

Incorporating Global Citizenship Education into the ESL Instruction: Evidence from Undergraduate Learners

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Abstract

This study investigates the integration of Global Citizenship Education (GCE) themes within a university-level English as a Second Language (ESL) course to foster both global citizenship awareness and English proficiency. Grounded in transformative pedagogy and Kolb's experiential learning cycle, the course engaged first-year undergraduates in GCE-themed modules and collaborative activities. Outcomes were assessed through pre- and post-course questionnaires, automated linguistic analysis (Coh-Metrix) of pre/post reflection video transcripts, supplemented by focus group interviews. While no statistically significant changes were observed in global citizenship awareness as measured by the questionnaire, qualitative feedback indicated positive shifts in students' attitudes and behaviors, including increased ethical engagement. Coh-Metrix analysis revealed substantial improvements in syntactic complexity, textual cohesion, and the use of concrete vocabulary, alongside a shift toward a more objective, academic style in oral reflections. These results suggest that embedding GCE themes in ESL instruction fosters multidimensional language development and behavioral engagement, even when measurable gains in global citizenship awareness are modest.

Keywords: global citizenship education, ESL/EFL, GCE-themed language pedagogy, higher education

1. Introduction

The world is evolving faster than ever before in history as a result of technological advances. The youth of today will face challenges unique to citizens living in a closely connected world. To confront these challenges, as aspired in the UN 2030 Framework, by 2030 all learners should acquire the skills and knowledge they need to promote sustainable development (United Nations Academic Impact, n.d.), and educational institutions should take up the responsibility to promote global citizenship by teaching their students to be contributing members of the larger global community with their skills and education.

1.1 Background

UNESCO's Global Citizenship Education (GCE) framework identifies three core domains of learning—cognitive, socio-emotional, and behavioral—supported by learner attributes such as being informed and critically literate, respectful of diversity, and ethically engaged (UNESCO, 2015). Cognitive skills refer to the knowledge, understanding of the world and the ability to think critically about global, regional and local issues, including the understanding of the interconnectedness and interdependency of countries and populations. Socio-emotional skills refer to a sense of belonging to a common humanity with shared values and responsibilities, empathy and respect for differences and diversity. Behavioural skills refer to the ability to act effectively and responsibly at the local, national and global level for a more peaceful and sustainable world. Morais and Ogden (2011) summarize the attitudes and characteristics of global citizens in three dimensions: 1) global competence, 2) social responsibility and 3) global civic engagement, which well aligns with UNESCO's global citizenship education framework of the three core domains.

Universities are increasingly committed to cultivating graduates who can address global challenges (Jorgenson & Shultz, 2012), and GCE has emerged as a key approach to empower students' global perspectives and engagement. Effective, sustained implementation requires alignment with institutional strategies and both curricular and co-curricular channels (Massaro, 2022; Petford & Shiel, 2008). Meta-analyses indicate GCE can heighten awareness of global issues, increase cultural sensitivity, improve proficiency in multiple languages and encourage participation

in global affairs (Jorgenson & Shultz, 2012; Massaro, 2022). Dill (2013) distinguishes global-consciousness-oriented programmes (emphasising outlook and empathy) from global-competence-oriented programmes (emphasising skills). The programme in this study attempted to develop both global citizenship awareness and English language skill as an important global competence.

1.2 Transformative Pedagogy in English Language Education

Research in ESL learning shows that language development is strengthened when it integrates both social and cognitive dimensions, situating language learning within authentic cultural and communicative contexts (Atkinson, 2002; Kobayashi & Rinnert, 2008; Norton, 2000). Integrating language and culture prepares students to become intercultural users of English (Corbett, 2003; Phipps & St. Clair, 2008). Traditional language pedagogy often prioritises decontextualised learning of grammatical rules. Gee (2000) contends that poor literacy outcomes may result from neglecting the use of social languages. In contrast to decontextualized grammar practice, transformative pedagogy positions learners' contexts and social realities at the core, fostering critical reflection and collaborative learning (Dewey, 1938; Farren, 2016; Vygotsky, 1978). This learner-centred approach stimulates curiosity and facilitates meaningful language use.

In addition to a strong emphasis on contextualised learning, transformative pedagogy further emphasises collaborative and participatory learning. Farren (2016) points out that transformative pedagogy simultaneously promotes collaboration through dialogue and peer interaction (Vygotsky, 1978) and cultivating reflective competence through critical reflection (Dewey, 1938). Research consistently shows that social interaction among learners is vital for language development (Atkinson, 2002; DeKeyser, 2003; Hyland, 2007; Zuengler & Miller, 2006). Collaborative learning environments encourage students to critically evaluate and build upon their existing knowledge, values, and assumptions (Barrot, 2014; Castelli, 2011).

