Equation Modeling (SEM) analysis.

The data collection process involved online distribution of the questionnaire through institutional communication channels such as email, WhatsApp, and other social media platforms commonly used by students. In addition to the main variables, demographic information such as age, gender, semester, and study program was also gathered to support further analysis. All responses were compiled and analyzed quantitatively. This approach enabled the researcher to examine relationships among variables and assess the mediating effect of self-efficacy within the model. The chosen method ensures that the findings are both statistically valid and relevant to the academic context of higher education document management.

Result and Discussion

Table 1: Outer Loadings

Construct	Indicators	Loadings	Evaluation
X1	X1.1	0.890	Valid (≥ 0.70)
	X1.2	0.896	Valid
	X1.5	0.934	Valid
	X1.6	0.893	Valid
X2	X2.1	0.892	Valid
	X2.2	0.853	Valid
	X2.3	0.814	Valid
	X2.4	0.883	Valid
	X2.5	0.800	Valid (lower limit)
Y	Y1	0.923	Valid
	Y2	0.933	Valid
	Y3	0.904	Valid
Z	Z1	0.898	Valid
	Z2	0.910	Valid
	Z3	0.844	Valid
	Z4	0.853	Valid

All indicators on variables X1, X2, Y, and Z have a loading factor value ≥ 0.70 , which indicates good construct validity. Indicator X1.5 has the highest value (0.934), while indicator X2.5 has the lowest value (0.800), but still meets the minimum limit. Thus, the research instrument is declared valid and suitable for further analysis.

Table 2: Cronbach's Alpha & Composite Reliability

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
X1.	0.925	0.927	0.947	0.816
X2.	0.903	0.907	0.928	0.721
Y	0.909	0.912	0.943	0.846
Z	0.900	0.909	0.930	0.768

Based on the reliability test results, all constructs in this study (X1, X2, Y, and Z) showed excellent reliability and convergent validity. The Cronbach's Alpha and Composite Reliability (rho_A and rho_C) values all exceed 0.90, indicating high internal consistency. In addition, the AVE values for all constructs are above 0.50, indicating that the variance of the indicators can be well explained by the measured constructs.

Table 3: Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1. -> Y	0.098	0.098	0.098	0.996	0.319
X1. -> Z	0.353	0.339	0.124	2.855	0.004
X2. -> Y	0.639	0.631	0.094	6.826	0.000
X2. -> Z	0.445	0.451	0.119	3.748	0.000
Z ->	0.219	0.227	0.090	1.418	0.16

Y					
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Based on the results of the direct effect hypothesis test, it was found that almost all relationships between variables in the model were significant, except for the direct effect of using Google Drive on self-efficacy which was not significant ($p = 0.319$). The use of Google Drive has a significant effect on the effectiveness of document management ($p = 0.004$). Educational information technology significantly affects self-efficacy ($p = 0.000$) and document management effectiveness ($p = 0.000$). In addition, self-efficacy also significantly affects the effectiveness of document management ($p = 0.016$). These findings suggest that self-efficacy is more influenced by educational information technology than the use of Google Drive.

Table 4: Specific Indirect Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1. -> Z -> Y	0.077	0.078	0.045	1.707	0.088
X2. -> Z -> Y	0.097	0.103	0.053	1.842	0.065

Based on the results of the indirect effect test, it was found that the mediation path from the use of Google Drive (X1) to the effectiveness of document management (Y) through self-efficacy (Z) resulted in a p-value of 0.088. Meanwhile, the path from educational information technology (X2) to the effectiveness of document management through self-efficacy shows a p-value of 0.065. Both p-values are above the significance threshold of 0.05, which means that statistically, the indirect effect through self-efficacy is not significant at the 95% confidence level.

However, since the p-value of both paths is still below 0.10, this indicates a tendency for the indirect effect to be weak or marginally significant at the 10% significance level. This means that self-efficacy as a mediating variable has not shown a strong and significant role in bridging the influence of using Google Drive and educational information technology on the effectiveness of student document management.

Nevertheless, the existence of a t-statistic value that is relatively close to the critical value indicates that the possibility of a mediating role is still worth considering in the development of further research models. In other words, there is an initial indication that self-efficacy has the potential to play a role as a mediator, although in this study it has not yet reached a convincing level of significance.

Conclusion

This study aims to examine the effect of using Google Drive and educational information technology on the effectiveness of student document management, with self-efficacy as a mediating variable in students of the Faculty of Economics and Business, State University of Jakarta. The results showed that the use of Google Drive has a significant and positive direct effect on the effectiveness of document management. That is, students who actively utilize Google Drive features-such as cloud storage, online collaboration, and document sharing-tend to be more efficient in managing their academic files. In addition, educational information technology also proved to have a significant influence on both self-efficacy and document management effectiveness. These findings confirm the importance of implementing digital infrastructure and technology-based learning tools in the academic environment, as they can improve students' self-efficacy as well as their effectiveness in managing documents.

Furthermore, self-efficacy was found to have a positive and significant influence on document management effectiveness. Students with high levels of self-efficacy tend to be more organized, responsible, and productive in completing document-based academic tasks. However, this study also found that the use of Google Drive did not have a significant effect on students' self-efficacy. This suggests that although Google Drive provides functional benefits, its use is not enough to boost students' self-efficacy in document management skills. In addition, the mediating role of self-efficacy in the relationship between the use of Google Drive and educational information technology on the effectiveness of document management was not found to be statistically significant, despite initial indications of a weak partial mediating effect. Overall, the model was able to explain 81.3% of the variation in self-efficacy and 59.1% of the variation in document management effectiveness, indicating that the model has strong predictive power in the research context.

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