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Integration and Impact of GenAI-Coursera in Philosophy-Based French Language Learning on Speaking Skills, Academic Resilience, Critical Thinking Competence, and Self-Evaluation

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Abstract. The purpose of this study was to investigate the impact of AI-Coursera technology integration in philosophy-based French language learning on critical thinking, self-evaluation, academic resilience, and speaking skills. A quasi-experimental method was used which involved 250 students divided into two groups: an experimental group and a control group. The experimental group received a philosophy-based French language learning intervention with AI-Coursera technology, while the control group received conventional French language learning. Data analysis used MANOVA, t-test, and effect test. The results showed that the integration of GenAI-Coursera in French language learning significantly improved speaking skills, academic resilience, critical thinking skills, and self-evaluation. Improved speaking skills were evident in the use of new language, fluency, and in-depth responses to philosophical questions. Critical thinking skills were enhanced, evident in the use of critical ideas and the reinforcement of French terminology. Academic resilience was enhanced, evident in the ability to resolve conflicts or problems during the learning process. Furthermore, self-evaluation skills were evident in the ability to assess and improve speaking skills. The improvement of all competencies occurs due to GenAI-Coursera's features (discourses, reflective phases, and feedback) and philosophy-based French language teaching principles. Therefore, the use of GenAI-Coursera technology in philosophy-based French language learning not only improves speaking skills but also higher-order thinking skills. This research implies that foreign language teaching requires learning design and the use of GenAI to improve higher-order thinking skills and foreign language competencies.

Keywords: GenAI-Coursera; philosophy-based French language learning; critical thinking skills; self-evaluation; academic resilience; speaking skills

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1. Introduction

Philosophy-based foreign language teaching is an innovative foreign language learning approach that encourages learners to engage in dialogue through the presentation of conceptual inquiry-based activities. This approach not only aims to improve French language skills but also enhances higher-order thinking and reasoning skills (Lundell et al., 2024; Wu & Liu, 2025). Philosophy-based foreign language teaching is considered a strong foundation for formulating philosophical inquiry and reasoning in foreign language learners. This approach encourages French learners to engage in negotiations related to everyday life topics (Howard & Oakes, 2024; Mirjam, 2024). The scope of this philosophy-based French teaching is quite broad and serves as a core strength in improving learners' French language skills, which are essential in their lives and includes emotional intelligence, empathy, compassion, balance, and critical thinking (Iqbal et al., 2025; Mekheimer, 2025). The use of the language facilitates the achievement of higher-order cognitive levels in foreign language learners.

Therefore, foreign language learning methods are needed that facilitate students' practice of higher-order thinking skills. One such method is exploratory discussions, which provide discussions to broaden participants' understanding through experimenting with new concepts and receiving feedback from the instructor and other learners (Chun et al., 2025; Javahery & Alpat, 2025). Exploratory discussions are a component of a philosophy-based foreign language learning approach and researchers believe they are more effective than organized talks or speeches.

Based on the concept of reflective inquiry, philosophical concepts in foreign language learning can enhance critical thinking skills. This approach adopts Socrates' philosophical inquiry (Huang & Wu, 2025; Sandu et al., 2024). Therefore, achieving French language learning goals requires an inquiry-based learning group that actively contributes to the process of constructing new knowledge through comprehensive discussions. These discussion topics relate to the learners' lives and are free-form (An, et al., 2025; Ursavaş et al., 2025).

Through philosophy-based French language learning, learners are encouraged to create and solve philosophical problems through a variety of scaffolding and input (GenAI-Coursera). To achieve French speaking competence and higher-order thinking, AI technology is essential with one of the most appropriate and effective technologies for foreign language learning being AI-Coursera (Wang, et al., 2025; Z. Zhou et al., 2025). The AI-Coursera feature utilizes the advanced GPT-4 model, aiming to provide necessary assistance and information to learners, considering accuracy and avoiding potential hallucinations. Coursera Coach is an integral part of Coursera's efforts to provide a more interactive and personalized learning experience (Benabbes et al., 2024; Monib et al., 2025).