Farren (2016) posits that transformative pedagogy supports learners' development as "beings-in-relation" and "beings-in-becoming," aligning with the aims of global citizenship education. By transforming knowledge, skills, and values through participatory learning, transformative pedagogy not only enhances students' language awareness but also their understanding of the language's global applications (Cummins, 2000). This programme adopts transformative pedagogy to create authentic, meaningful contexts for language use through GCE themes.

1.3 Research Questions

Though plenty of literature has explored the impact of global citizenship education programmes or English language learning in the context of global issues, very little has examined the achievement of both global citizenship and English learning in the global citizenship theme-based English classroom. This study aims to address this gap. In particular, it aims to address the following research questions (RQs):

RQ1: To what degree does a GCE-themed ESL course impact students' awareness of global citizenship in cognitive, socio-emotional, and behavioral domains?

RQ2: In what ways do students perceive alterations in their attitudes and behaviors related to global citizenship following the course?

RQ3: To what degree does the course improve students' English oral proficiency, as indicated by measures of lexical diversity/sophistication, cohesion, syntactic complexity, and readability indices in reflection videos?

1.4 Course Design and Dual Objectives

While transformative pedagogy was adopted as the overall pedagogical framework, Kolb's (2015) Experiential Learning Cycle (Figure 1), as recommended by the Asia-Pacific Centre of Education for International Understanding (APCEIU, 2020), guided the design of teaching and learning activities in the course. The course pursued dual objectives: (1) foster global citizenship within UNESCO's cognitive, socio-emotional, and behavioral domains and (2) improve English proficiency through content- and task-based engagement. Modules addressed themes such as climate change and educational marginalization, and, where timetables allowed, teachers used Collaborative Online International Learning (COIL) to provide virtual exchange opportunities.

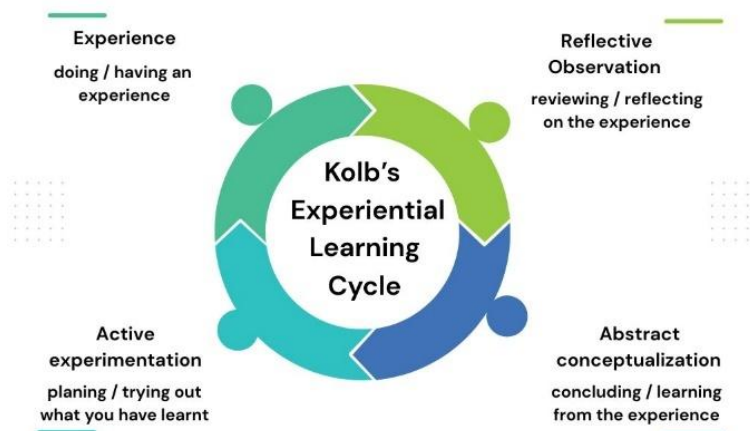


Figure 1. Kolb's (2015) Experiential Learning Cycle

To further broaden exposure, harnessing the power of technology, four web seminars titled “Global Dialogues” on global citizenship themes such as Climate Change or Marginalization in Education Access were organised via Zoom. Featuring guest speakers from various fields of expertise, Global Dialogues provided a platform for experts and students to interact and discuss pressing global issues relevant to daily life. International students from nine overseas institutions were also invited to participate in the seminars and breakout room discussions. Four sections (78 students) were able to collaborate with two overseas universities through COIL. To celebrate student learning, selected student multimodal advocacy posters produced as a final assignment were displayed in an exhibition.

2. Method

2.1 Participants and Context

The 13-week compulsory programme (September–December 2023) enrolled first-year undergraduates who met the minimum English entrance requirement (Hong Kong Diploma of Secondary Education Level 3) or were otherwise required to take an additional English course.

2.2 Instruments and Data Collection

This study adopted a mixed-methods approach to assess learning outcomes, combining a pre/post global citizenship questionnaire with automated linguistic analysis (Coh-Metrix) of pre- and post- 3-minute reflection video transcripts. Focus group interviews were also conducted to triangulate the data. Research ethics clearance was approved by the Research Ethics Committee of the university. Participation in research activities beyond course requirements was voluntary and based on informed consent.

