ISSN 1799-2591 (print); ISSN 2053-0692 (online)
Theory and Practice in Language Studies, Vol. 16, No. 5, pp. 1609-1621, May 2026
DOI: https://doi.org/10.17507/tpls.1605.19

Enhancing Teachers' Content and Language-Integrated Learning and Young Learners' Instruction Through an Inquiry Complexity Reading Strategy Based on the Common European Framework of Reference

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***Abstract*—This study examined the effect of an Inquiry Complexity Reading Strategy (ICRS)-based Common European Framework of Reference (CEFR) on English teachers' content and language-integrated learning (CLIL) and young learners' (YLs) pedagogical literacy. It also explored teachers' perceptions of integrating CEFR into English language teaching. The participants were 72 junior high school teachers from 43 schools equipped with computer facilities, and 35 students from the selected schools, chosen using purposive sampling. A mixed-methods approach involving tests, questionnaires, interviews, and classroom observations was employed to answer the research questions. The data validity and reliability were determined using statistical analysis and the triangulation method. Additionally, statistical and thematic analyses were conducted to find out the effect of the ICRS-based CEFR on the teachers' literacy and their perceptions. The findings show that the ICRS-based CEFR significantly enhanced the teachers' CLIL and YLs' pedagogical literacy and that the teachers mostly expressed positive attitudes towards CEFR use in the curriculum. The study also verified schools' readiness, supported by adequate infrastructure, motivated students, and competent teachers. In conclusion, integrating CEFR into the school curriculum through inquiry-based strategies could meaningfully enhance teachers' performance. However, schools should provide sustained institutional support and teacher training for implementing CEFR, particularly in hybrid learning contexts. Further research can explore the impact of teachers' literacy on student learning outcomes and curriculum development.**

***Index Terms*—ICRS, CEFR, CLIL, YL, literacy**

I. Introduction

Over the years, literacy has evolved into digital literacy, that is, an individual's ability to use technology to foster critical and creative thinking. This includes technology, critical analysis, networking, communication, and content evaluation skills (Uçar, 2023). Effective teachers integrate technological, pedagogical, and content knowledge into their instructional practice (Hughes & Scharber, 2010). Such integration is crucial for strengthening teachers' digital literacy and professional competence (Irwanto, 2021; Mishra & Koehler, 2006). It also improves students' engagement and English language learning in practical and real-world contexts (Pallathadka, 2020).

In this context, a lack of digital literacy, limited internet access, and insufficient technological devices have hindered effective teaching and learning processes in Indonesia (Mazlan et al., 2022). In middle and high schools, many teachers have not yet integrated multimedia based on the Common European Framework of Reference for Languages (CEFR) into their instruction (Arifudin & Maryo, 2021). They are also often unaware that students' learning styles and strategies have evolved with technological advancements (Erni, 2021; Erni et al., 2023). Additionally, while many countries have successfully adopted other digital technologies (Mansor, 2025; Bui, 2022), the implementation of CAT (computer-aided technology) in classrooms has thus far not successfully increased students' CEFR level in Indonesia (Kharis et al., 2020). Therefore, educational reforms are necessary to align the CEFR with the national curriculum (Arifudin & Maryo, 2021). Incorporating it into educational reforms will promote teacher agency rather than impose predetermined objectives and methods (Savski & Prabjandee, 2022). This, in turn, will encourage educational institutions to provide teachers with

access to relevant resources and professional training, enhancing their digital literacy and helping them develop and utilize interactive media.

In Indonesia, schools have not yet implemented CEFR, particularly at the junior high school level, and only a few teachers use CEFR-based learning resources or instructional methods for assessment purposes. Although the government requires senior high school students to achieve the CEFR B1 level (Aditomo, 2024), due to limited literacy and insufficient experience, teachers have not incorporated the framework into their teaching practices and thus struggle to support their students in achieving the curriculum target. To help the junior high school students achieve the CEFR B1 level, the inquiry complexity reading strategy (ICRS) was implemented. The ICRS improves students' academic reading skills (Erni et al., 2023) and strengthens teachers' literacy in English language teaching (ELT) at the junior high school level. While CEFR has primarily served as an assessment tool, its potential as a basis for teaching instruction remains unexplored. This study attempted to answer the following research questions:

a) What is the extent of schools' readiness in integrating CEFR into the school curriculum in Indonesia?
b) Does the ICRS-based CEFR significantly enhance teachers' content and language integrated learning (CLIL) literacy?
c) Does the ICRS-based CEFR significantly enhance teachers' literacy related to young learners (YL)?
d) What are teachers' perceptions of CEFR integration into ELT?

Note that in this study, the term literacy was used to refer specifically to teachers' literacy in delivering English instruction based on CEFR qualifications, that is, CLIL (Cambridge, 2022a, 2022b) and YL (Cambridge, 2010, 2022b) literacy.

