



THE EFFECTS OF COLLABORATIVE LEARNING, ACADEMIC COMMUNICATION QUALITY, AND ACADEMIC LEADERSHIP ON KNOWLEDGE TRANSFER EFFECTIVENESS IN DISTANCE EDUCATION PROGRAMS

**Ali Zaenal Abidin^{1*}, Enny Diah Astuti², Wandu Sujatmiko³, Najdah Thalib⁴,
Made Ayu Anggreni⁵, Antonius Ary Setyawan⁶**

¹ Prodi Magister Manajemen, Universitas Pamulang, Indonesia

² Prodi Manajemen, Universitas Muhammadiyah Bekasi Karawang, Indonesia

³ Prodi Teknologi Informasi, Politeknik Aisyiyah Pontianak, Indonesia

⁴ Prodi Pendidikan Ekonomi, Universitas Musamus Merauke, Indonesia

⁵ Prodi PG-PAUD, Universitas PGRI Adi Buana Surabaya, Indonesia

⁶ Prodi Sistem Informasi, STIKOM Yos Sudarso Purwokerto, Indonesia

✉ Email : alizaenalabidin@unpam.ac.id

ABSTRACT

The objective of this research is to examine the effect of Collaborative Learning, Academic Communication Quality and Academic Leadership on Knowledge Transfer Effectiveness in Distance Education Programs. This research was conducted with a quantitative approach by using survey technique to students of the Distance Education Program at higher education institutions in Indonesia. The respondents were determined by purposive sampling with the following criteria: active students, participated in a Distance Education Program for at least one semester, used a Learning Management System or digital learning platform, and experienced participating in online learning activities and academic communication. The data were subjected to multiple linear regression analysis. Data were collected through a questionnaire distributed through Google forms. The findings revealed that Collaborative Learning, Quality of Academic Communication and Academic Leadership had a significant positive impact on the Effectiveness of Knowledge Transfer. The results indicate that the effectiveness of knowledge transfer in remote education depends on students' collaborative interactions and the quality of academic communication and the academic leadership support for the creation of a positive learning environment. The results also indicate that institutions of higher education that provide Distance Education Programs should be expected to increase collaborative learning activities, improve clarity, consistency, responsiveness, and quality of feedback in academic

communication, and build academic leadership that promotes digital learning, faculty competency development, knowledge sharing, and continuous improvement.

Keywords: Collaborative Learning; Academic Communication Quality; Academic Leadership; Knowledge Transfer Effectiveness

INTRODUCTION

With the development of digital technology and increasing demand for flexible education in society, the use of Distance Education Programs in higher education institutions has become common (Siahaan et al., 2023). This education paradigm allows students to participate in the learning process irrespective of the geographical boundaries through learning management systems, video conferencing, digital learning resources, discussion forums, cloud-based platforms and other learning technologies (Judijanto et al., 2024). Technology has facilitated the delivery of learning materials, but for success, remote learning requires more than digital infrastructure. It requires the ability to successfully transmit information to students through the learning process. In this context, effectiveness of knowledge transfer (KTE) is an important factor in determining the quality and success of the distance learning process. Information transfer effectiveness is the degree of success in processes of transmitting, receiving, understanding, internalizing and applying information from one party to another (Nagy & Duma, 2023; Jaya et al., 2017).

Collaborative Learning is one of the predicted critical variables to enhance Knowledge Transfer Effectiveness in distance education programs (Astuti et al., 2023). Collaborative Learning is a type of learning that encourages the interaction, discussion, sharing of information, problem solving and construction of knowledge by students in groups (Widarbowo et al., 2023). Students can actively share more knowledge and experience through discussion forums, virtual study groups, collaborative assignments, online project teams, peer conversations, shared documents and a variety of digital collaboration platforms (Hukubun et al., 2025; Kholil et al., 2020; Nuraeni et al., 2020). Besides Collaborative Learning, Academic Communication Quality is expected to be a major factor to increase Knowledge Transfer Effectiveness in Distance Education Program. Academic Communication Quality is the quality of the process of communication and exchange of academic information among lecturers, students and other parties involved in the learning process as reflected in the clarity, accuracy, consistency, openness, relevance and timeliness of communication (Illi, 2025). Students need to be given clear information on learning materials, directions for assignments, schedule of activities, learning objectives, assessment methods, feedback, and other academic issues (Suryana & Permana, 2025; Anggraini, 2020). Academic Leadership is also considered as having a vital link with Knowledge Transfer Effectiveness in Distance Education Programs. Academic leadership is about creating the direction, systems, culture and environment that enable learning and the sharing of knowledge (Hallinger & Xing, 2026). As a result of remote education, academic leadership is becoming more important as the delivery of learning requires the integration of pedagogical elements, technology, human resources, academic systems and student services. Academic

leaders should provide technology, but also ensure that it is properly used to facilitate learning processes and knowledge transfer (Cheng et al., 2024; Solehuddin et al., 2023).

This study is intended to examine the effects of Collaborative Learning, Quality of Academic Communication and Academic Leadership on the Effectiveness of Knowledge Transfer in Distance Education Program. The present study is important because the effectiveness of distance education depends not only on the institution's ability to provide technology and digital content, but also on the ability to build processes for students to receive, understand, develop and apply knowledge effectively. From the perspective of theory, this study is expected to contribute to the development of the literature in the areas of educational management, knowledge management, distance education, collaborative learning, academic communication and academic leadership particularly in explaining the factors affecting the effectiveness of knowledge transfer in digital learning environments.

METHODS

This study employed a quantitative approach via the survey method to analyze the influence of Collaborative Learning, Quality of Academic Communication, and Academic Leadership on the Effectiveness of Knowledge Transfer in Distance Education Programs. The population of this research consisted of students of Distance Education Programs in Higher Education Institutions in Indonesia. The sampling method was purposive sampling. The criteria for the respondents were: 1) active students who have participated in a Distance Education Program for at least one semester; 2) have experience using a Learning Management System (LMS) or digital learning platforms; 3) active in synchronous and asynchronous learning activities; 4) involved in online discussions or collaborative learning activities; and 5) have experience in communicating with lecturers through various digital learning media. Data were collected by using online questionnaire by Google Forms. The study instrument consisted of questions all rated on a five-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree."

The variable of Collaborative Learning was evaluated via the aspects of peer contact, collaborative knowledge production, collaborative problem solving, peer assistance and joint learning activities. Communication Quality was assessed by the criteria of communication clarity, information correctness, communication responsiveness, communication consistency and feedback quality. Academic Leadership was judged by the elements of academic vision, learning support, faculty development support, digital learning facilitation and continuous learning encouragement. The success of knowledge transfer was evaluated by the characteristics of knowledge acquisition effectiveness, knowledge comprehension, knowledge internalization, knowledge sharing effectiveness and knowledge application competence. Before the hypothesis test, the research instrument was tested to determine the quality of measurement through validity and reliability tests. The suitability of the regression model was tested by classical assumption test, including normality test, multicollinearity test, and heteroscedasticity test. The main analysis was performed by multiple linear regression to test the impacts of Collaborative Learning,

Academic Communication Quality and Academic Leadership on Knowledge Transfer Effectiveness. Partial hypothesis testing was performed using t-test at 5% significance level ($\alpha = 0.05$), and F-test was used to investigate the simultaneous effects of the three independent variables. Furthermore, the coefficient of determination (R^2) was utilized to identify the amount of variation in Knowledge Transfer Effectiveness explained by Collaborative Learning, Academic Communication Quality, and Academic Leadership.

RESULT AND DISCUSSION

The results show that Collaborative Learning, Academic Communication Quality and Academic Leadership simultaneously have a positive and significant effect on Knowledge Transfer Effectiveness. The result of the partial hypothesis test also shows that each independent variable has a positive and significant effect on the Effectiveness of Knowledge Transfer. It means all hypotheses of the study are confirmed. The coefficient of determination value of 0.491 indicates that Collaborative Learning, Academic Communication Quality and Academic Leadership can explain 49.1% of the variance in Knowledge Transfer Effectiveness and the remaining variance is explained by other factors that are not included in the research model. The regression coefficient showed that the variable of Academic Communication Quality had the greatest influence on the Knowledge Transfer Effectiveness. The results reveal that the clarity, accuracy, consistency, responsiveness and quality of feedback in academic communication are significant for distance learning as they facilitate the effective receipt, understanding, internalization, sharing and application of knowledge by the students.

The results reveal that Collaborative Learning positively and significantly impacts the Effectiveness of Knowledge Transfer in Distance Education Programs. This conclusion shows that the higher is the quality of student engagement and participation during the course of learning, the more successful will be the process of information transfer. In remote education students do not have always the possibility of direct face-to-face connection and therefore collaborative activities with digital media become a fundamental tool to support the information sharing and knowledge development. Collaborative learning allows students to not only receive material passively from lecturers, but actively participate in discussions, share ideas, solve problems, give peer comments and collaboratively build knowledge. When students discuss learning materials, they can share what they know with other students, hear different opinions, clarify things they don't understand fully, and correct wrong ideas they might have. This procedure can increase the Effectiveness of Knowledge Transfer because the information obtained is not only received but also processed by social interaction and cognitive actions. Larger spaces for knowledge sharing, such as discussion forums, virtual study groups, collaborative assignments, shared documents, online project teams and other digital collaboration platforms, can improve distance education. Collaborative learning can help to reduce the feeling of isolation which is often one of the obstacles of distant learning since the students feel that they are part of a learning community with common learning goals. The peer support can help the students to overcome the problems in understanding learning materials and learning

technology. Moreover, collaborative problem solving allows students to apply information in more contextual settings, ensuring that knowledge is transferred beyond conceptual understanding.

The results show that Academic Communication Quality has a positive and significant effect on Knowledge Transfer Effectiveness in Distance Education Programs, and it is the most important variable in the research model. The study emphasizes the significance of effective academic communication especially in situations where technology has a major mediating role in lecturer-student relations. In traditional learning, the ambiguous information can be clarified quickly through the direct interaction between teacher and students. But in the distance learning, the communication barriers can last longer and interfere with the process of acquiring knowledge. Clear discourse helps learners comprehend learning materials, instructions, results, assignments, how they will be assessed and a lot other academic information. The accuracy of the information is also very important as inaccurate and inconsistent information may lead to misconceptions among the students. Besides, students' communicative responsiveness allows them to ask clarifications in case they face barriers, and to overcome the obstacles for the information transfer process in a timely manner. The quality of the feedback is also important so that students will know where they stand relative to the intended learning objectives for understanding and performance. Specific, constructive, relevant and timely criticism helps students to identify shortcomings, deepen understanding and continue to develop skills. In remote education, academic communication can take place via Learning Management Systems, video conferencing, discussion forums, e-mail, instant messaging, recorded lectures and many other platforms. Multiple channels of communication is flexible but can lead to fragmentation of information if not properly managed. Institutions of higher education should, therefore, provide consistency and integration of communication patterns so that students know which channels to use to access learning materials, ask questions, receive feedback, and obtain academic information.

The results show that Academic Leadership positively and significantly impacts Knowledge Transfer Effectiveness in Distance Education Programs. "This finding shows that knowledge transfer effectiveness is not only based on the direct interaction that occurs in the learning process, but also on the ability of academic leadership to create an environment, systems, resources, and culture that foster learning. The implementation of distant education needs the coordination of technology, curriculum, lecturers, students, administrative staff, information systems and many supporting services so that all of these components can work in an integrated way, therefore Academic Leadership is vital in ensuring this. Academic leaders who are strong visionaries for digital learning can inspire institutions to use technology to improve the quality of learning, not just to distribute the learning materials. Academic Leadership may support lecturers in the development of pedagogical and digital competences, training on the use of Learning Management Systems, developing digital learning material and facilitating different creative learning approaches. Such assistance may help professors to better present and promote information transfer. Furthermore, academic leadership can develop a culture of knowledge sharing through faculty learning communities, communities of practice, co-teaching, mentoring and forums for sharing best practices, thus enabling sharing of experiences and knowledge about digital learning among lecturers. Academic leaders are also important

to ensure that students can access the learning process with the necessary infrastructure, digital learning materials, technological support and policies in place. Furthermore active academic leadership toward student and lecturer input allows for fast identification and solving of various learning problems. The academic leaders should create a culture of continuous learning and continuous improvement such that the learning process is not static but is being constantly reviewed based on the technology changes, the requirements of the students and the accomplishment of learning objectives.

CONCLUSION

The results of this study indicate that Collaborative Learning, Academic Communication Quality and Academic Leadership have a positive and significant effect on Knowledge Transfer Effectiveness in Distance Education Programs. In practice, higher education institutions need to improve Collaborative Learning through the development of collaborative assignments, virtual study groups, peer discussions, project-based learning, peer teaching, peer review, and collaborative problem solving that enable students to interact and collaboratively construct knowledge. The quality of academic communication should be improved through clear, accurate, consistent and timely academic information, improved lecturer responsiveness, two-way communication development and constructive and relevant feedback on students' learning processes. Academic Leadership can also be strengthened by developing a clear vision for digital learning, promoting faculty competency development support, providing digital learning resources and academic support systems, and creating an environment that encourages knowledge sharing, continuous learning and continuous improvement. Since Academic Communication Quality has the greatest impact, higher education institutions that provide distance education programs should primarily focus on the improvement of academic communication systems and standards that allow students to get information, explanations, answers and feedback in an efficient way.

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