2.2.1 Data Selection Criteria

Table 1 presents statistics of data collection. Of the total enrollment of 801 students, 441 pre-programme and 348 post-programme online questionnaire responses were received. Selection of this set of data was based on one criterion: completion of both pre- and post-programme questionnaires in order for the project team to perform a paired sample t-test. 149 students (88 speaking Cantonese, 55 Madarin, 4 English and 2 others) completed both surveys.

Table 1. Descriptive Statistics of Programme Data Collection

Instrument	Response Timepoint	n	% of Total Enrollment	Selection Criteria
Total enrollment	–	801	100.0	Completed programme
Questionnaire	Pre-programme	441	55.0	Completed response
	Post-programme	348	43.4	Completed response
	Paired (both pre & post)	149	18.6	Both completed
Reflection video	Pre-programme	714	89.1	Audio clarity & length required
	Post-programme	587	73.3	Audio clarity & length required
	Paired (both pre & post)	432	53.9	Met criteria at both timepoints

Note: "Paired/matched" refers to participants with both pre- and post-course data for the respective instrument.

For reflection videos, a total of 714 pre-programme and 587 post-programme submissions were received. Selection criteria were two: audio clarity and length were required. Eventually 432 videos that met the criteria at both timepoints were included in the study. Transcripts were auto-generated in Flip. Videos with low recording quality or excess background noise were transcribed using Otter.ai, an application that converts speech to text. All data processed on Otter was encrypted for security reasons. Transcripts were further verified by native-proficient research staff to ensure accuracy. Discrepancies identified during data verification were resolved by reaching a consensus.

2.2.2 Measuring Global Citizenship Awareness

Participants' global citizenship awareness was assessed using a questionnaire based on UNESCO's three GCE domains (cognitive, socio-emotional, behavioral), adapted from Al-Ani's (2021) validated instrument on university students' perceptions of global citizenship knowledge, skills, and values, originally developed from an extensive literature review and UNESCO's core conceptual framework. Internal consistency of the global citizenship awareness scale was acceptable, with Cronbach's alpha of .84 for the total scale and .79, .81, and .76 for the cognitive, socio-emotional, and behavioral subscales, respectively.

To contextualize quantitative findings, focus group interviews were conducted. Invitation emails were sent to all students who had completed the programme. Unfortunately, only seven students responded and two later declined the invitation. The interviews were conducted with the five students in three sessions due to timetable clashes, with each session lasting 30 to 45 minutes and consisting of one to three students. The students, majord in Social Sciences, Science and Business. To obtain more in-depth feedback, participants could choose to respond in their preferred language (English, Cantonese, or Mandarin). Participants discussed challenges, perceived impacts, and behavioral changes. Interviews in Mandarin or Cantonese were translated and then confirmed by native speakers on the project team to ensure accuracy. Interviews in English as well as translated interviews were transcribed using Otter. Encryption was implemented to ensure data security. Transcripts were checked by project staff and analysed using thematic analysis. Discrepancies identified during data verification were resolved by reaching a consensus.

2.2.3 Measuring English Language Performance

Student English proficiency was measured by analysing linguistic elements in students' pre- and post-course reflection videos using Coh-Metrix, which is an influential computational tool for analysing texts in an objective and statistical manner (Graesser et al., 2011). Students recorded two three-minute reflection videos on Flip, an online learning platform that allows lecturers and students to upload, view, and comment on the videos produced for the class: (1) pre-course perspectives on global citizenship and (2) post-course reflections on global citizenship

awareness and behaviours. Access to the courseroom was limited to the students in the class.

Coh-Metrix, focusing on indices relevant to reflective, expository speech and potential L2 proficiency growth (Graesser et al., 2014), was adopted for the analysis of the transcripts. The latest version, Coh-Metrix 3.0, includes 11 groups of indices; however, three groups of Coh-Metrix indices – latent semantic analysis, situation model, and syntactic pattern density – were excluded from the analysis due to level, genre, and length considerations.

Given that the participants in this study were all English learners at the tertiary level, latent semantic analysis, which is particularly useful for gauging vocabulary expansion in elementary learners of English, was deemed inapplicable (Crossley et al., 2010). The situation model focuses heavily on the development of narrative texts, specifically the use of explicit and implicit linguistic clues to construct mental representations of the text (Graesser et al., 2011; McNamara & Kintsch, 1996). While this variable may be relevant for studies involving narrative texts, it does not apply to this study, which examines reflective discourse in students' pre- and post-course videos. Syntactic pattern density serves as an additional measure of syntactic complexity, relying on the quantity of noun, verb, adverbial, and preposition phrases (Aryadoust, 2016; Nkhobo & Chaka, 2023). These indices were excluded based on the expectation that there would be no statistically significant change in the quantity of phrases due to the similar lengths of discourse between the pre- and post-reflection videos.

The eight Coh-Metrix indices included in this study were selected based on research-supported relevance to linguistic sophistication and coherence, while specific exclusions were informed by genre and study focus. 1) Descriptive statistics included measures like word and paragraph count and sentence length, excluding average syllables and letters per word, as word length does not guarantee higher frequency or readability (Crossley & McNamara, 2012). 2) Text ease focused on syntactic simplicity, word concreteness and referential cohesion, excluding narrativity and imageability because the materials were not narrative in nature (Crossley & McNamara, 2012; Ortega, 2003). 3) Referential cohesion was measured through lexical overlap between adjacent sentences, following findings of its negative correlation with lexical diversity (Crossley & McNamara, 2012). 4) Lexical diversity incorporated vocd-D and MTLTD metrics to capture complementary aspects, as both are necessary for robust assessment (McCarthy & Jarvis, 2007, 2010; McNamara, Crossley & McCarthy, 2010). 5) Connectives indices were included due to their role in cohesion, despite inconsistent links to proficiency (Crossley & McNamara, 2012; Duran et al., 2007; Jin, 2001). 6) Syntactic complexity focused on clause structure, justified by established relationships with proficiency and text type (Ortega, 2003; Tannen, 1982). 7) Word information was represented by parts of speech and age of acquisition, omitting imageability, polysemy, and hypernymy to prioritise sophistication and coherence over vocabulary breadth (Carroll & White, 1973; Crossley & McNamara, 2012; Perani et al., 2003). 8) Readability was operationalized using traditional readability formulas and L2/Coh-Metrix-based indices of text difficulty, which have been shown to reliably differentiate texts by difficulty level (Crossley, Allen & McNamara, 2011).

Statistical analyses (paired-samples t-tests) were conducted in IBM SPSS to compare the outputs and examine potential changes in language proficiency after the programme.

3. Results

3.1 Global Citizenship Measured Through Pre- and Post-programme Questionnaire Survey Analysis

Paired-samples t-tests were conducted to compare participants' global citizenship awareness before and after the intervention across the overall scale and three subscales (cognitive, socio-emotional, and behavioural).

Table 2. Paired Sample t-test Results for Global Citizenship Awareness

Measure	Mean Difference	SD	SE	95% CI	t	df	p
Overall	-0.05	0.91	0.08	[-0.19, 0.10]	-0.60	148	.546
Cognitive	-0.02	0.97	0.08	[-0.18, 0.14]	-0.27	148	.790
Socio-emotional	-0.05	0.96	0.08	[-0.21, 0.10]	-0.67	148	.504
Behavioural	-0.06	0.97	0.08	[-0.22, 0.10]	-0.77	148	.440

As shown in Table 2, there were no statistically significant differences between pre- and post-questionnaire scores on any measure. For overall awareness, the mean difference was -0.05 , 95% CI $[-0.19, 0.10]$, $t(148) = -0.60$, $p = .546$. The cognitive subscale showed a mean difference of -0.02 , 95% CI $[-0.18, 0.14]$, $t(148) = -0.27$, $p = .790$. Similarly, the socio-emotional subscale displayed a mean difference of -0.05 , 95% CI $[-0.21, 0.10]$, $t(148) = -0.67$, $p = .504$, and the behavioural subscale showed a mean difference of -0.06 , 95% CI $[-0.22, 0.10]$, $t(148) = -0.77$, $p = .440$. These findings suggest that the instructional intervention did not result in significant short-term gains in participants' self-reported global citizenship awareness across cognitive, socio-emotional, or behavioural domains.

3.2 English Learning Assessed Through Coh-Metrix Analysis

Eight categories of selected Coh-Metrix indices (see details in 2.2.3 above) were adopted to analyse textual features of speeches from the pre- and post-course reflection videos. Paired sample t-tests were conducted to determine the effect of the programme on students' language use.

3.2.1 Paragraph and Word Length

A paired sample t-test was conducted to investigate the improvements in the number of sentences and overall paragraph length (Table 3).

Table 3. Paired Sample t-test Results for Paragraph and Word Length

Measure	Mean Difference	SD	SE	95% CI	t	df	p
DESSC	-1.30	5.73	0.28	[-1.84, -0.76]	-4.72	431	<0.001
DESPL	-1.30	5.73	0.28	[-1.84, -0.76]	-4.72	431	<0.001
DESSL	1.46	0.33	0.03	[0.81, 2.10]	4.45	431	<0.001

The statistical analysis revealed a significant decrease in the number of sentences (DESSC) and paragraphs (DESPL) post-course, with both measures decreasing on average by 1.30 (DESSC 95% CI $[-1.84, -0.76]$; DESPL 95% CI $[-1.84, -0.76]$); $t(431) = -4.72$, $p < .001$ for both. In contrast, average sentence length (DESSL) increased by 1.46 words (95% CI $[0.81, 2.10]$), $t(431) = 4.45$, $p < .001$, indicating that post-course video output featured longer sentences. These results suggest students' reflections became more compact, with fewer sentences and paragraphs, but the sentences themselves became longer and may reflect increased sentence complexity.

3.2.2 Text Ease

An analysis using paired sample t-tests was performed to explore the changes in conciseness and complexity of students' speech in their post-course videos compared to the pre-course videos.

Table 4. Paired-Samples t-Test Results for Text Ease

Index	Mean Difference	SD	SE	95% CI	t	df	p
PCSYNZ	-0.15	0.81	0.04	[-0.23, -0.08]	-3.90	431	<0.001
PCCNCz	0.21	0.81	0.04	[0.13, 0.33]	5.29	431	<0.001
PCREFz	0.23	1.03	0.05	[0.13, 0.33]	4.66	431	<0.001

Text ease analysis indicated a significant decrease in syntactic simplicity (PCSYNZ: mean difference = -0.15, $t(431) = -3.90$, $p < .001$, 95% CI [-0.23, -0.08]), reflecting increased syntactic sophistication in students' writing post-course. There were also significant increases in word concreteness (PCCNCz: mean difference = 0.21, $t(431) = 5.29$, $p < .001$, 95% CI [0.13, 0.33]) and referential cohesion (PCREFz: mean difference = 0.23, $t(431) = 4.66$, $p < .001$, 95% CI [0.13, 0.33]). These results suggest that, following the intervention, students' oral reflections exhibited more complex sentence structures, more concrete vocabulary, and greater explicit connections between sentences.

3.2.3 Referential Cohesion

A paired sample t-test was utilised to examine the differences in referential cohesion by analysing changes in overlaps in noun, argument, stem, and content words (Table 5).

Table 5. Paired-Samples t-Test Results for Referential Cohesion

Index	Mean Difference	SD	SE	95% CI	t	df	p
CRFNO1	0.04	0.20	0.01	[0.02, 0.06]	4.36	431	<0.001
CRFAO1	0.03	0.23	0.01	[0.01, 0.05]	2.88	431	0.004
CRFSO1	0.06	0.21	0.01	[0.04, 0.08]	5.64	431	<0.001
CRFCWO1	0.01	0.06	0.00	[0.00, 0.02]	3.40	431	<0.001

As shown in Table 5, significant increases were observed in noun overlap (CRFNO1: mean difference = 0.04, $t(431) = 4.36$, $p < .001$, 95% CI [0.02, 0.06]), argument overlap (CRFAO1: mean difference = 0.03, $t(431) = 2.88$, $p = .004$, 95% CI [0.01, 0.05]), stem overlap (CRFSO1: mean difference = 0.06, $t(431) = 5.64$, $p < .001$, 95% CI [0.04, 0.08]), and content word overlap (CRFCWO1: mean difference = 0.01, $t(431) = 3.40$, $p < .001$, 95% CI [0.00, 0.02]). These results indicate that students produced texts with greater referential ties between sentences post-course, reflecting stronger explicit connections among ideas and improved overall cohesion.

3.2.4 Lexical Diversity

To assess growth in lexical diversity after the course, a paired sample t-test was conducted to examine the number of unique words used in the post-course videos compared to the pre-course videos.

Table 6. Paired-Samples t-Test Results for Lexical Diversity

Measure	Mean Difference	SD	SE	95% CI	t	df	p
LDTTRc	-0.02	0.08	0.00	[-0.03, -0.02]	-5.78	431	<0.001
LDMTLD	-1.30	23.84	1.15	[-3.56, 0.95]	-1.13	431	0.26
LDVOCd	-2.18	20.10	0.97	[-4.08, -0.28]	-2.26	431	0.03

As shown in Table 6, there were statistically significant decreases in two measures of lexical diversity post-course (LDTRC: mean difference = -0.02, $t(431) = -5.78$, $p < .001$, 95% CI [-0.03, -0.02], indicating a lower ratio of unique words to total words. Similarly, LDVOC scores (mean difference = -2.18, $t(431) = -2.26$, $p = .03$, 95% CI [-4.08, -0.28]) decreased significantly. Both may suggest a decline in lexical diversity. However, the Measure of Textual Lexical Diversity (MTLD; LDMTLD: mean difference = -1.30, $t(431) = -1.13$, $p = .26$, 95% CI [-3.56, 0.95]) showed no significant change. These results suggest that the decline in lexical diversity, as measured by TTR and VOC, is likely attributable to increased text length and resulting greater word repetition post-course, rather than an actual decrease in students' vocabulary use. The stability of MTLD, which controls for text length, supports this interpretation.

3.2.5 Connectives

To investigate the differences in the frequency of connectives used, paired sample t-tests were conducted on various types of connectives (Table 7).

Table 7. Paired-Samples t-Test Results for Connectives

Measure	Mean Difference	SD	SE	95% CI	t	df	p
CNCAI	3.54	25.38	1.22	[1.14, 5.94]	2.90	431	0.004
CNCCaus	-0.47	14.56	0.70	[-1.85, 0.91]	-0.67	431	0.50
CNCLogic	-0.87	19.44	0.94	[-2.71, 0.97]	-0.93	431	0.35
CNCADC	0.89	12.99	0.63	[-0.34, 2.12]	1.42	431	0.16
CNCTemp	-0.79	10.70	0.52	[-1.80, 0.22]	-1.53	431	0.13
CNCAdd	-1.03	20.02	0.96	[-2.92, 0.86]	-1.07	431	0.29
CNCPos	3.51	24.77	1.19	[1.17, 5.85]	2.94	431	0.003
CNCNeg	1.19	10.14	0.49	[0.23, 2.15]	2.44	431	0.02

As revealed in Table 7, students' post-course video output showed a significant increase in total connectives (CNCAI: mean difference = 3.54, $t(431) = 2.90$, $p = .004$, 95% CI [1.14, 5.94]). Though no significant changes were found in causative, logic, adverbial, temporal, or additive connectives (all $p > .05$), significant increase was found in both positive connectives (such as moreover) (CNCPos: mean difference = 3.51, $t(431) = 2.94$, $p = .003$, 95% CI [1.17, 5.85]), and negative connectives (e.g., however) (CNCNeg: mean difference = 1.19, $t(431) = 2.44$, $p = .02$, 95% CI [0.23, 2.15]) in post-course texts. These results may suggest that students paid more attention to explicit cohesion.

3.2.6 Syntactic Complexity

A paired samples t-test was utilised to evaluate the statistical significance of mean differences in syntactic complexity between students' pre- and post-course reflection videos (Table 8).

Table 8. Paired-Samples t-Test Results for Syntactic Complexity

Measure	Mean Difference	SD	SE	95% CI	t	df	p
SYNLE	0.24	1.81	0.09	[0.07, 0.41]	2.72	431	0.01
SYNNP	0.01	0.16	0.01	[-0.01, 0.03]	1.28	431	0.20

Post-course spoken reflections showed a significant increase in words before the main verb (SYNLE: mean difference = 0.24, $t(431) = 2.72$, $p = .01$, 95% CI [0.07, 0.41]). This possibly indicates longer and syntactically more complex

sentences, often due to more introductory phrases, clauses, or prepositional phrases. No significant changes were found in the number of modifiers per noun phrase (SYNNP: mean difference = 0.01, $t(431) = 1.28$, $p = .20$, 95% CI [-0.01, 0.03]). This is not surprising given the reflective nature of the speech task, which does not require more descriptive phrases.

3.2.7 Word Information

To assess mean differences between the pre- and post-course videos regarding lexical difficulty, use of pronouns, and content words, paired-samples t-tests were performed (Table 9).

Table 9. Paired-Samples t-Test Results for Word Information

Measure	Mean Difference	SD	SE	95% CI	t	df	p
WRDPRP1s	-6.96	26.13	1.26	[-9.43, -4.49]	-5.54	431	<0.001
WRDPRP3p	3.34	14.12	0.68	[2.00, 4.67]	4.91	431	<0.001
WRDFRQc	0.01	0.18	0.01	[-0.01, 0.03]	1.36	431	0.18
WRDFRQa	0.01	0.13	0.01	[-0.01, 0.02]	1.02	431	0.31
WRDAOAc	-11.11	38.85	1.87	[-14.79, -7.44]	-5.95	431	<0.001
WRDFAMc	0.67	8.80	0.42	[-0.16, 1.50]	1.59	431	0.11
WRDCNCc	5.13	19.19	0.92	[3.31, 6.95]	5.56	431	<0.001

The analysis revealed a significant decrease in first-person singular pronoun use (WRDPRP1s: mean difference = -6.96, $t(431) = -5.54$, $p < .001$, 95% CI [-9.43, -4.49]) and a significant increase in both third-person plural pronoun use (WRDPRP3p: mean difference = 3.34, $t(431) = 4.91$, $p < .001$, 95% CI [2.00, 4.67]) and concreteness of vocabulary (WRDCNCc: mean difference = 5.13, $t(431) = 5.56$, $p < .001$, 95% CI [3.31, 6.95]). The average age at which words are acquired also decreased significantly (WRDAOAc: mean difference = -11.11, $t(431) = -5.95$, $p < .001$, 95% CI [-14.79, -7.44]), while measures of word familiarity (WRDFRQc: mean difference = 0.01, $t(431) = 1.36$, $p = .18$, 95% CI [-0.01, 0.03]) and word frequency (WRDFRQa: mean difference = 0.01, $t(431) = 1.02$, $p = .31$, 95% CI [-0.01, 0.02]) WRDFAMc) remained stable. Collectively, these findings suggest post-course speeches became more concrete, objective, and accessible with much less personal reference.

3.2.8 Readability

A dependent samples t-test was conducted to analyse changes in readability in students' pre- and post-course videos (Table 10).

Table 10. Paired-Samples t-Test Results for Readability

Measure	Mean Difference	SD	SE	95% CI	t	df	p
RDFRE	-1.29	13.12	0.63	[-2.53, -0.05]	-2.05	431	0.04
RDFKGL	0.54	3.00	0.14	[0.26, 0.82]	3.75	431	<0.001
RDL2	0.90	5.93	0.29	[0.34, 1.46]	3.16	431	0.002

As shown in Table 10, a significant reduction in Flesch Reading Ease scores was observed (RDFRE: mean difference = -1.29, $t(431) = -2.05$, $p = 0.04$, 95% CI [-2.53, -0.05]), which suggests that the texts became somewhat more challenging to read after the course. In line with this, both the Flesch-Kincaid Grade Level (RDFKGL: mean

difference = 0.54, $t(431) = 3.75$, $p < .001$, 95% CI [0.26, 0.82]) and the Coh-Metrix L2 Readability Index (RDL2: mean difference = 0.90, $t(431) = 3.16$, $p = .002$, 95% CI [0.34, 1.46]) showed significant increases. These shifts suggest that the texts became more difficult, likely due to increases in sentence length and the use of longer or slightly less frequent words. The increased syntactic complexity (see Table 8) may have a bearing on this as well.

3.3 Global Citizenship Elicited Through Qualitative Feedback

In focus group discussions, participants described their experiences in the programme, including its influence on their awareness and behaviour as global citizens and noted a noticeable positive change in how they viewed themselves as global citizens. One student stated that she “not only turns off [her] room lights but also, for example, in halls, even though it’s not [her] business, [she] still feels like it’s a global citizen’s business”. Several other participants agreed, citing positive behavioural changes such as “developing upcycling and recycling habits at home” and “avoiding shopping at [fast fashion brands]”.

Qualitative feedback from the post-course questionnaire also indicated that the programme was conducive to the development and enhancement of global citizenship awareness. One student shared the course’s influence on her understanding and perspective as a global citizen, stating:

The most rewarding experience in the programme was collaborating with diverse participants, engaging in discussions, and working on projects together. It broadened my understanding, challenged my perspectives, and fostered a sense of unity and shared purpose as global citizens.

Other students echoed this sentiment, noting that the classes helped them “recognize the importance of global protection” and “understand more about global citizenship” by learning and discussing various local and global issues.

The programme also inspired changes in career interests as a result of increased awareness of global issues. One student shared that her experience in the group project on household waste sparked her interest and motivation to pursue research into the potential benefits of treating food waste in Hong Kong, saying the module “broadened my understanding of how useful food waste is to society”.

It is critical to note that the attitudinal and behavioral changes identified from the focus groups were from a limited self-selected subset of participants, which may not be representative of the entire cohort.

4. Discussion

While self-reported global citizenship awareness scores showed no significant difference pre- and post-programme, focus group results were very positive. Noticeable gains were also observed in multiple dimensions of students’ English performance. These findings highlight both the impact and limitations of relatively short-term educational interventions aimed at student experiences in GCE-based ESL classes in higher education.

4.1 Lack of Measurable Change in Global Citizenship Awareness

The results showed no significant change in global citizenship awareness, either overall or within cognitive, socio-emotional, or behavioral domains. Though this is in line with existing research that finds attitudinal and dispositional changes, particularly in broad constructs such as global citizenship, are often gradual and may require more intensive or longer-term engagement (Grad & Van der Zande, 2022), one possible explanation is the strong alignment between the programme’s objectives with the core secondary school subject, Liberal Studies, which also emphasised inquiry into various global and social issues (Education Bureau, 2014). Since all local students were required to take this subject during their three years of senior secondary education, participants might have already possessed a heightened awareness of their roles as global citizens, influenced by their exposure to numerous contemporary issues. The overall pre-course score of 4 out of 5 for global citizenship awareness suggests that students already had a high level of awareness before the programme began. This indicates that there may have been limited room for further improvement.

It is worth noting that participants’ reports from focus group interviews highlighted notable positive shifts in their behaviors, attitudes, and values related to global citizenship. Global citizenship is a multifaceted concept encompassing awareness, responsibility, and participation (Schattle, 2008). Students had likely developed a sense of belonging to a global community upon completing the Liberal Studies curriculum. They recognized global interdependence and the influence of individual choices on humanity. As Schattle (2008) states, awareness serves as the foundational step that precedes sustained societal or political engagement and fosters a sense of responsibility for the collective benefit of the world. It is reasonable to assert that the Liberal Studies subject had effectively laid the groundwork for nurturing global citizenship. This may explain why students reported high levels of awareness before the programme, as evidenced by the pre-course questionnaire results.

Global citizens are expected not only to recognize their roles in the world but also to actively participate and contribute to their communities (Oxfam, 1997). While the questionnaire results reflected a strong sense of identity, significant behavioral changes were evident in focus group interview responses. One participant noted that after the programme, she developed a habit of conserving electricity in her dormitory's common areas because she believed that it was a global citizen's responsibility. This exemplifies how awareness of global citizenship can translate into responsible action and community participation. Another student reported sustainability practices at home such as upcycling and recycling. Through interactive activities that encouraged learners to consider global issues from multiple perspectives, students began to view themselves not only as global citizens but also as active contributors to both local and global communities through their daily actions and decisions.

4.2 English Language Development in Student Reflections

A multi-dimensional analysis of participants' language production before and after the course using Coh-Metrix points to a significant and positive evolution in language proficiency. This evolution is characterized by a shift from simpler, more personal expression to more syntactically complex, objective, and cohesive discourse.

4.2.1 Increased Syntactic Sophistication and Cohesion

The most prominent change observed was a marked increase in textual complexity and cohesion. Post-course, participants produced reflections that were more compact, with significantly fewer sentences (DESSC) and paragraphs (DESPL), but featuring significantly longer sentences (DESSL). The increase in sentence length was not arbitrary; it was accompanied by a significant decrease in syntactic simplicity (PCSYNz) and a notable increase in the number of words before the main verb (SYNLE). Together, these results suggest that participants were not merely stringing more words together but were constructing more sophisticated sentences, likely incorporating more subordinate clauses and front-loaded phrases to build complex ideas. This development aligns with research showing that more advanced language users leverage complex syntax to express more nuanced relationships between concepts (Biber et al., 2020; Ortega, 2003). Particularly in L2 academic discourse studies, more proficient L2 learners transition to greater syntactic complexity and information density (Crossley & McNamara, 2014).

This increase in syntactic sophistication was paralleled by a significant improvement in textual cohesion. The rise in the overall referential cohesion index (PCREFz) was substantiated by specific increases in noun overlap (CRFNO1), argument overlap (CRFAO1), and stem overlap (CRFSO1) between adjacent sentences. This indicates a more deliberate effort to create explicit connections across the text. Furthermore, participants demonstrated a more strategic use of logical links, as evidenced by the significant increase in both positive (CNCPos; e.g., moreover) and negative (CNCNeg; e.g., however) connectives. This combined evidence suggests that participants became more adept at weaving their ideas into a coherent whole, explicitly signaling relationships between sentences and arguments. Cohesion and elaboration features are predictive correlates of proficient academic communication (Crossley, 2020). However, it is critical to recognize that such increases can reflect both positive development and an ongoing dependency on basic cohesive devices. