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A Study on Factors Influencing AI Learning Continuity : Focused on Business Major Students

Park, So Hyun*

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Ⅰ. Introduction

As we usher in the era of the Fourth Industrial Revolution, industries across various sectors are demanding versatile talents capable of creative and innovative problem-solving (Bennett et al., 2013). In today's rapidly evolving society, Artificial Intelligence (AI) and software (SW) technologies are drastically reshaping the future technological landscape. Consequently, education needs to adaptively teach students through innovative approaches to align with this new environment. Particularly, SW·AI education provided to university students plays a crucial role in fostering adaptability to such technological changes.

Recent technological advancements are transforming our society into an intelligent and interconnected environment. As a result, understanding and possessing skills in AI and SW technologies are essential for university students to prepare for new challenges and succeed in the future job market. Moreover,

* Dankook University, Department of Software Science Assistant Professor, sohyunpark@dankook.ac.kr

systematic education on foundational AI knowledge, practical application and development skills, as well as ethical and responsible considerations, is crucial in the current context (Ko, 2022). Meeting these demands requires well-designed education that promotes clear and systematic understanding and implementation across the educational spectrum. However, integrating AI and data literacy into the existing foundation of university education, as in basic SW courses, poses challenges (Kim and Kim, 2021). Henceforth, universities must develop and implement tailored education programs in AI literacy alongside existing SW foundational courses. This evolution will enable the use of AI to foster collective intelligence through communication and collaboration among professionals from various fields, creating new value.

Recently, AI education in universities employs various teaching methods, covering foundational literacy-based content to more in-depth materials. However, there is limited research on enhancing and advancing knowledge in AI competence among university students. Research specifically addressing AI project-based learning for sustained AI competence and its impact on AI Literacy Capability and AI learning outcomes is scarce (Ko, 2022; Park and Suh, 2021).

Therefore, this study aims to achieve a multifaceted understanding of the impact of AI education on business-related majors. To attain this objective, the study seeks to identify a learning model for AI Learning Continuity based on the positive influence of students' AI Interest, AI Awareness, and Data Analysis Capability (Lee, 2020; Jung, 2022; Han, 2020; Lee, 2022) on AI Learning Continuity. Specifically, considering the characteristics of business students in the social sciences who extensively deal with data, the study will analyze how AI Interest, AI Awareness, and Data Analysis Capability influence AI Learning Continuity through the mediation of Awareness about AI projects, AI Literacy Capability, and AI Self-Efficacy. This analysis is expected to play a crucial role in developing effective educational strategies to support these students in acquiring practical technological competencies for real-world applications.

This paper aims to investigate the effectiveness of AI education and factors that positively influence AI Learning Continuity. By analyzing how students majoring in business perceive and embrace AI education and the competencies they acquire through it, the paper intends to provide insights into effective delivery and comprehension of education. This is expected to play a crucial role in responding to future technological demands and assisting students in unleashing innovative and creative problem-solving abilities.

Ⅱ. Research Background

2.1 AI Literacy Education

AI literacy education is evolving as an extended form of traditional SW education, computational thinking, and digital literacy education (Lee and Han, 2020; Wong et al., 2020). Rather than aiming for the acquisition of programming skills or related knowledge, AI literacy education requires the development of AI-integrated abilities based on computational thinking, creativity, problem identification and solving skills, and data analysis skills (Seo, 2020). Attempts to integrate AI into various fields of society are on the rise, and as the significance of AI increases, major countries worldwide recognize that AI competitiveness directly correlates with national competitiveness. Consequently, efforts are being made to secure talent with AI competencies (Touretzky et al., 2019), and comprehensive education guidelines are being established (Yue et al., 2021).

The importance of AI literacy education has gained sufficient consensus globally. Countries are working towards policy-driven efforts to cultivate individuals with AI literacy competencies and are formulating comprehensive educational curricula for this purpose. It is crucial to integrate such education from the early stages of the educational process (Heintz, 2021). There is an increasing focus on optimizing AI learning experiences for K-12 students, exploring paths for AI literacy, yet limitations exist as many of these efforts are confined to specific topics, falling short of adequately addressing core areas such as planning, knowledge representation, and automated reasoning – key aspects of AI (Nisheva-Pavlova, 2021).

Moreover, the rapid growth of AI necessitates educators to understand how to optimally leverage AI technology for students' academic success. Zhai et al. (2021) recommend educators collaborate with AI experts to bridge the gap between technology and teaching methods. Numerous scholars are actively conducting various studies related to AI literacy education. Guan et al. (2020) examined major topics and trends in educational AI research from 2000 to 2020. Research in support of AI technology is extensive, with a noticeable increase in learner profiling models and learning analysis over the past two decades. Chen et al. (2020) focused on enhancing education using AI technology, while Zhai et al. (2021) analyzed how AI has been applied in the field of education from 2010 to 2020. These studies cover a broad spectrum, including research on AI-based learning in educational environments, from construction to application and integration. Ng et al. (2022) investigated learner types, educational tools, and teaching methods related to AI education and learning in university

computer education. While these studies shed light on the significant role AI has played in educational applications over the past few decades, considering the recent necessity to address how AI education should be approached at the K-12 level (Kandlhofer et al., 2016; Long and Magerko, 2020; Miao et al., 2021), it is crucial to systematize and characterize various approaches used to develop AI literacy. Continuous research is needed to identify the areas and factors that have been overlooked in AI literacy development.

2.2 Data Analysis-Based AI Education for business Majors

In the era of big data, education in artificial intelligence (AI) based on data analysis has become increasingly important in recent years. With the rapid innovation of AI technology and digitization, various industries are generating massive amounts of data. The utilization of such big data not only presents new opportunities and challenges in sectors such as business, government, and education but also significantly influences crucial decision-making and strategic planning (Lee, 2023).

AI technology is shaping a data-centric societal structure. Businesses optimize their models based on data, governments formulate policies grounded in data-driven decisions, and the education sector actively utilizes data to enhance learning experiences (Park et al., 2021). Consequently, there is a growing demand for education in data analysis and AI technology. Moreover, AI is being employed in automation, predictive analysis, pattern recognition, and decision-making within businesses and institutions. This has led to a need for professionals with AI-related skills and the ability to derive insights through data analysis for effective problem-solving. In the healthcare sector, for instance, patient data is analyzed to predict diseases early, and in manufacturing, production data is optimized to increase efficiency, showcasing various practical applications. To address this, education needs to equip students with the skills to understand and apply data analysis and AI technology actively used in real-world industries. In the future job market, expertise in data analysis and AI is expected to provide a significant competitive advantage. The ability of students to collect, analyze data and solve problems based on it will be highly valued in the industry (Park, 2023).

Particularly for business major students, AI literacy education is crucial to enhancing competitiveness and professionalism in the modern business environment (Oh et al., 2015). AI literacy education provides students with the ability to collect and analyze data to develop and execute business strategies. Through this, students majoring in business

management can contribute to developing efficient and effective strategies, securing a competitive edge for the company.

Ⅲ. Research Methods

3.1. Research Model

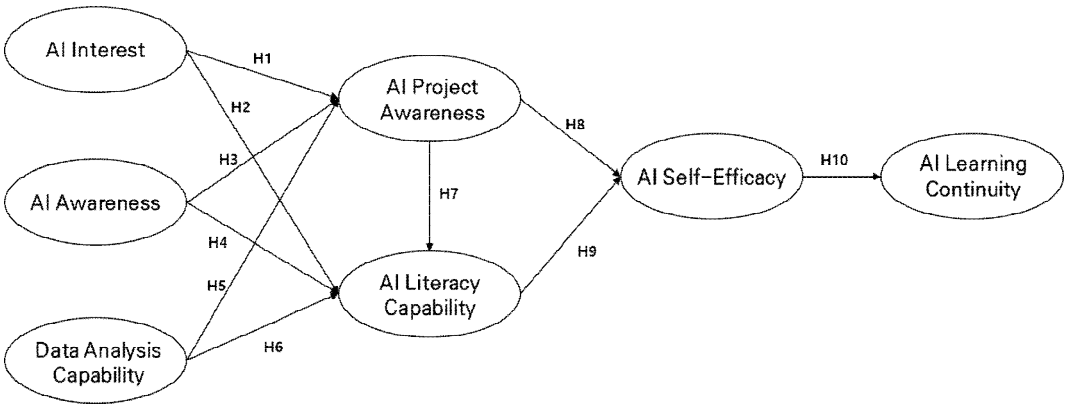
The rapid development of AI in modern society is bringing revolutionary changes to various fields, including industry, economy, and education. Particularly, AI education for business majors is essential for them to successfully adapt and play innovative roles in the future business environment. In this context, this paper aims to establish a foundation for enhancing AI integration capabilities through AI education. To achieve this, the study selects AI Learning Continuity as an Endogenous Variable, considering the judgment that a sustained intention for AI education is necessary. Additionally, based on previous research findings, key variables influencing AI Learning Continuity are set as AI Interest, AI Awareness, Data Analysis Capability, AI Project Awareness, AI Literacy Capability, and AI Self-Efficacy.

The hypothetical research model of this study is depicted in <Figure. 1>.

3.2. Research Hypothesis

3.2.1 AI Project Awareness

In this study, AI Project Awareness is defined as the learner's perception of each phase of an AI project, focusing on whether they can gain a positive understanding and motivation for AI learning (Lee, 2020). AI Project Awareness involves taking the initiative in learning, actively choosing the specific direction and depth of learning, and producing concrete and visible outcomes for the selected problems (Han, 2020). Previous



<Figure. 1> Hypothetical Research Model

research suggests that learning AI application cases, practical AI project exercises, self-directed problem definition, generating problem-solving ideas using AI, AI implementation skills, and sharing activities in AI projects have a positive impact on AI Project Awareness (Lee, 2020).

AI Interest is considered a crucial learner characteristic that influences the process and outcomes of learning. Particularly for students encountering AI for the first time, recognizing and directly engaging in AI projects based on interest is essential. Therefore, AI Interest positively influences AI Project Awareness since it can provide motivation for in-depth learning about AI and performing various projects (Lee and Han, 2020).

Positive perceptions of AI generated through educational programs that enhance understanding of AI concepts and the ability to explore and solve AI-related problems contribute to the overall improvement of AI Project Awareness (Lee, 2020). Additionally, a study conducted on prospective high school science teachers, assessing AI Awareness-related exams before and after AI-based project activities, revealed that AI Awareness had a positive impact on enhancing AI Project Awareness (Yoon et al., 2023).

Data analysis skills, such as analyzing text and image data and training AI models, increase AI Project Awareness by enhancing the recognition of AI cases and practical AI project exercises (Han, 2020). Moreover, the process of identifying and solving AI-related problems in the surrounding and major-related areas using AI can elevate the Awareness of the value of AI projects (Back and Park, 2020).

Therefore, the following hypotheses can be formulated:

H1 For participants in AI education, AI Interest will have a positive (+) impact on AI Project Awareness.

H2 For participants in AI education, AI Awareness will have a positive (+) impact on AI Project Awareness.

H3 For participants in AI education, Data Analysis Capability will have a positive (+) impact on AI Project Awareness.

3.2.2 AI Literacy Capability

In this study, AI Literacy Capability refers to the ability to comprehend basic concepts and principles related to AI, utilize AI tools in daily life, academia, or work effectively to solve problems, and understand and apply data and AI technology for producing results. It encompasses skills such as information gathering for AI application, interpreting data analysis results, understanding and utilizing AI, recognizing the societal impact of AI, adapting to changes caused by AI technology, and having awareness of AI ethics and copyrights. Ongoing discussions focus on what should be taught to students to develop AI Literacy Capability effectively (Lee and Han, 2020).

As the growth of the software industry has increased the necessity of software utilization, literacy education in the field of computer education has become more active (Kim et al., 2020). Recently, by integrating factors related to theories and applications of AI into teaching methods, discussions on teaching AI Literacy Capability have become more specific (Ju and Kim, 2023). Ultimately, students interested in AI show positive responses to AI Literacy, especially expressing strong interest in communication activities in activities with clear objectives and topics (Ju and Kim, 2023).

Awareness of AI technology positively influences attitudes toward AI and has a positive impact on AI Literacy (Jang and Ahn, 2019). Jang and Ahn (2019) indicated that perceptions of AI class utilization positively influenced the understanding of specific characteristics, self-expression, and the level of ethics and norms in AI Literacy. Additionally, they found that self-efficacy acted as a mediating variable in the relationship between AI Awareness and AI technological literacy. Jung (2022) divided AI Literacy into four areas: computing competency, understanding AI principles, practical AI skills, and critical thinking about AI. He demonstrated a positive relationship between AI awareness and these areas, suggesting that an increase in AI awareness leads to higher AI literacy.

The content structure of AI education in primary and secondary schools consists of understanding AI, AI and data, AI algorithms, AI applications, and the societal impact of AI. This implies that data analysis skills, including AI, are essential for enhancing AI Literacy Capability (Kim and Kim, 2021). The proposed next-generation software standard education model suggests incorporating the ‘AI and convergence’ domain into the curriculum, covering basic concepts of data science and AI, as well as content in the field of robotics for future primary, middle, and high school information science education (Kim et al., 2020). This also indicates that data science, including data analysis, has a positive impact on AI Literacy Capability.

Therefore, the following hypotheses can be formulated:

H4 For participants in AI education, AI Interest will have a positive (+) impact on AI Literacy Capability.

H5 For participants in AI education, AI Awareness will have a positive (+) impact on AI Literacy Capability.

H6 AI For participants in AI education, Data Analysis Capability will have a positive (+) impact on AI Literacy Capability.

3.2.3 AI Project Awareness, AI Literacy Capability and AI Self-Efficacy

Self-Efficacy is a belief in one's ability to successfully perform tasks, influencing the choices individuals make and their persistence in actions. Project-based learning not only

enhances learning outcomes but also fosters a positive attitude toward learning. Experiencing practical problem-solving using AI in project-based learning has been reported to positively affect AI Self-Efficacy (Lee, 2020; Han, 2020). Additionally, enhancing AI literacy contributes to building the foundation for individuals to develop confidence in problem-solving and sustainability (Ko, 2022; Jung, 2022).

While there was no statistically significant difference in learning immersion between the experimental group, which applied learning methods for AI Project Awareness, and the control group that only conducted theory and practice, the experimental group showed a significant improvement in AI Self-Efficacy compared to the control group (Lee, 2022). AI project-based courses on AI platforms explore and utilize AI technology to increase AI Project Awareness, fostering AI literacy by contemplating the dual aspects and ethical considerations of AI in an integrated society (Ahn, 2023).

AI Self-Efficacy significantly increases through hands-on experiences with actual projects, emphasizing the importance of elevating AI Self-Efficacy through AI Project Awareness (Lee and Han, 2020). Another study suggests that when appropriate levels of prototyping tasks are presented in project learning, AI Project Awareness positively enhances students' academic AI Self-Efficacy (Cha and Kim, 2020).

The content elements derived for AI Literacy Capability, including understanding AI principles, practical AI skills, and critical thinking about AI, combined with an AI Literacy Capability instructional model, demonstrated effectiveness in enhancing students' AI Self-Efficacy (Jung, 2022). AI Self-Efficacy implies high confidence in the ability to achieve competence in performing AI-related projects when AI Self-Efficacy is high, indicating a high level of AI Literacy Capability (Ko, 2022).

Therefore, the following hypotheses can be formulated:

H7 For participants in AI education, AI Project Awareness will positively (+) influence AI Literacy.

H8 For participants in AI education, AI Project Awareness will positively (+) influence AI Self-Efficacy.

H9 For participants in AI education, AI Literacy Capability will positively (+) influence AI Self-Efficacy.

3.2.4 AI Self-Efficacy and AI Learning Continuity

Individuals with high Self-Efficacy tend to believe in their abilities, exert more effort, and persist in learning for extended periods when faced with challenging tasks. Learning continuity refers to the willingness and emotional state of learners to sustain their current participation in an educational program,

and students with a high intention for learning continuity show a tendency to continue learning even after completing the current educational program (Lee, 2011). Therefore, recognizing the importance of AI Self-Efficacy in enhancing learning continuity related to AI is crucial, positioning AI Learning Continuity as a significant outcome variable in AI education programs (Song, 2018; Lee, 2020).

To increase AI Learning Continuity, it can be stated that elevating AI-related Self-Efficacy, which has the most direct explanatory power, is the most effective approach (Song, 2018). Through educational programs that facilitate understanding AI concepts and exploring and solving AI problems, students can positively transform their perceptions, attitudes, and self-efficacy toward AI. This, in turn, instills a motivation for deeper AI learning in the future (Lee, 2020).

Therefore, the following hypothesis can be formulated:

H10 AI For participants in AI education, AI Self-Efficacy will positively (+) influence AI Learning Continuity.

3.3. Research Subject

The survey data were collected from business-related majors who enrolled in the AI course, a mandatory general education SW subject offered during the second semester of 2022 at University A in the Seoul metropolitan area. The survey was conducted online for one week after the completion of the 15th week of the semester. A survey was conducted targeting business majors who took the AI course as a required general education SW subject at University A in the Seoul metropolitan area. The number of valid cases in response to this research survey was 119. The gender distribution of respondents was 81 females (68.1%) and 38 males (31.9%). All respondents were first-year students. Regarding their experience with software education, 33 respondents (27.7%) had less than 6 months of experience, 32 respondents (26.9%) had 6 months to less than 1 year, 48 respondents (40.3%) had 1 year to less than 2 years, and 6 respondents (5.1%) had 2 years or more.

In terms of respondents' satisfaction with their current economic status, as reported in relation to their responses about the software they learned, the average level was 3.1 on a 1–5 point scale, with a standard deviation of 0.94. The current health status level was reported to be an average of 3.0 on the same scale, with a standard deviation of 0.92.

3.4. Measurement Tools

The conceptual constructs measured in this study were based on previous research with established reliability and validity, and they were adapted to fit the current study, as presented in <Table 1>. The degree of interest

in the important characteristic variables influencing the process and outcomes of learning, referred to as AI interest, was structured with three items (Moon et al., 2021; Park and Yi, 2021). Additionally, the perception of the value of AI for social development, termed AI Awareness, was composed of seven items (Kim et al., 2022; Kim et al., 2021). The ability to analyze and utilize data, encompassing data representation, classification, correlation analysis, pattern analysis, and the capability to utilize data, was represented by nine items (Lee, 2023; Lee, 2022). AI Projects Awareness, including problem identification and implementation skills, AI cases, and project execution abilities, were constructed with six items (Park, 2023; Lee, 2020). AI literacy Capability, covering foundational knowledge cultivation related to AI, ethical considerations including AI ethics, and the ability to utilize AI technology, was formulated with eight items (Ko, 2022; Baek and Park, 2021). Lastly, AI Self-Efficacy, signifying the belief in one's ability to discover problems solvable by AI and successfully accomplish given tasks, comprised five items (Song, 2021; Oh and Jang, 2021). The willingness and emotions indicating the learner's intention to sustain learning in the current AI education program, termed AI Learning Continuity, were structured with five items (Im and Lee, 2022; Lee and Han, 2020). Refer to Appendix <Table 6> for detailed measurement items.

<Table 1> Operational Definition of Variables, and Questi

Variable	Operational Definition	Num Que
AI Interest	The Level of Interest in AI	
AI Awareness	The Awareness Level of AI Values	
Data Analysis Capability	Data Analysis & Utilization Skills for Problem Solving	
AI Project Awareness	AI Project Value Awareness, Problem Identification, Implementation Skills, and AI Project Execution Abilities	
AI Literacy Capability	AI Ethics, Cultivation of AI Fundamentals, and Proficiency in AI Technology Utilization	
AI Self-Efficacy	Conviction in AI Problem-Solving Proficiency	
AI Learning Continuity	Motivation and Intentions to Sustain AI Learning	

Responses to all survey items were measured on a Likert 7-point scale ranging from ‘Not at all’ to ‘Very much so.’ A higher score from respondents indicated a higher perception of the measured items.

For the empirical analysis of this study, the statistical packages SPSS 28.0 and SmartPLS 4.0 were employed. Frequency analysis was conducted to examine the general characteristics of the sample. Subsequently, factor analysis using the Varimax orthogonal rotation method was employed to assess the validity of the measurement variables derived from the survey items. The reliability of the variables was evaluated using Cronbach's α coefficient.

Ⅳ. Results

4.1. Scale Validity and Reliability Analysis

The validation results, as presented in <Table 2>, indicate that the factor loading of measurement items for each factor in factor analysis exceeded 0.5, demonstrating sufficient validity of the measurement items. The reliability analysis revealed that the Cronbach's α coefficient exceeded the average criterion of 0.6, indicating that the items were internally consistent and could be used for analysis without any issues.

The discriminant validity of the measurement variables used in this study was assessed. To validate discriminant validity, the Average Variance Extracted (AVE) values for each latent factor were compared with the squared correlation coefficients between latent variables. Discriminant validity is considered to be established if the square root of the AVE values is greater than the corresponding correlation coefficients (Fornell and Larcker, 1981). According to <Table 3>, it was confirmed that discriminant validity was ensured for all variables as the square root of the AVE values was greater than the corresponding correlation coefficients.

<Table 2> Convergent validity and internal consistency reliability

Variable	Items	Factor loading	Cronbach's alpha
AI Interest	Int1	0.804	0.919
	Int2	0.944	
	Int3	0.923	
AI Awareness	Aware1	0.762	0.805
	Aware2	0.594	
	Aware3	0.555	
	Aware4	0.742	
	Aware5	0.550	
	Aware6	0.743	
	Aware7	0.513	
Data Analysis Capability	Analysis1	0.900	0.961
	Analysis2	0.903	
	Analysis3	0.950	
	Analysis4	0.943	
	Analysis5	0.747	
	Analysis6	0.734	
	Analysis7	0.766	
	Analysis8	0.859	
	Analysis9	0.848	
AI Project Awareness	Project1	0.842	0.950
	Project2	0.868	
	Project3	0.906	

	Project4	0.922	
	Project5	0.825	
	Project6	0.865	
AI Literacy Capability	Literacy1	0.890	0.914
	Literacy2	0.918	
	Literacy3	0.898	
	Literacy4	0.748	
	Literacy5	0.709	
	Literacy6	0.782	
	Literacy7	0.727	
	Literacy8	0.725	
AI Self-Efficacy	Efficacy1	0.801	0.907
	Efficacy2	0.772	
	Efficacy3	0.843	
	Efficacy4	0.823	
	Efficacy5	0.834	
AI Learning Continuity	Continuity1	0.557	0.703
	Continuity2	0.946	
	Continuity3	0.730	
	Continuity4	0.568	

Int: AI Interest, Aware: AI Awareness, Analysis: Data Analysis Capability
Project: AI Project Awareness, Literacy: AI Literacy Capability
Efficacy: AI Self-Efficacy, Continuity: AI Continuity

<Table 3> Correlation and Discriminant Validity of Study Variables

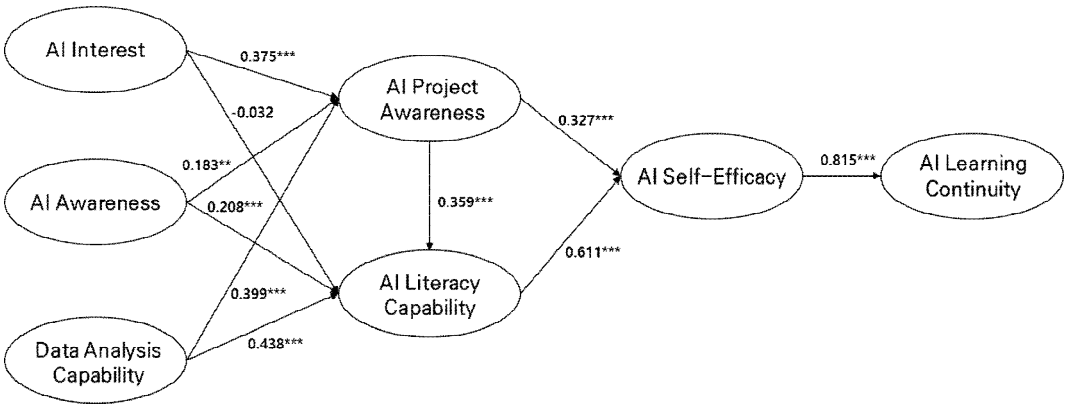
Variable	AI Awareness	AI Learning Continuity	AI Interest	AI Literacy Capability	AI Project Awareness	AI Self-Efficacy	Data Analysis Capability
AI Awareness	0.823						
AI Learning Continuity	0.791	0.939					
AI Interest	0.635	0.682	0.892				
AI Literacy Capability	0.817	0.858	0.583	0.946			
AI Project Awareness	0.739	0.865	0.717	0.831	0.872		
AI Self-efficacy	0.783	0.933	0.573	0.943	0.865	0.830	
Data Analysis Capability	0.735	0.801	0.524	0.856	0.734	0.821	0.854

4.2. Hypothesis Testing

The content of the structural model analysis is depicted in <Figure 2>, and the results are summarized in <Table 4>. AI Interest has a strong positive impact on AI Project Awareness (β=.375, t=4.219) but does not significantly influence AI Literacy Capacity (β=-.032, t=0.488). AI Awareness, in turn, is found to influence both AI Project Awareness (β=.183, t=2.189) and AI Literacy Capacity (β=.208, t=3.226). Additionally, Data Analysis Capacity has a significant impact on both AI Project Awareness (β=.399, t=4.060) and AI Literacy Capacity (β=.438, t=5.359).

AI Project Awareness is revealed to influence AI Literacy Capacity (β=.359, t=3.416). Furthermore, AI Project Awareness affects AI Self-Efficacy (β=.327, t=3.088), and AI Literacy Capacity also influences AI Self-Efficacy (β=.611, t=6.055).

Lastly, AI Self-Efficacy exhibits a strong positive influence on AI Learning Continuity (β=.815, t=27.574).



<Figure 2> Path Coefficient of SEM

<Table 4> Results of Hypothesis Test

Effects	Path coefficient	t value	p value	Support
Int → Project	0.375	4.219	0.000***	S
Int → Literacy	-0.032	0.488	0.654	NS
Aware → Project	0.183	2.189	0.029**	S
Aware → Literacy	0.208	3.226	0.001***	S
Analysis → Project	0.399	4.060	0.000***	S
Analysis → Literacy	0.438	5.359	0.000***	S
Project → Literacy	0.359	3.416	0.001***	S
Project → Efficacy	0.327	3.088	0.000***	S
Literacy → Efficacy	0.611	6.055	0.002***	S
Efficacy → Continuity	0.815	27.574	0.000***	S

Int: AI Interest, Aware: AI Awareness, Analysis: Data Analysis Capability Project: AI Project Awareness, Literacy: AI Literacy Capability Efficacy: AI Self-Efficacy, Continuity: AI Continuity
*** p < .01 ** p <.05 * p < .1

From the results of the statistical analysis, several implications can be derived. Firstly, for business major students to develop a sustained interest in AI, it is essential that their curiosity about AI, AI Awareness, and Data Analysis Capability influence their Awareness of AI projects. Furthermore, AI literacy Capacity should mediate the impact of AI Project Awareness on AI Self-Efficacy.

However, it is noteworthy that AI interest does not significantly affect AI Literacy Capacity. AI Interest, AI Awareness, and Data Analysis Capability positively influence AI Projects Awareness, but only AI Awareness

and Data Analysis Capability positively affect AI Literacy Capability. AI project Awareness positively influences both AI Literacy Capacity and AI Self-Efficacy.

These findings suggest that, in the context of AI education for business students, fostering AI Interest and enhancing Data Analysis Capability play crucial roles in shaping their Awareness and attitudes toward AI.

Ⅴ. Conclusions

This study investigated the continuous AI Learning Continuity of business major students regarding AI education. Recently, AI education has been introduced and implemented in many universities during the era of the Fourth Industrial Revolution, covering various educational aspects. However, most studies have been conducted from the general student perspective or from the viewpoint of students majoring in other fields. This study specifically defined and organized factors for business major students, incorporating a new variable related to Data Analysis Capability to suggest factors influencing AI Learning Continuity. Through this, new perspectives and insights were gained, and the relationships between various factors were analyzed to provide direction for education strategies and future research.

The academic significance of this study is as follows. Firstly, this study proposed a hypothetical model of the relationships among AI-related variables based on survey responses conducted after AI education to analyze factors influencing AI Learning Continuity. As a result, it was confirmed that students' AI Interest, AI Awareness, and Data Analysis Capability positively influence their AI Learning Continuity. Particularly, business major students showed a stronger motivation to continuously learn AI when they had high interest and perception related to handling actual data in their major. Secondly, the study revealed that students' AI project Awareness and AI Literacy Capability play crucial mediating roles in AI Learning Continuity. This suggests that students can enhance their learning intention by acquiring practical technical skills through projects and improving literacy capabilities. Lastly, AI Self-Efficacy had the most significant impact on students' AI Learning Continuity. The conclusion drawn was that students with confidence in their understanding and utilization of AI are more likely to learn AI continuously and apply it in the future. These research findings indicate the importance of AI education targeting business major students in promoting their understanding and engagement with future intelligent technologies. Additionally, educational institutions and educators should prioritize effective education methods by focusing on stimulating interest, project-based learning,

literacy enhancement, and self-efficacy reinforcement in AI education.

The practical significance of this study is as follows. Firstly, the result that practical AI project experience, not just theoretical knowledge, positively influences AI Learning Continuity emphasizes the need to strengthen practical-based training in designing AI education in educational institutions and companies. Therefore, educators should explore educational approaches that integrate such experiences to systematically convey practical knowledge to students. Secondly, the finding that enhancing students' AI Self-Efficacy contributes to continuous learning motivation underscores the importance of students building confidence in understanding and applying AI technology. Hence, educational institutions and companies should provide support and resources to enhance students' AI Self-Efficacy, thereby increasing learning motivation and enabling students to actively utilize AI in practice. Lastly, the result that an AI Literacy Capability enhancement program positively influences continuous learning emphasizes the importance of understanding and utilizing AI not only in academic terms but also in ethical and social aspects. Educational institutions and companies should support students in using AI technology appropriately and contributing to societal changes by integrating these aspects into AI education.

However, there are some limitations to this study. Firstly, the data collected for testing the structural equation model were not sufficient. The study surveyed students who experienced 15 weeks of AI education during a semester of a mandatory AI general education course for business majors. While the data collection was limited due to practical constraints, it was enough for conducting structural equation analysis but not ample for a more comprehensive analysis. Additionally, the study focused on students from a specific academic year. Since the research was based on a mandatory course, the participants were limited to students enrolled in that course, and factors related to different academic years or ages were not controlled. Future research should consider collecting data distributed across various academic years and ages according to the research purpose.

In conclusion, this study not only provides valuable insights into the factors influencing the continuous learning intention of business major students in AI education but also offers practical implications for educators, educational institutions, and policymakers. Furthermore, it is anticipated that the research will positively impact the career choices and professional development of students majoring in business. As we move forward, embracing these findings will not only empower business students with the essential skills for the future but will also contribute to the ongoing evolution of

educational strategies and policies, ensuring that AI literacy becomes a cornerstone in preparing students for active engagement in the modern socio-technological landscape.

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박 소 현 (Park, So Hyun)

단국대학교에서 소프트웨어공학을 전공하여 공학박사 학위를 취득하고, 현재 단국대학교 SW융합대학 소프트웨어학과 강의전담조교수로 재직하고 있다. 주요 관심 분야는 소프트웨어공학, 데이터분석, 인공지능, 컴퓨터 교육 등이다.

<Abstract>

A Study on Factors Influencing AI Learning Continuity: Focused on Business Major Students

Park, So Hyun

Purpose

This study aims to investigate factors that positively influence the continuous Artificial Intelligence(AI) Learning Continuity of business major students.

Design/methodology/approach

To evaluate the impact of AI education, a survey was conducted among 119 business-related majors who completed a software/AI course. Frequency analysis was employed to examine the general characteristics of the sample. Furthermore, factor analysis using Varimax rotation was conducted to validate the derived variables from the survey items, and Cronbach's α coefficient was used to measure the reliability of the variables.

Findings

Positive correlations were observed between business major students' AI Learning Continuity and their AI Interest, AI Awareness, and Data Analysis Capability related to their majors. Additionally, the study identified that AI Project Awareness and AI Literacy Capability play pivotal roles as mediators in fostering AI Learning Continuity. Students who acquired problem-solving skills and related technologies through AI Projects Awareness showed increased motivation for AI Learning Continuity. Lastly, AI Self-Efficacy significantly influences students' AI Learning Continuity.

Keyword: Artificial Intelligence, AI Education for Business Major, AI Literacy, Curriculum for Business major, AI Self-Efficacy, AI Learning Continuity, AI Awareness, AI Project

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<Appendix>

<Table 5> Measurement items by Variable

Variable	No	Measurement Items
AI Interest	Q1	I want to know about new AI-related products as soon as they are released.
	Q2	I am interested in AI.
	Q3	I want to know more about AI.
AI Awareness	Q1	I know what AI is.
	Q2	AI plays an important role in advancing our society.
	Q3	I think AI makes our lives more convenient.
	Q4	AI plays an important role in communication and collaboration among members of society.
	Q5	In the future, any job will require AI-related skills.
	Q6	I think learning AI as a liberal arts course is necessary.
	Q7	I think AI education helps in learning my major.
Data Analysis	Q1	I understand the meaning of data.
	Q2	I know the types of data and can understand their characteristics.
	Q3	Depending on the situation, I can choose methods to collect data.
	Q4	I can find keywords for problem-solving.
	Q5	I can classify data with the same attributes.
	Q6	I can identify relationships or patterns among classified data.
	Q7	I can understand the meaning of analyzed data.
	Q8	I understand the characteristics and pros and cons of various methods of representing data.
	Q9	I can represent data using various visualization tools.
AI Project	Q1	It was good to learn about cases where AI can be applied.
	Q2	It was good to actually practice AI projects.
	Q3	It was good to think about problems that can be solved with AI.
	Q4	It was good to implement the problems I thought of using AI.
	Q5	It was good to see AI programs created by other friends.
	Q6	I want to perform various AI projects in the future.
AI Literacy	Q1	I can collect information for using AI.
	Q2	I can interpret and read the results obtained through data analysis.
	Q3	I understand and can use AI.
	Q4	I understand how AI affects changes in society, culture, etc.
	Q5	I can imagine the changes in future society due to AI technology.
	Q6	I take appropriate measures for personal information protection.
	Q7	I use AI in a healthy manner in accordance with internet ethics.
	Q8	I know that AI is a creation and should be used without violating copyright.
AI Self-Efficacy	Q1	I can understand how AI is applied to our lives.
	Q2	I can understand the principles of how AI works.
	Q3	I can identify problems in our lives that can be solved with AI.
	Q4	I have confidence in solving simple problems using AI.
	Q5	I have confidence in analyzing and managing collected information.
AI Learning Continuity	Q1	My interest in AI has increased through AI classes.
	Q2	I am confident in logically explaining solutions to given problems.
	Q3	In the future, I want to study in-depth the principles and implementation methods of AI.
	Q4	In the future, I want to challenge complex and difficult AI problems.