II. Literature Review

A. Common European Framework of Reference for Language (CEFR)

The CEFR is a comprehensive tool that enables educators to plan their instruction, develop materials, and assess the students based on their needs and proficiency levels (North & Piccardo, 2016; Piccardo et al., 2011). This study applied the CEFR framework to enhance teachers' literacy in CLIL and YLs' instruction, which encompasses learning materials, teaching methods, assessment criteria, and contextualized tasks (Prajapati, 2022; Trim, 2011; Trim et al., 2024). In particular, four communicative modes of CEFR —reception, production, interaction, and mediation—were utilized in an integrated manner. Reception means processing and interpreting meaning; production focuses on fluency and accuracy in generating meaning across social, academic, and professional contexts; interaction highlights sociolinguistic competence; and mediation emphasizes the facilitation of communication between people, particularly if a linguistic or conceptual gap exists (Arslan & Özenici, 2017; Council of Europe, 2018).

In Indonesia, efforts to align CEFR with the school curriculum have faced numerous challenges, such as limited teacher competence and pedagogical beliefs, teachers' low self-confidence, and socio-cultural influences (Miqawati et al., 2023). Additionally, inadequate institutional support and lack of teacher training opportunities have further hindered its integration into classroom instruction (Uri & Abd Aziz, 2018). However, studies from countries such as Turkey and Iraq have demonstrated that CEFR enhances the language skills of EFL/ESL students (Hismanoglu, 2013; Naser & Ali, 2023) and can be employed for English language assessment (Foley, 2019). The CEFR equips learners with global communicative competence, enabling them to interact in diverse cultural contexts. Furthermore, its level descriptors provide a structured means for categorizing student proficiency and aligning teaching materials accordingly (Sonea, 2018). Therefore, teachers' literacy supported by CEFR qualifications can improve learners' abilities in terms of reception, production, interaction, and mediation.

B. Content and Language Integrated Learning (CLIL)

CLIL is an approach that combines language and subject content and promotes 'learning to use language and using language to learn'. It requires that educators and practitioners carefully consider the pedagogical, theoretical, and practical aspects of language teaching (Cenoz et al., 2014). It also fosters linguistic competence as well as intercultural awareness and communication skills among students (British Council, n.d.). Furthermore, it supports students' development of the 4Cs—content, communication, cognition, and culture—which are essential for 21st-century learning (Hemmi & Banegas, 2021).

CLIL also enables teachers to design assessments, create technology-mediated environments, and be aware of their pedagogical philosophy (Tai et al., 2025), thus encouraging students to acquire content knowledge while developing their language skills. It has a positive impact on English students' academic self-concepts (Wunberg et al., 2024) and promotes language proficiency and self-confidence (Macaraeg et al., 2024). It enhances teachers' ability to plan, implement, and evaluate lessons while being sensitive to their students' learning needs and providing adequate support. It also covers content literacy and an understanding of the linguistic, cultural, and disciplinary features of different subjects. However, teachers must ensure that the language used in the classroom aligns with the content demands so that students engage in meaningful and accessible learning. Overall, effective CLIL lesson planning involves setting clear objectives that align with both language and content outcomes, along with appropriate assessment strategies (DeBoer & Leontjev, 2020).

C. Young Learners' (YLs') Pedagogy

YLs' instruction requires specialized pedagogical skills and an in-depth understanding of the learners' developmental characteristics. YLs are typically at an age where they are developing cognitively, linguistically, socially, emotionally, and physically, but the definition of the term varies globally. In Indonesia, it generally refers to children aged 6–12 in formal education. The CEFR places YLs aged 7–12 at the Starters, Movers, and Flyers levels (Cambridge, 2010). In ELT, learners aged 11–14 (junior secondary students) are also often included under this category (Ellis, 2014). In this study, the young learners were the junior high school students aged 11 to 14 years.

Since YLs tend to acquire language skills gradually, learn slowly, and forget quickly (Cambridge, 2010), teachers must possess strong pedagogical, content, and contextual literacy when teaching them. Research has suggested that YLs respond positively to activities such as reading, group discussions, playful tasks, written grammar exercises, vocabulary translation, and pronunciation exercises through digital media (Ahmetović & Dubravac, 2021; Alshehri, 2022; Ratminingsih et al., 2022). Consequently, teachers must be equipped with appropriate knowledge of YLs' learning and its implementation.

D. The Inquiry Complexity Reading Strategy (ICRS)

The ICRS is a learning model that employs principles of inquiry-based learning, social complexity, and connectivism (Erni et al., 2023) and is applied in reading and writing instruction. In this model, learners are encouraged to organize their learning process and engage in collaborative tasks under teacher guidance (Levy et al., 2013; Mahmoud & Galante, 2020). Such inquiry-based learning aims to enhance students' critical and creative thinking, communication skills, and capacity to interact and mediate meaning in complex learning environments (Larsen–Freeman, 2019; Pedaste et al., 2015). In the current study, the five stages of ICRS—orientation, conceptualization, investigation, conclusion, and social complexity—were incorporated into instructional activities to strengthen teachers' CLIL and YL literacy. These stages were used to demonstrate how ICRS-based CEFR resources and digital tools can support inquiry, conceptualization, investigation, synthesis, and application in a real-life context.

III. METHOD

A. Research Participants

The participants in this study were junior high school teachers from both public and private schools in Indonesia. They were selected using a purposive sampling technique (Creswell, 2013). The teachers were members of the English teacher association (Teachers' Centre), which conducted teacher centre activities and ensured proportional representation from each public and private junior high school. 72 teacher participants from 43 schools were selected through a purposive sampling method. The participants were chosen not only for their demographic representation but also because their schools were equipped with computer laboratories and stable internet connections, which were key requirements for implementing the CEFR. They were also selected based on their attendance during the training session.

Overall, the responses from 28 participants with 100% attendance during the 6 consecutive weeks of the instrument implementation were included in the t-test data analysis to examine the effect of implementing the ICRS-based CEFR in improving teachers' literacy. The responses from the participants with attendance below 100% (44 teachers) were excluded from the t-test analysis but included in the descriptive data analysis to determine their perceptions regarding CEFR integration into ELT. These participants, grouped by age (young, adult, and senior teachers) classification (Organisation for Economic Co-operation and Development [OECD], 2019), participated in the FGDs. Triangulation was employed to ensure data validity and reliability.

Finally, the number of participants was assumed to be representative of the population (Borg, 2014). The participants' ages ranged from 23 to 57 years and were accordingly categorized into three groups: young (<35 years, 27%), adult (35–50 years, 54%), and senior teachers (>50 years, 18%). In terms of education, 93% of the teachers held a bachelor's degree, while 7% held a master's degree. The participating students were 12–13 years old and in the 7th grade of the selected junior high schools. Such students in ELT are in lower secondary school, that is, they are 11–14 years old (Ellis, 2014), and their CEFR learning targets are at A1–A2 levels (Aditomo, 2024).

B. Research Instruments

This study used the following research instruments: English tests, questionnaires, interviews, and observations. Specifically, CEFR-based tests were used to assess the readiness of teachers and students. The CLIL- and YL-specific tests helped measure the impact of the ICRS-based CEFR intervention, whereas questionnaires, interviews, and observations helped understand the school facilities and teachers' perceptions. Pilot testing was conducted to determine the instruments' validity and reliability using statistical procedures and the triangulation method (Creswell, 2013). The quantitative data were analyzed using descriptive statistics and paired t-tests (Boniface, 2019; Quirk, 2019), while the qualitative data were examined through a thematic analysis (Braun & Clarke, 2019). A five-point Likert scale was used (Alkharusi, 2022), as shown in Table 1.

TABLE 1
FIVE-POINT LIKERT SCALE

Interval	Midpoint	Interpretation
1–1.80	1.4	Very low level
1.81–2.61	2.21	Low level
2.62–3.42	3.02	Moderate level
3.43–4.23	3.83	High level
4.24–5.04	4.64	Very high level

C. Research Procedures

This study employed a mixed-methods approach and was carried out in four stages. First, a needs analysis was conducted before the ICRS-based CEFR treatment to evaluate school readiness in terms of teachers, students, and learning facilities. The data were collected through observations, interviews, and CEFR-based tests. In-depth face-to-face interviews were conducted with the students, while focus group discussions (FGDs) were held with the teachers to obtain more comprehensive insights. Second, a CLIL literacy assessment was conducted to measure the impact of the implementation on teachers' CLIL literacy, via a CLIL pre-test and post-test. Third, a YL literacy assessment was conducted to evaluate its effect on teachers' YL literacy, via a YL pre-test and post-test. Finally, the teachers' perceptions regarding CEFR integration into the school curriculum were examined through questionnaires, observations, and FGDs.

The ICRS-based CEFR was implemented over 6 weeks, with weekly face-to-face sessions (4×60 minutes), asynchronous online activities (4×60 minutes), and synchronous online sessions (2×60 minutes). The treatment covered five topics: 1) school technological readiness, learning resources, and CEFR-based proficiency assessments; 2) teachers' perceptions of CEFR integration; 3) CLIL literacy; 4) YL literacy; and 5) program evaluation through synchronous online sessions (2×60 minutes) to assess teachers' satisfaction, program impact, and reflection.

During the treatment phase, the ICRS model was implemented in five structured stages: orientation, conceptualization, investigation, conclusion, and social complexity. Figure 1 illustrates the entire research procedure.

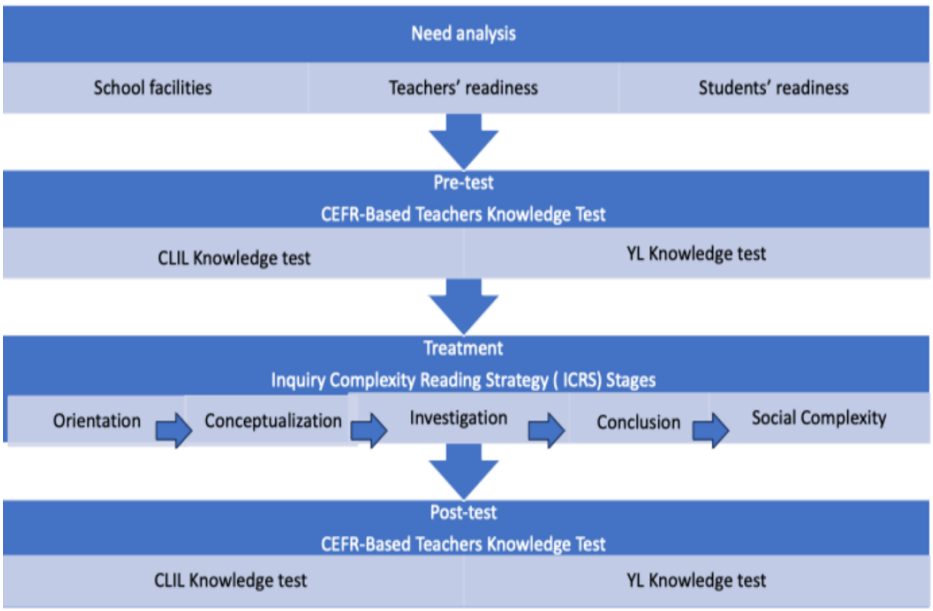

Figure 1. Research Procedure

IV. RESULTS

A. School Readiness to Integrate the CEFR Into the Curriculum

This study examined the selected schools' readiness for CEFR integration into ELT by considering teacher and student competencies, motivation, availability of learning resources, and technological infrastructure. The analysis results are given below.

(a). Students' Readiness

The students' CEFR test results (Figure 2) showed that 29 students (82.86%) achieved the Pre-A1 level, 6 (17.14%) achieved the A1 level, and none achieved the A2 level. The students demonstrated high motivation and readiness to learn. Even though their actual English proficiency remained low, they were capable of using multimedia tools.

During the interviews, the students reported that they found the CEFR platform to be 'engaging, user-friendly, motivating, and supportive of both self-assessment and independent learning'. The researcher's observations supported these findings, as the students actively used the CEFR materials.

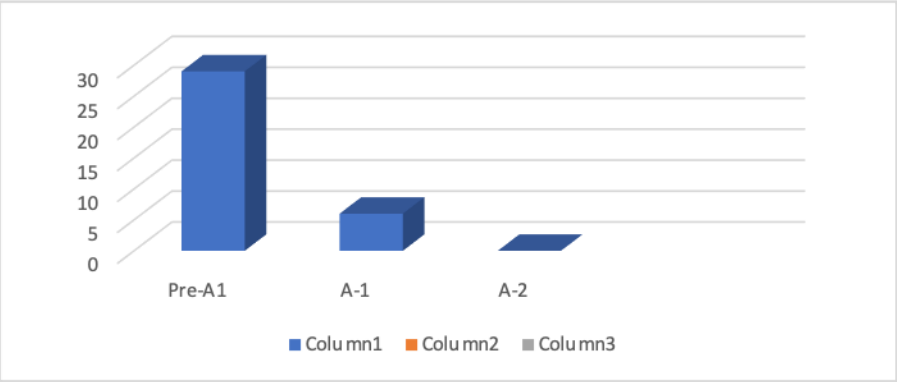

Figure 2. Students' CEFR Test Results

(b). Teacher Readiness

The teachers' CEFR proficiency test results (Figure 3) showed that 3 of them (10.71%) were at the A2 level, 15 (53.57%) at B1, 7 (25%) at B2, 3 (7.14%) at C1, and none at C2. Overall, 85.71 % of the teachers were at an independent user level but not yet proficient by CEFR standards.

Meanwhile, the interview data showed that the teachers perceived CEFR as 'practical, motivating, and engaging'. However, researchers' observations revealed ongoing challenges, including a limited ability to operate computers, poor internet literacy, and a lack of experience using digital teaching tools.

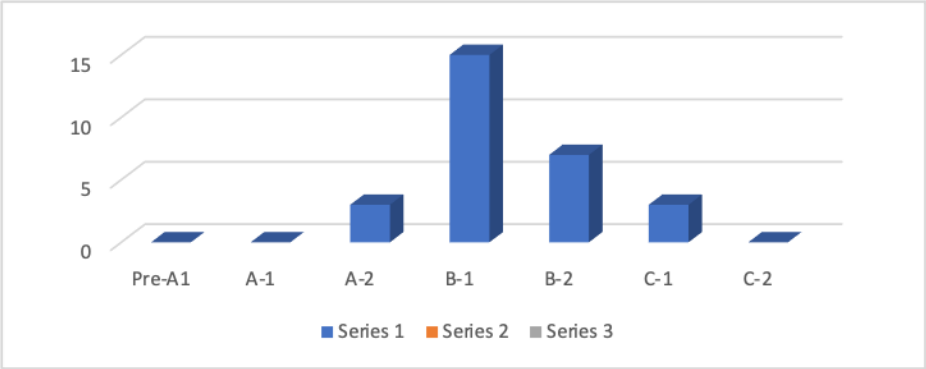

Figure 3. Teachers' CEFR Test Results

(c). Learning Resources

The schools primarily relied on printed books and government-provided paper-based tests. However, despite the limited digital materials, the schools' infrastructure included computer labs and internet access, indicating a basic level of readiness for CEFR integration. Additionally, the learning sources analysis confirmed that the schools demonstrated foundational readiness to adopt CEFR-based instruction. It also showed that the teachers and students were motivated, infrastructure was available, and the CEFR tools were accessible and applicable, although capacity-building and professional development remained necessary.

B. Effect of the ICRS-Based CEFR on Teachers' CLIL Literacy

(a). Pilot Study of CLIL Literacy

The study instrument contained 30 items on the following 4 key indicators for teachers: 1) ability to plan, implement, and assess instruction; 2) awareness of students' learning needs; 3) application of support strategies; and 4) content literacy (Cambridge, 2022a). All the item values exceeded the significance level of 0.05, with a value of r-table = 0.36, confirming item validity. The reliability analysis using Cronbach's alpha yielded a value of 0.770, surpassing the minimum requirement of 0.60 and indicating the instrument's reliability for repeated use.

(b). Pre-Test and Post-Test Results of Teachers' CLIL Literacy

The teachers' CLIL literacy test scores were analyzed before and after the ICRS-based CEFR implementation. The results show a notable increase in the post-test scores for most participants, as presented in Table 2.

TABLE 2
TEACHERS' CLIL PRE-TEST AND POST-TEST SCORES

CLIL Pre-test Scores				CLIL Post-test Scores			
35	54	29	22	67	81	52	43
44	36	24	47	77	68	57	71
31	47	37	45	60	75	61	69
40	27	30	37	67	57	57	60
58	35	43	52	82	60	76	75
36	32	47	28	61	61	65	54
33	41	45	29	65	65	71	52

The collected data were analyzed for normality testing. Based on the result of the Shapiro-Wilk normality test, the significance value of the pre-test was 0.894, and that of the post-test was 0.752. Since both values were greater than 0.05, these results indicate that the data were normally distributed, as seen in Table 3.

TABLE 3
NORMALITY TEST

	Shapiro-Wilk		
	Statistic	df	Sig.
CLIL pre-test	.982	28	.894
CLIL post-test	.976	28	.752

Next, the descriptive statistics were analyzed. The mean pre-test score (38.536) was lower than the mean post-test score (65.500), indicating an improvement in teachers' CLIL literacy following the ICRS-based CEFR training. Table 4 presents the descriptive statistics for the teachers' CLIL literacy scores on the pre-test and post-tests.

TABLE 4
TEACHERS' CLIL DESCRIPTIVE STATISTICS

Variable	Mean	N	Std. Deviation	Std. Error of Mean
CLIL pre-test	38.536	28	9.131	1.726
CLIL post-test	65.500	28	9.312	1.760

Further analysis was conducted to determine whether this improvement was statistically significant. The post-test scores increased by an average of 26.964 points, with a *t*-value of 34.682 and a *p*-value of $0.000 < 0.05$, indicating a statistically significant increase in teachers' CLIL literacy. Thus, the ICRS-based CEFR intervention had a substantially positive effect on the teachers' ability to teach using CLIL methodology. Table 5 presents the results of the *paired samples t-test* for the teachers' CLIL scores on the pre-test and post-tests.

TABLE 5
PAIRED SAMPLE T-TEST

		Paired Differences					t	df	Sig. (2-tailed)
		Mean Difference	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pre-test CLIL Post-test CLIL	-26.964	4.114	.777	-28.560	-25.369	-34.682	27	.000

C. Effect of the ICRS-Based CEFR on Teachers' YL Literacy

(a). Pilot Study of the Young Learners' Literacy Instrument

As before, a pilot study was conducted to examine the validity and reliability of the instrument, which contained 30 items on the following 4 categories on teachers' YL literacy: 1) concepts of YLs' learning and development, 2) lesson planning and preparation, 3) teaching strategies for YLs, and 4) assessment of YLs' classroom work (Cambridge, 2022b). For N = 28, at a significance level of 0.05, the r-table value was 0.36. The r-counted value for the items exceeded 0.36, indicating that all 30 items were valid. Next, the reliability test was conducted with N = 30, which yielded a Cronbach's alpha value of 0.923, which is well above the acceptable threshold of 0.60. The instrument was highly valid and reliable.

(b). Pre- and Post-Test Results of Teachers' YL Literacy

The YL knowledge test was used to collect the data before and after the treatment. Table 6 provides the teachers' YL literacy test scores.

TABLE 6
PRE- AND POST-TEST RESULTS OF TEACHERS' YL LITERACY

YL Literacy Pre-test Scores				YL Literacy Post-test Scores			
22	36	46	42	50	60	72	78
44	46	28	50	62	72	63	82
64	48	30	32	90	70	56	56
66	36	42	28	83	70	70	52
34	32	40	34	68	60	68	60
34	16	32	22	60	50	65	52
36	32	44	45	62	58	76	74

The collected data were analyzed for normality testing using the Shapiro-Wilk formulas. The pre-test and post-test significance values were 0.233 and 0.510, respectively. Both exceeded the threshold of 0.05, indicating that the data were normally distributed (Table 7).

TABLE 7
NORMALITY TESTING

	Shapiro-Wilk		
	Statistic	df	Sig.
Pre-test YL	.953	28	.233
Post-test YL	.967	28	.510

Next, the descriptive statistics of the pre- and post-test data were analyzed. The mean pre-test score of the teachers' YL literacy (37.890) was lower than the mean post-test score (65.680). This increase reflects an improvement in teachers' YL literacy in ELT. Table 8 presents the descriptive statistics for the teachers' YL literacy scores on the pre-test and post-tests.

TABLE 8
TEACHERS' YL DESCRIPTIVE STATISTICS

		Mean	N	Std. Deviation	Std. Error of Mean
Pair 1	Pre-test YL	37.89	28	11.308	2.137
	Post-test YL	65.68	28	10.378	1.961

Following this, a *t*-test analysis was conducted to determine the significant effect of ICRS-based CEFR on teachers' YL literacy in ELT. The analysis found that the post-test scores increased by 27.79 points on average. The *t*-value of 34.714 with a significance value of 0.000 (<0.05) confirms a significant improvement in the teachers' YL literacy in ELT after implementation. Furthermore, the teachers' ability to deliver ELT to YLs at junior high schools was found to be in line with the relevant CEFR standard. Table 9 presents the results of the *paired samples t-test* for the teachers' YLs scores on the pre-test and post-tests.

TABLE 9
PAIRED SAMPLE T-TEST

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Pre-test YL – Post-test YL	-27.786	4.787	.905	-29.642	-25.930	-30.714	227	.000

D. Teachers' Perceptions of Using CEFR in English Language Teaching

(a). Pilot Study of Teachers' Perception Instrument

As mentioned earlier, the teachers' perceptions of integrating the CEFR into ELT were assessed through questionnaires, FGDs, and observation. The questionnaires contained 30 items on 3 topics: familiarity with CEFR technology, awareness and willingness to use CEFR, and challenges and limitations to incorporating CEFR into ELT (Trim, 2011). A pilot study with N = 44, at a significance level of 0.05 and an r-table value of 0.31, found that the r-counted value for all items was higher than 0.31, indicating their validity. Meanwhile, the Cronbach's alpha of 0.747 illustrated the instrument's reliability. Thus, the questionnaires were valid and reliable and can be used repeatedly. The triangulation method was employed to ensure data validity and reliability.

(b). Teachers' Perceptions of Using CEFR in English Language Teaching

The quantitative data on teachers' perceptions were analysed to answer the following research question: What are teachers' perceptions of CEFR integration into ELT? The mean score for 'teachers' familiarity with CEFR technology' was 2.87 (moderate), 'teacher awareness and willingness to use CEFR' was 3.45 (high), and 'teachers' challenges and

limitations' was 2.87 (moderate). This indicates that the teachers were mostly aware of and agreed to integrate CEFR into their teaching.

The highest mean score (4.24) in terms of teachers' familiarity was for the item 'The CEFR training helped me understand its concept and framework' and the lowest (1.72) was for 'I have known about CEFR since my first year of teaching'. The highest mean score (4.10) regarding teachers' awareness and willingness to use the CEFR was for the item 'I am familiar with the CEFR framework' and the lowest (3.10) was for 'CEFR assessments are motivating for learners'. In terms of teachers' challenges and limitations, most agreed with the item 'My ability is a challenge in adopting CEFR' (mean score: 3.42), and fewer individuals raised concerns, such as 'My autonomy is reduced when using CEFR' (mean score: 2.62). Table 10 provides the results of the data analysis.

TABLE 10
TEACHERS' PERCEPTIONS OF USING CEFR

Teachers' Familiarities (TF)	Scores
I am familiar with the concept of CEFR.	2.59
I know about CEFR from the internet, books, and newspapers.	2.69
I know about CEFR from my colleagues or instructors.	3.28
I know the CEFR descriptors well.	2.59
I learnt about CEFR during my teaching.	2.72
I have known CEFR since my first time teaching at a school.	1.72
I understand CEFR during workshops.	3.03
CEFR serves as a medium, method, and learning source.	2.55
I understand how to use the CEFR framework during my workshop.	3.31
Training in CEFR helps me understand its concept and framework.	4.24
Average	2.87
Teachers' awareness and willingness	
I am familiar with the CEFR framework.	4.10
I will use the CEFR tool in my classroom.	3.62
I will learn more about the CEFR framework and its application.	3.21
I believe that using CEFR can increase students' motivation.	3.31
I am concerned about using CEFR in my class.	3.21
I am interested in participating in the next CEFR training.	3.72
The CEFR tool will improve students' engagement in learning.	3.48
I believe that the CEFR tool can be aligned with the curriculum.	3.27
The CEFR assessment is motivating learners.	3.10
Average	3.45
Teachers' Challenges and Limitations.	
I find CEFR adoption to be challenging.	3.42
Designing activities is time-consuming.	2.97
My autonomy is compromised when using the CEFR.	2.62
CEFR resulted in an extra workload for me as a teacher.	2.48
I'm not acquainted with the CEFR procedures.	2.66
CEFR is not suitable for my teaching.	2.48
I am discouraged when using CEFR in my classroom.	3.03
CEFR is inappropriate for my skill; I am doubtful.	2.72
CEFR descriptors are challenging to integrate into the classroom.	3.41
Low-proficiency students will be demotivated.	3.07
CEFR contributes less to the changes in English proficiency.	2.66
Average	2.87

The thematic analysis of the qualitative data from the FGDs revealed that most teachers found the CEFR to be engaging, motivating, flexible, interactive, and practical for classroom use, and they expressed a desire to integrate it into their teaching. However, the observation data analysis revealed that teachers also reported several challenges, such as a lack of confidence in using digital media, difficulty operating CEFR tools, unstable internet connections, concerns about time demands and workload, and perceptions of mismatch between CEFR levels and students' current abilities. Notably, despite these limitations, the teachers expressed a generally positive perception toward CEFR and a willingness to integrate it into their teaching, especially if ongoing training and institutional support are provided.

This section discusses the research findings in relation to the research questions.

V. DISCUSSION

This section discusses the research findings in relation to the following research questions: a) What is the extent of schools' readiness in integrating CEFR into the school curriculum in Indonesia? b) Does the ICRS-based CEFR significantly enhance teachers' content and language integrated learning (CLIL) literacy? c) Does the ICRS-based CEFR significantly enhance teachers' literacy related to young learners (YL)? d) What are teachers' perceptions of CEFR integration into ELT?

A. Schools' Readiness to Integrate CEFR Into the Curriculum

A needs analysis was conducted to assess the schools' readiness in terms of infrastructure, resources, and human capacity to integrate CEFR, prior to the intervention. The findings show that most of the schools were generally ready to implement CEFR-based instruction, provided computer labs and internet access, and motivated teachers and students. However, the absence of CEFR-specific resources and training caused a major barrier (Savski & Prabjandee, 2022). All the teachers had never used CEFR prior to the intervention, and students' proficiency levels were below CEFR standards, largely due to the mismatch between curriculum content and CEFR-aligned materials.

Notably, the CEFR test results placed most of the teachers at the B1 and B2 levels, qualifying them as independent users. This aligns with CEFR recommendations for teacher training, which state that educators from B1 level onwards can benefit from CEFR-based professional development. Teachers' readiness for CEFR integration has the potential to enhance curriculum delivery (Nurhaliza, 2020), and CEFR implementation could enhance teachers' language proficiency (Naser & Ali, 2023). Moreover, teachers' readiness for hybrid learning, combined with institutional support, can bridge the technological and pedagogical gap (Mansor, 2025). In contrast, the students' proficiency was still at the Pre-A1 level (basic CEFR users), indicating a need for significant pedagogical support (Piccardo et al., 2011).

B. Effect of ICRS-Based CEFR on Teachers' CLIL Literacy

CLIL encompasses teachers' awareness of and responsiveness to students' learning needs, the application of appropriate support strategies, and content mastery. CLIL facilitates the comprehension of both content and the target language (Gomez, 2021), thus ensuring learning in an integrated manner (Goris et al., 2019). However, CLIL should be adapted and expanded to motivate EFL teachers to explore and examine all the relevant issues in ELT (Hu et al., 2023). CEFR expects experienced teachers to integrate technology, pedagogy, and content knowledge effectively into their instructional practices (Hughes & Scharber, 2010). In this study, the ICRS-based CEFR instrument significantly enhanced teachers' CLIL literacy, with the mean score increasing from pre-test to post-test. Additionally, the paired sample t-test found a statistically significant difference between the pre- and post-test scores.

These findings suggest that integrating CEFR into inquiry-based instructional models can strengthen teacher capacity, particularly when digital literacy and critical thinking are prioritized (Uçar, 2023). It also has advantages for language learners across various proficiency levels by supporting their cognitive (effective) and emotional (affective) aspects of learning (Hu et al., 2023).

C. Effect of ICRS-Based CEFR on Teachers' YL Literacy

Teaching YLs requires understanding their unique cognitive and emotional needs and employing multiple strategies to address them (Luh et al., 2020). In this context, the ICRS instrument significantly enhanced the teachers' YL literacy. The mean score increased from the pre- to the post-test, and the paired sample t-test findings indicated a statistically significant difference between the two scores. These findings show that ICRS-based CEFR equips teachers with practical strategies to address the diverse needs of YLs, particularly in terms of classroom activities, scaffolding, and language exposure. Teachers with good YL pedagogical literacy can utilize these teaching methods and the most appropriate curriculum learning activities based on their elementary learners' preferences (Ahmetović & Dubravac, 2021).

According to York (2014), teachers' knowledge of students' individual skills positively impacts students' English achievement in the first grade. Additionally, teachers' alignment of digital tools with their YL instruction may foster students' critical thinking and socio-emotional development (Arifin et al., 2023), as YLs are still undergoing cognitive, linguistic, social, emotional, and physical development (Cambridge, 2022b, 2010). Furthermore, CEFR descriptors provide structure and consistency in teaching outcomes and assessment, which is appropriate for this age group.

D. Teachers' Perceptions of CEFR Integration Into English Language Teaching

In this study, teachers' perceptions of CEFR integration were generally positive, characterized by high levels of awareness and a willingness towards implementation. Although their familiarity and technological proficiency varied, the participants recognized that CEFR could enrich teaching methods, enhance assessment practices, and promote autonomous learning. The teachers agreed to develop teaching materials based on students' CEFR level and the topics available in the CEFR application. Considering these findings, CEFR integration into the schools' curriculum should be seriously considered (Alrababa'h et al., 2024).

Meanwhile, the teachers also had moderate concerns related to workload and digital readiness, but welcomed CEFR's alignment with the school curriculum when supported by practical training and accessible resources. Thus, professional development plays a crucial role in shaping teachers' beliefs, enhancing their competence, and improving student learning (Alruqi & Alharbi, 2022), which could help achieve the curriculum target of senior high school students at the B-CEFR level (Aditomo, 2024).

Overall, the findings show that it is necessary for schools to align CEFR with the national curriculum to ensure the successful implementation of the newly established educational framework introduced by the government (Aditomo, 2024). Online tool-based learning provides students with quick and wide access to instructional materials (Barisone et al., 2019). Particularly, as an internationally recognized framework, the CEFR reflects students' proficiency in English (Trim, 2011; Savski & Prabjandee, 2022). Within CEFR-guided instruction, teaching methods, learning activities, and assessments are applied in a structured manner to support students' interaction and mediation in complex learning

environments (Council of Europe, 2018; Nelson, 2011). Furthermore, the teachers demonstrated positive perceptions toward CEFR integration in ELT.

VI. Conclusion

This study aimed to examine the effect of an ICRS-based CEFR on English teachers' CLIL and YLs' pedagogical literacy. Through data collection and analysis, the research answered the following research questions: a) What is the extent of schools' readiness in integrating CEFR into the school curriculum in Indonesia? b) Does the ICRS-based CEFR significantly enhance teachers' content and language integrated learning (CLIL) literacy? c) Does the ICRS-based CEFR significantly enhance teachers' literacy related to young learners (YL)? d) What are teachers' perceptions of CEFR integration into ELT?

The study findings were as follows. First, most of the selected schools were ready to adopt CEFR into their curriculum and provide adequate technological infrastructure, motivate teachers and students, and ensure basic access to learning resources. Although the teachers faced certain limitations, particularly in terms of digital competence and instructional experience, they expressed strong willingness to implement CEFR-based approaches. Second, the ICRS significantly improved teachers' CLIL literacy, as they demonstrated measurable gains in planning, delivering, and assessing content and language-integrated instruction after the intervention. Third, the teachers' literacy in teaching YLs was significantly enhanced. They became more competent in understanding the developmental needs of YLs and applying CEFR-aligned teaching strategies in their classrooms. Finally, the teachers demonstrated positive perceptions toward CEFR integration in ELT. Despite facing technical and pedagogical challenges, they recognized it as a valuable framework that supports teaching effectiveness, learner motivation, and curriculum alignment.

Based on the findings, the following recommendations are made. Policymakers and curriculum designers must integrate CEFR systematically into national education standards, particularly for English instruction at the secondary level. Additionally, schools and teacher education programs should provide sustained professional development for teachers on CEFR-aligned instruction, focusing on CLIL and YL pedagogy. Further research can explore the impact of such instruments on student learning outcomes and curriculum development.

Acknowledgments

The researchers express their deepest gratitude to the Ministry of Higher Education of the Republic of Indonesia for funding the research, Grant Code 023.17.1.690523/2024. We also thank the Rector and Research Center of the University of Riau for providing the facilities and infrastructure for this research.

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