Using artificial intelligence, this feature can provide appropriate and relevant answers related to the subjects or materials being studied by students. The integration of AI-Coursera technology and philosophy-based French language learning can build collaboration and improve higher-order thinking skills (Ferrara, 2024; Yao & Shao, 2024). Both components are believed to enhance social

understanding of fundamental life ideas, thereby improving reasoning in understanding problems. In the philosophy-based French language learning approach with the help of AI-Coursera, students are presented with various contexts related to their lives, such as conversation, dialogue, family, school, and various other places, and take on their roles in society.

Several previous studies confirm that higher-order thinking competencies in foreign language learning must be enhanced through various projects or inquiry activities (Ganguly et al., 2025; Zeivots et al., 2025). Assessment of higher-order thinking competencies is necessary in French language learning through AI-Coursera technology. Previous studies have shown that English learning based on GenAI-automated writing evaluation (AWE) can improve the quality of essay writing and writing competencies (Combrinck & Loubser, 2025; Mekheimer, 2025). Study has also confirmed that the use of GenAI-Synthesia technology and local culture can improve reading comprehension and cultural competencies of target language speakers (Jalambo et al., 2025; Weth & Wollschläger, 2020) as well as that higher-order thinking competencies contribute significantly to German language proficiency, making language learners more critical, creative, and future-oriented using German (Ågren et al., 2025; Paignon et al., 2021).

Other studies have revealed that writing competency evaluation using writerpreneur technology can comprehensively assess writing competency while also identifying the potential marketability of learners' writing (Álvarez et al., 2020; Lundell et al., 2024). This study differs from previous studies in its approach, technology, and targeted competencies. The novelty of this research lies in the use of AI-Coursera technology in foreign language classes and the use of a philosophy-based approach in French language learning. Furthermore, the targeted competencies are more complex, encompassing not only speaking skills but also critical thinking, self-evaluation, and academic resilience, all of which contribute to French speaking skills. Based on this explanation, the researchers formulated the following research questions:

- a) What is the impact of integrating GenAI-Coursera in philosophy-based French language learning on speaking skills and academic resilience?
- b) What is the impact of integrating GenAI-Coursera in philosophy-based French language learning on critical thinking and self-evaluation competencies?

2. Literature Review

2.1 Philosophy-Based Foreign Language Learning

Philosophy-based foreign language learning is an innovative second language teaching approach that integrates philosophical concepts and language teaching techniques (Erhardt et al., 2025; Turková et al., 2025). This language teaching approach is a complex system integrated with cultural, social, and philosophical elements (Bryan & Bryan, 2021; Calafato, 2025). In the context of this research, philosophy-based French language learning aims not only to improve linguistic proficiency in French but also to enhance critical thinking skills, cultural competence, and a comprehensive understanding of the philosophical foundations of French language use (Álvarez et al., 2020; Lundell et al., 2024). This approach emerged from the educational movement that promoted

comprehensive, inquiry-based learning and was initiated by Socrates, who encouraged discussion and critical inquiry in the learning process to facilitate learners' engagement in contemplative thinking (Li & Chiu, 2025; Mekheimer, 2025). The use of language plays a crucial role in philosophy because it can shape learners' perceptions of reality. Furthermore, the use of language in philosophy influences cognitive processes and serves as a medium for expressing complex concepts. Philosophers have argued that language is limited by the learner's material reality and serves as a strong foundation for shaping learners' perceptions.

Within the context of this philosophy-based foreign language teaching approach, French language learning focuses not only on language competence but also on the function of the language in various situational, ethical, and cultural contexts (Liu et al., 2025; Q. Zhou et al., 2025). This approach is based on constructivist theory because it focuses on activating knowledge through various experiential and interactive contexts. Constructivist theory aligns with modern language teaching because it encourages learners to actively participate in shaping their knowledge through social interaction and experience (Iqbal et al., 2025; Wu & Liu, 2025).

2.2 Using GenAI-Coursera in French Language Learning and Evaluation

GenAI-Coursera is one of the GenAIs used in foreign language learning. GenAI contains various materials in multimodal form such as text, images and videos that can be used to strengthen foreign language learning. The GenAI-Coursera feature utilizes the advanced GPT-4 model, aiming to provide necessary assistance and information to learners, considering accuracy and avoiding potential misunderstandings. Coursera Coach is an integral part of Coursera's efforts to provide a more interactive and personalized learning experience (Benabbes et al., 2024; Monib et al., 2025). Using artificial intelligence, this feature can provide appropriate and relevant answers related to the subjects or materials being studied by students. The integration of AI-Coursera technology and philosophy-based French language learning can build collaboration and improve higher-order thinking skills (Ferrara, 2024; Yao & Shao, 2024).

Both components are believed to enhance social understanding of fundamental life ideas, thereby improving reasoning in understanding problems. Various studies and theories from educational philosophy support the use of GenAI-Coursera technology in foreign language teaching. GenAI-assisted foreign language evaluation provides feedback and ample opportunities for interaction between learners and the material (Erhardt et al., 2025; Turková et al., 2025). Effective use of time creates a dynamic learning environment because errors can be immediately corrected. This short and effective correction is a key advantage of AI technology and is reinforced by previous studies showing that AI applications can reduce test anxiety and negative emotions (An, et al., 2025; Ursavaş et al., 2025).

Furthermore, sociocultural theory supports the use of technology in evaluation and the learning process and views social contact as crucial in the learning process. The use of GenAI technology increases opportunities for participation and collaborative evaluation, thereby improving the quality of learner practice

and fostering mutual support in language development (Benabbes et al., n.d.; Yao & Shao, 2024). The principle of adaptive learning is used in technology-assisted language learning to adapt to learner assessment needs and study has confirmed that the use of GenAI-Coursera technology can significantly improve foreign language competency. The use of GenAI in the process can address differences in background, increase motivation, and enhance learner learning styles (Combrinck & Loubser, 2025; Weth & Wollschläger, 2020). It has also been demonstrated that an adaptive learning environment supported by GenAI-Coursera technology can increase the frequency of learner participation and academic achievement through personalized learning (Huang & Wu, 2025; Sandu et al., 2024). This aligns with the goal of using GenAI-Coursera in foreign language learning interventions and evaluations.

2.3 Critical Thinking Skills in Foreign Language Learning (French)

Critical thinking competency is an enigmatic concept and consists of the deliberate evaluation of hypotheses and routine assumptions to reach practical conclusions (Kim et al., 2025; Li et al., 2025). Critical thinking is a high-level reasoning skill, such as evaluation, synthesis, and analysis while other experts argue that it entails the use of cognitive competencies and mental processes to create expected behavior (Rouvrais et al., 2011, 2020). Furthermore, another definition of critical thinking is as a rigorous intellectual procedure in conceptualizing, synthesizing, and evaluating information from observation and reflection (Brinkmann & Brinkmann, 2025; Lundell et al., 2024). Previous studies confirm that critical thinking competencies consist of several components, including disposition, ability, and knowledge (Álvarez et al., 2020; Howard & Oakes, 2024). Reflective and cognitive competencies must be able to replace conventional, superficial methods.

Therefore, teachers must be able to improve critical thinking competencies in foreign language teaching. Observations on the function of critical thinking and problem-based learning in previous studies revealed that teachers emphasized that critical thinking competencies must be integrated into foreign language teaching (Chared et al., 2025; Xu et al., 2025). Furthermore, other studies also confirm that self-regulation and critical thinking influence the teaching methods used by teachers (Lv et al., 2025; Melzer et al., 2025). Several previous studies have also proven that critical thinking competencies contribute significantly to learners' achievement of foreign language learning competencies (Mekheimer, 2025; Q. Zhou et al., 2025).

2.4 Self-Evaluation Competence in Foreign Language Learning (French)

Self-evaluation competence is the ability to assess one's overall competence, behavior, perspective, and efficacy. This concept describes the characteristics of higher-order competence related to self-confidence, self-awareness, and individual responsibility for one's own competence (Javahery & Alpat, 2025; Ka et al., 2025). Based on previous studies, self-evaluation competence is an indicator of one's beliefs about how one acquires knowledge (Kohen-vacs et al., 2025; Turková et al., 2025). Learning engagement in the language learning process is related to self-evaluation, and this relationship contributes to maintaining a positive attitude when facing difficulties during the language learning process.

Therefore, learners can avoid the risk of encountering academic difficulties through consistent self-evaluation competence and sensitivity to their learning progress (Kim et al., 2025; Li et al., 2025). Research has also confirmed that self-evaluation competence is positively correlated with emotional control; coping mechanisms contribute significantly to stress resilience and self-evaluation competence in language learning (Lv et al., 2025; Melzer et al., 2025). Language learners' participation in self-evaluation is crucial in predicting students' resilience and autonomy in language learning and study has confirmed that self-evaluation and reflection competence can predict happiness in the learning process (Essien et al., 2024; Mohammed & Khalid, 2025). Self-evaluation and higher-order cognitive abilities are precursors to enjoyment and participation in learning. Furthermore, other studies confirm that higher-order thinking skills and self-evaluation also contribute significantly and positively impact the academic health, resilience, and awareness levels of Dutch language learners (Kohen-vacs et al., 2025; Turková et al., 2025).

2.5 Academic Resilience in Foreign Language Learning (French)

Another component of this study's competency focus is academic resilience. This is multidimensional, meaning many factors significantly influence its development and formation, such as problem-solving skills, character, emotional state, and personality (Ursavaş et al., 2025; Yu, et al., 2025). Academic resilience helps language learners overcome depression and anxiety that arise during the learning process. Resilience is also defined as the rapid recovery from difficulties experienced and is known as the integration of individual competencies to survive and thrive in challenging conditions (Pikhart & Klimova, 2025; Z. Zhou et al., 2025). Seven competencies contribute to learner resilience: emotion regulation, impulse management, causal analysis, optimism, self-confidence, and problem-solving skills.

Previous studies have shown a significant correlation between resilience and academic achievement and learners with high resilience are considered more effective in achieving good academic performance (Benabbes et al., n.d.; Monib et al., 2025). Furthermore, other studies have revealed that resilience and openness can predict anxiety in learning a foreign language, and resilience can reduce language learning anxiety (Ganguly et al., 2025; Zeivots et al., 2025). Research has also confirmed that resilience is significantly correlated with persistence, empathy, and self-regulation in learning English showing that students with high resilience demonstrate positive perceptions of their performance in foreign language exams (Huang & Wu, 2025; Sandu et al., 2024).

3. Methodology

3.1 Design and Participants

This study used a quasi-experimental method with a pretest and posttest design to investigate the impact of GenAI-Coursera integration in philosophy-based French language learning on speaking ability, academic resilience, critical thinking ability, and self-evaluation. The study involved 250 French language education students in their second-seventh semester, aged 19-22 at college level. Participants were 45% male and 55% female and were divided into two groups: an experimental group and a control group. The experimental group received a

philosophy-based French language learning intervention with the assistance of AI-Coursera technology and an evaluation, while the control group received conventional French language learning with a paper-based evaluation. This French language course was designed for students with intermediate French proficiency. In the first phase, all participants took a pretest to determine their initial abilities before entering the intervention phase. The course was designed for 15 sessions, conducted over the course of one semester. All participants completed a consent form, ensuring that participation was voluntary.

3.2 Research Instruments

Several instruments were used in this study, including French language proficiency assessment, critical thinking skills assessment, self-assessment, and academic resilience. French language proficiency was assessed using the TEF (Test d'Évaluation de Français). The TEF has three criteria: a score range of 0.1-0.3 indicates a low level of proficiency, and a score of 0.4-0.6 indicates an intermediate level. The TEF instrument met the reliability coefficient criteria with a value of 0.876. Next, students' critical thinking abilities were assessed using indicators on the Watson–Glaser Critical Thinking Appraisal (WGC) scale (Kim et al., 2025).

This critical thinking scale consists of five aspects: 17 items for inference, 15 items for deduction, 17 items for interpretation, and 17 items for evaluation. The critical thinking ability measurement scale met reliability criteria, with an adequate Cronbach's alpha coefficient of 0.869. The next instrument was a self-assessment questionnaire adapted from Ågren et al. (2025). This questionnaire consists of 14 items using a 5-point Likert scale. The self-evaluation score ranged from 10 to 60 with high scores indicating a high level of self-assessment, while low scores indicated a declining or low level of self-evaluation.

This instrument met reliability criteria, with a Cronbach's alpha coefficient of 0.784, indicating that the reliability level met the criteria for use. The next instrument for assessing academic resilience used the academic resilience scale adapted from Kim and Kim (2016). The scale consists of 25 items with six components, each with a 5-point Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree). The components included in the academic resilience scale are perceived enjoyment, empathy, social skills, self-regulation, perseverance, and self-control. The analysis results showed that the dependability index of the academic resilience measurement instrument scale was 0.823. Academic resilience was assessed by two psychometricians and three French language instructors to evaluate the quality of the items. Several components were then modified based on the feedback received. The academic resilience scale was tested for reliability through direct empirical testing on 40 representative students and results showed a significant Pearson correlation coefficient based on the results of the statistical analysis with a retest ($r = 0.841$).

3.3 Research Procedure

In the first phase, all participants took a pretest to determine their initial abilities before entering the intervention phase. A total of 250 students studying French at the secondary level participated in the intervention. The students were divided into two equal groups. The experimental group received an intervention designed

based on philosophy-based French language instruction integrated with GenAI-Coursera. The philosophy-based French language instruction design integrated with GenAI-Coursera is presented in Table 1. The control group received a conventional French language instruction intervention. The experimental group followed all instructional instructions presented in Table 1 for 15 teaching units. The intervention was conducted three times a week, with each session lasting three hours. In the final phase, a posttest was conducted to assess the same competencies as in the pretest phase: French speaking ability, critical thinking skills, self-evaluation, and academic resilience. All competencies were assessed in the posttest phase by four French language instructors during the pretest and posttest phases. The stages of the philosophy-based French language instruction design integrated with GenAI-Coursera are presented in Table 1 below.

Table 1: Stages of French language teaching based on philosophy integrated with GenAI-Coursera

Steps	Description
1	The instructor presents material for the French debate session through various media such as video, text, and images via GenAI-Coursera as discussion material.
2	The teacher presents short philosophical questions that are able to encourage critical thinking in French language learners as debate material.
3	Learners are divided into several groups by taking the pros and cons of the given topic.
4	Learners discuss with their group members and explore GenAI-Coursera as a reference for finding alternative answers.
5	Learners are given the opportunity to reflect on the pro or con roles and study as many references as possible from GenAI-Coursera.
6	The debate sessions were conducted and recorded using GenAI-Coursera to assess the students' speaking skills. Throughout the process, GenAI-Coursera also provided feedback on the students' speech and utterances during the debate practice.
7	During the debate, the instructor's role is to facilitate, monitor, and assist students if they have difficulty expressing their ideas. The instructor also notes vocabulary and key points that need to be discussed.
8	Teachers and learners discuss together the linguistic aspects of the feedback from GenAI-Coursera and the teacher's personal notes based on the philosophical discourse raised.

3.4 Data Analysis

Several data analyses were used in this study, including one-way MANOVA, sample t-test, and generic linear model analysis. The MANOVA test was conducted to investigate the impact of GenAI-Coursera integration in philosophy-based French language teaching on speaking skills, academic resilience, critical thinking competencies, and self-evaluation. It explored analysis of variance and regression of the independent variables against the dependent variable. Furthermore, generic linear model analysis was used to test the hypothesis of the impact of the factor variables on the dependent variable in each group. Prerequisite tests were also conducted before the MANOVA test, namely tests for normality, linearity, and homogeneity of regression.

4. Result

Data analysis of the pretest scores for both groups was conducted using an independent sample t-test. The results for the four competencies are presented in Table 2. Furthermore, to investigate the significance of differences between groups, the p-values were analyzed in the Sig. column. The results of the analysis of significant differences in the pretest phase are presented in Table 3. The results show no significant differences in the four competencies (speaking ability, academic resilience, critical thinking ability, and self-evaluation) of the two groups in the pretest phase with a value ($p > 0.05$). Therefore, it can be concluded that speaking ability, academic resilience, critical thinking ability, and self-evaluation in French learning in both groups are at equivalent levels.

Table 2: Descriptive analysis of the four competencies of the two groups in the pretest phase

Pretest	Groups	N	Mean	Std. deviation	Std. error mean
Critical Thinking	Experiment	125	32.78	8.20	1.25
	Control	125	32.64	8.56	1.18
Self-Evaluation	Experiment	125	29.45	9.48	1.42
	Control	125	29.16	11.24	1.62
Academic Resilience	Experiment	125	35.25	70.42	11.62
	Control	125	34.36	24.21	4.85
Speaking Skills	Experiment	125	32.68	8.83	1.35
	Control	125	31.92	9.25	1.42

Table 3: Results of the independent sample t-test comparing the scores of the four competencies

		Levene's test for equality of variances		t-test for equality of means				
		F	Sig	t	df	Sig. (2-tailed)	Mean difference	Std. error Difference
Critical Thinking	Equal variances assumed	0.52	0.58	- 0.38	82	0.820	- 0.61	1.73
	Equal variances not assumed			- 0.38	79.68	0.821	- 0.61	1.72
Self-Evaluation	Equal variances assumed	3.05	0.17	- 0.37	80	0.832	- 0.83	3.08
	Equal variances not assumed			- 0.42	79.10	0.836	- 0.84	3.10

Academic Resilience	Equal variances assumed	0.38	0.54	- 0.43	80	0.724	- 5.51	12.20
	Equal variances not assumed			- 0.40	50.63	0.784	- 5.50	12.42
Speaking Skills	Equal variances assumed	0.85	0.42	- 1.62	82	0.132	- 3.79	1.92
	Equal variances not assumed			- 1.62	81.32	0.14	- 3.81	1.93

Based on the results of the t-test analysis in Table 2, it was found that the intervention integrating GenAI-Coursera in philosophy-based French language learning improved four competencies: speaking ability, academic resilience, critical thinking skills, and self-evaluation. The competency with the most significant improvement from the intervention was critical thinking skills. To investigate the differences in each competency in detail, an AMNOVA test was conducted. Next, to investigate differences in speaking ability, academic resilience, critical thinking skills, and self-evaluation in French language learning during the posttest phase, a one-way MANOVA test was conducted.

Prior to the MANOVA test, all prerequisite tests, such as normality, sample size, outliers, linearity, and homogeneity of regression, had been conducted and met the criteria for the MANOVA test. The results of the descriptive statistical analysis and MANOVA test for the four French language learning competencies are presented in Tables 4 and 5. Table 4 presents the difference in mean scores for the four competencies in the two posttest phase groups and Table 5 presents the results of the MANOVA test comparing the four competencies in the posttest phase.

Table 4: Descriptive analysis comparing the four competencies in the two posttest phase groups

Posttest	Groups	Mean	Std. deviation	N
Critical Thinking	Experiment	73.52	11.82	125
	Control	42.68	8.36	125
	Total	62.50	16.39	250
Self-Evaluation	Experiment	62.83	9.68	125
	Control	38.78	8.35	125
	Total	54.36	11.60	250
Academic Resilience	Experiment	117.82	13.15	125
	Control	96.58	22.68	125
	Total	108.68	24.52	250
Speaking Skills	Experiment	62.14	12.45	125
	Control	58.68	16.56	125

Total	56.74	18.42	250
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Table 5: Results of the MANOVA test comparing the two groups on the four competencies in the posttest phase

	Value	<i>F</i>	Hypothesis <i>df</i>	Error <i>df</i>	<i>Sig</i>	Partial eta squared
Pillai's trace	0.72	52.64	4.05	78.05	.00	0.72
Wilk's lambda	0.32	52.64	4.05	78.05	.00	0.72
Hotelling's trace	3.30	52.64	4.05	78.05	.00	0.72
Roy's largest root	3.31	52.64	4.05	78.05	.00	0.72

The results of the posttest analysis showed that the experimental group's speaking ability, academic resilience, critical thinking ability, and self-evaluation in French language learning had higher scores than the control group. Furthermore, to investigate whether the differences were significant or not, a Wilk's Lambda test was conducted, and the results showed a value of 0.00. This value is lower than the 0.05 significance level, which means that the four competencies of the experimental group showed significant differences in the posttest phase. To see the significant differences between the two groups in all competencies, Table 6 presents the inter-subject effect test. A more stringent significance level analysis was carried out to anticipate errors. Anticipation was carried out with a Bonferroni adjustment by dividing the significance level by the number of analyses.

In this study, there were four independent variables so that a new division of four significance levels was carried out with a value of 0.012. If the probability value (*Sig.*) is less than 0.012, the difference in scores between the two groups is significant. The analysis results showed that all p-values for the four competencies—speaking ability, academic resilience, critical thinking ability, and self-evaluation—were less than 0.012, thus concluding that the differences in competency scores between the two groups were significant. The experimental group demonstrated greater improvement in scores across all four competencies than the control group in the posttest phase.

Table 6: Results of the French language inter-competency effect test, posttest phase

Dependent Variables Posttest	Type 3 sum of squares	<i>df</i>	Mean square	<i>F</i>	<i>Sig</i>	Partial eta squared
Critical Thinking	15,425.52	1	15,425.52	135.46	.00	0.73
Self-Evaluation	1845.46	1	1845.46	22.86	.00	0.24
Academic Resilience	9646.02	1	9646.02	28.73	.00	0.32
Speaking Skills	106.34	1	106.34	0.562	0.610	.00

5. Discussion

This study aimed to investigate the impact of integrating GenAI-Coursera into philosophy-based French language learning on speaking skills, academic resilience, critical thinking skills, and self-evaluation. The intervention in the

experimental group proved effective in significantly improving all four competencies: speaking skills, academic resilience, critical thinking skills, and self-evaluation compared to the control group. Improved speaking skills were evident in the use of new vocabulary, fluency, and in-depth responses to philosophical questions. This improvement occurred because students received unlimited resources through GenAI-Coursera to engage in debates on the topic. Materials in various formats, such as text, video, and images, strengthened learners' schemata for French language acquisition and knowledge of the debate topics.

This finding aligns with the theory that media or scaffolds that present material in a broad range of formats will increase the chances of improving learner comprehension compared to scaffolds presented in a single mode (Monib et al., 2025; Yao & Shao, 2024). This finding also supports previous studies showing that the use of GenAI-synthesia can improve Japanese learners' speaking skills. Furthermore, the use of GenAI-ChatGPT technology can improve English learners' speaking skills (Ganguly et al., 2025; Huang & Wu, 2025). Therefore, it can be concluded that the use of GenAI technology contributes significantly to second or foreign language competency when integrated into appropriate instructional design.

The intervention of using GenAI-Coursera in a philosophy-based French language learning design can also improve students' critical thinking skills. This improvement during the French language learning process occurs because the philosophical questions in the instructional design encourage critical thinking skills, driving learners to seek critical ideas regarding questions and increase their knowledge of French concepts and terms, which can strengthen their critical thinking. This finding aligns with the theory that in-depth and comprehensive questions will encourage critical answers to given problems (Mekheimer, 2025; Sandu et al., 2024). This critical thinking ability is also encouraged because students must assume different roles as pro and con parties to a problem topic.

This finding aligns with the theory that language learners' critical thinking skills are strongly influenced by their roles and participation during the learning process (Counter, 2022; Jalambo et al., 2025). These findings indicate that a French language learning design based on philosophy and integrated with technology can improve students' higher-order thinking skills, namely their critical thinking skills. These findings are also supported by previous studies that revealed that instructional design, the use of technology, and active student participation will train critical thinking skills in foreign language learners (Lundell et al., 2024; Rouvrais et al., 2020). Other studies also confirm that critical thinking skills in foreign language learning must be improved because learners will gain foreign language knowledge appropriate to their context (Howard & Oakes, 2024; Staples & Staples, 2025).

The next finding is that the GenAI-Coursera integration intervention in philosophy-based French language learning can improve academic resilience. This occurs because the French language instructional design facilitates learners in planning, implementing, and evaluating their learning process, enabling them to resolve conflicts or problems during the learning process. Furthermore,

academic resilience also increases due to improved critical thinking and other higher-order thinking skills. This is supported by previous studies showing that higher-order thinking skills contribute significantly to the mental and psychological health of language learners (Li & Chiu, 2025; Xu et al., 2025). This improvement in academic resilience also occurs due to the inclusion of a reflection phase in the French language instructional design, which significantly contributes to learner resilience. This finding is further supported by previous studies showing that the reflection phase in the learning process helps learners reflect on their learning outcomes and thus overcome learning challenges (Routledge, 2025; Q. Zhou et al., 2025). This directly contributes to the academic resilience of language learners.

