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THE RELATIONSHIP BETWEEN ENTREPRENEURSHIP KNOWLEDGE AND ENTREPRENEURIAL INTENTION IN CHEMISTRY EDUCATION STUDENTS

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ABSTRACT

The high unemployment rate among college graduates indicates that higher education has not yet been fully successful in preparing graduates to be economically independent. One of the efforts undertaken by universities is through entrepreneurship education, which is expected to foster students' entrepreneurial intentions. This study aims to analyze the relationship between entrepreneurial knowledge and entrepreneurial intentions among Chemistry Education students at UIN Syarif Hidayatullah Jakarta, both those who have and those who have not taken entrepreneurship courses. The study employed a quantitative approach using a correlational method. Data were collected through a survey using a questionnaire administered to 78 students from the 2021–2025 cohorts, selected via proportional stratified random sampling. Data analysis was conducted using Spearman's rank correlation. The results indicate a positive and significant relationship between entrepreneurial knowledge and entrepreneurial intention, both among students who have taken the entrepreneurship course and those who have not, with a stronger relationship observed among students who have taken the course. These findings underscore the importance of formal entrepreneurship education in strengthening students' entrepreneurial intention, particularly within science-based programs.

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INTRODUCTION

The rising unemployment rate among university graduates reflects a growing misalignment between the higher education system and the demands of the labor market. Data from Statistics Indonesia (BPS) indicate that the total number of unemployed individuals in Indonesia as of August 2024 reached 7,465,599 people, with a significant upward trend observed among university graduates (Central Statistics Agency , 2025). This condition demonstrates that a university degree is no longer a guarantee of employment; graduates must be equipped with adaptive competencies and the ability to independently create opportunities.

This situation has driven a paradigm shift in higher education, moving from producing job seekers to cultivating job creators. Entrepreneurship education has been positioned as a strategic instrument for fostering graduates' economic self-reliance. However, its implementation has not yet been optimal, as instruction tends to be theoretical, lacking contextual relevance, and insufficiently integrated with students' disciplinary knowledge (Firmansyah & Roosmawarni , 2019; (Ratnawati et al., 2023). This issue is particularly relevant for Chemistry Education students, who inherently possess significant entrepreneurial potential in science-based ventures—ranging from natural cosmetic products to innovations in eco-friendly materials. Nevertheless, the majority of these students remain oriented toward conventional career paths and are deterred by concerns over business failure, limited capital, and low self-confidence.

Theoretically, entrepreneurial knowledge is believed to influence entrepreneurial intention. However, findings from prior studies have been inconsistent—some report a significant positive relationship, while others do not. This inconsistency is contextual in nature and is influenced by the characteristics of the research subjects and their academic backgrounds (Azizah & Kadeni , 2024); Nisa & Norida Canda Sakti, 2025). Furthermore, most prior studies have focused on students in economics and business programs, leaving the understanding of entrepreneurial intention among science students incomplete.

Based on these considerations, this study aims to analyze the relationship between entrepreneurial knowledge and entrepreneurial intention among Chemistry Education students, both those who have and those who have not enrolled in entrepreneurship courses. Theoretically, this study extends the scope of entrepreneurship research into the non-economics, science-based domain. Practically, the findings are expected to serve as a basis for redesigning entrepreneurship learning that is more contextually relevant and applicable, with the goal of producing graduates who are both professionally competent and economically self-reliant.

RESEARCH METHODOLOGY

This study employed a quantitative approach with a correlational research design, aimed at examining the relationship between entrepreneurial knowledge and entrepreneurial intention among Chemistry Education students at UIN Syarif Hidayatullah Jakarta. Primary data were obtained through a survey method using a Likert-scale questionnaire that had been tested for validity and reliability to measure both research variables.

The research subjects were students enrolled in the Chemistry Education Program at UIN Syarif Hidayatullah Jakarta from the 2021–2025 cohorts. The total sample consisted of 78 respondents: 37 students who had completed the entrepreneurship course and 41 students who had not. Samples were selected using proportional stratified random sampling. Data analysis was conducted in stages, beginning with descriptive statistical analysis and prerequisite testing, followed by Spearman Rank correlation analysis. This nonparametric technique was selected because the data were not entirely normally distributed and was deemed most appropriate for examining the direction and strength of the relationship between variables (Cresswell, 2016; Sugiyono , 2023).

RESULTS AND DISCUSSION

Results

Prior to further analysis, this study first presents a general description of students who had and had not taken the entrepreneurship course. The results of the descriptive statistical analysis are presented in Tables 1 and 2 below.

Table 1. General Descriptive Statistics of Students Who Have Completed the Entrepreneurship Course

Variable	N	Minimum	Maximum	Mean	SD
Entrepreneurial Knowledge	37	75	100	83.89	7.321
Entrepreneurial Intention		46	70	54.92	5.283

Based on the table above, for the entrepreneurial knowledge variable, the sample of students who had completed the entrepreneurship course consisted of 37 participants. The mean score for entrepreneurial knowledge was 83.89 with a standard deviation of 7.321. The minimum and maximum values for this variable were 75 and 100. For the entrepreneurial intention variable, the mean score was 54.92 with a standard deviation of 5.283, with minimum and maximum values of 46 and 70.

Table 2. General Descriptive Statistics of Students Who Have Not Yet Completed the Entrepreneurship Course

Variable	**N**	**Minimum**	**Maximum**	**Mean**	**SD**
Entrepreneurial Knowledge	41	20	75	48.17	16.984
Entrepreneurial Intention		14	47	27.39	8.669

Based on the table above, the sample of students who had not yet taken the entrepreneurship course consisted of 41 participants. The mean score for entrepreneurial knowledge was 48.17 with a standard deviation of 16.984, with minimum and maximum values of 20 and 75. For the entrepreneurial intention variable, the mean score was 27.39 with a standard deviation of 8.669, with minimum and maximum values of 14 and 47.

Hypothesis testing was subsequently conducted to determine whether a relationship exists between entrepreneurial knowledge and entrepreneurial intention. The analysis was performed using IBM SPSS Statistics 27. The results of the Spearman Rank correlation and coefficient of determination are presented in Table 3.

Table 3. Spearman Rank Correlation and Coefficient of Determination

Group	**r**	**r table**	**Percentage (%)**	**Category**
Students Who Have Completed the Entrepreneurship Course	0.571	0.325	32.60%	Moderately Strong
Students Who Have Not Yet Completed the Entrepreneurship Course	0.317	0.309	10.05%	Weak

Discussion

The results of this study indicate that there is a positive and significant relationship between entrepreneurial knowledge and entrepreneurial intention among Chemistry Education students, both among those who have completed the entrepreneurship course and those who have not. These findings affirm that the cognitive dimension—specifically entrepreneurial knowledge—plays an important role in the formation of entrepreneurial intention, although the strength of this relationship differs between the two groups of students.

Among students who had completed the entrepreneurship course, the relationship was categorized as moderately strong (r = 0.571), with entrepreneurial knowledge contributing 32.60% to entrepreneurial intention in this group. In contrast, among students who had not yet taken the course, the relationship was weak (r = 0.317), with entrepreneurial knowledge accounting for only 10.05% of entrepreneurial intention, while the remaining 89.95% was attributed to other factors such as self-efficacy, motivation, family environment, and social support (Saputri & Januarti, 2021). This difference suggests that the source and quality of entrepreneurial knowledge influence the strength of entrepreneurial intention.

The findings for students who had completed the entrepreneurship course are consistent with those of Kusumaningrum et al. (2022), Rahayu et al. (2021), and Azizah & Kadeni (2024), all of whom report a positive and significant effect of entrepreneurial knowledge on entrepreneurial intention. This convergence of results indicates that formal entrepreneurship instruction functions as a cognitive reinforcement mechanism capable of shaping students' attitudes, self-confidence, and readiness to view entrepreneurship as a realistic career option. In the context of Chemistry Education students, the entrepreneurship course not only introduces business concepts but also helps students connect their knowledge of chemistry with opportunities in applied science-based ventures, thereby channeling entrepreneurial intention in a more purposeful direction.

Conversely, the findings for students who had not yet taken the entrepreneurship course show a statistically significant but weak relationship. This indicates that entrepreneurial knowledge acquired through unstructured channels—such as the social environment, media, or informal experience—is insufficient to strongly foster entrepreneurial intention. This finding aligns with the results of Nisa & Norida Canda Sakti (2025) and Naparota & Bongcawel (2025), who similarly report that entrepreneurial knowledge does not always exert a strong influence on entrepreneurial intention. Ningsih et al. (2025) also report that the average entrepreneurial intention among students who had completed the entrepreneurship course was considerably higher than among those who had not. These differences in relationship strength demonstrate that the mere possession of knowledge is insufficient; it must be supported by systematic and contextual learning processes in order to shape entrepreneurial intention in a consistent and meaningful manner.

Conceptually, the findings of this study also extend prior research that has predominantly focused on vocational high school students in business programs or undergraduates in economics. This study demonstrates that Chemistry Education students—despite not having an economics background—exhibit a similar pattern of relationship between entrepreneurial knowledge and entrepreneurial intention. This indicates that entrepreneurship is cross-disciplinary in nature and holds strong relevance in science education, particularly in encouraging the application of chemical knowledge as a foundation for business innovation.

CONCLUSION

This study demonstrates that entrepreneurial knowledge has a positive and significant relationship with entrepreneurial intention among Chemistry Education students, both among those who have and those who have not completed the entrepreneurship course. However, the strength of this relationship is higher among students who have completed the course, affirming the important role of formal entrepreneurship education in strengthening entrepreneurial intention. These findings indicate that entrepreneurial knowledge acquired through structured instruction is more effective in shaping entrepreneurial intention than knowledge obtained informally, and have implications for higher education institutions to develop entrepreneurship learning that is more contextual and applied in nature.

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