The next finding is that the GenAI-Coursera integration intervention in philosophy-based French language learning can improve self-evaluation skills. GenAI-Coursera, which presents material and evaluations autonomously, can increase awareness, positive attitudes, and autonomy in language learners. This self-evaluation competency is trained through a reflection phase to provide students with the opportunity to reflect on their roles and ideas they will present during French debate practice sessions. Furthermore, in the final stage, language learners are given the opportunity to assess their speaking skills based on recordings of the debate sessions via GenAI-Coursera. These findings align with previous studies that revealed that instructional designs that provide learners with opportunities to assess their own abilities can improve self-evaluation competency (Iqbal et al., 2025; Wu & Liu, 2025).

Furthermore, self-evaluation and critical thinking competencies also contribute significantly to the interest and motivation of French learners (Javahery & Alpat, 2025; Ka et al., 2025). This finding is reinforced by previous studies that revealed that self-evaluation competency contributes significantly to self-control and self-confidence, thus motivating learners. This emerged from the reflection phase of the foreign language learning process (Crompton & Burke, 2024; Tang & Putra, 2025).

6. Conclusion, Implications, and Recommendations

The integration of GenAI-Coursera in French language learning significantly improved speaking skills, academic resilience, critical thinking skills, and self-evaluation. Improved speaking competence was evident in the use of new vocabulary, fluency, and in-depth responses to philosophical questions. This improvement occurred because students gained unlimited resources through GenAI-Coursera to engage in debates on topics. Materials in various formats, such as text, video, and images, strengthened learners' schemata for French language acquisition and knowledge of the debate topics. Improved critical thinking skills were evident in the use of critical ideas to answer questions and increased knowledge of French concepts and terms, which can strengthen critical thinking.

This improvement during the French language learning process occurred because the philosophical questions in the instructional design encouraged critical thinking skills. Improved academic resilience was evident in the ability to resolve conflicts or problems during the learning process and occurred because the French

language teaching design facilitates learners in planning, implementing, and evaluating the learning process they participate in, so that learners are able to resolve conflicts or problems in the learning process. Furthermore, self-evaluation skills are evident in their ability to assess their speaking skills and improve them. GenAI-Coursera, which presents material and evaluation autonomously, can increase awareness, positive attitudes, and autonomy of language learners. This self-evaluation competency is trained through a reflection phase to provide students with the opportunity to reflect on their roles and ideas to be put forward and improve their shortcomings. Thus, the use of GenAI-Coursera technology in philosophy-based French learning not only improves French speaking skills but also enhances other competencies that contribute to foreign language learning outcomes, such as critical thinking skills, self-evaluation, academic resilience, and self-evaluation.

This research has several implications for foreign language teaching, including that foreign language teaching requires instructional design that enhances higher-order thinking skills that contribute to language learning, such as critical thinking, reasoning, and autonomous self-assessment. The use of GenAI technology in foreign language learning can optimize the achievement of foreign language learners. Furthermore, the use of philosophical themes in foreign language teaching is very effective in enhancing learners' reflection skills, which will contribute significantly to self-evaluation skills. This study does, however, have several limitations, including a limited and homogeneous sample, focusing on French and on speaking language competency.

Moreover, the instruments used to measure critical thinking skills and self-evaluation are still not comprehensive, have not considered the long-term impact on competency, there is no study of philosophical questions that can encourage higher-order thinking skills, and external variables such as class dynamics, instructor competency, and institutional support have not been considered. Based on these limitations, the researchers recommend several suggestions for future studies, including the need to accommodate diverse samples with varying levels of proficiency, and the need to conduct the study in other foreign languages, such as German or Japanese.

Furthermore, future studies need to be tested on other language competencies, such as reading and writing, the instruments used should be more comprehensive in measuring higher-order thinking skills, and the intervention should be long-term. Future studies should also examine philosophical questions that can encourage higher-order thinking skills, and consider external variables such as classroom dynamics, teacher competence, and institutional support. The researchers also recommend that foreign language institutions and teachers integrate the use of technology in foreign language teaching.

7. References

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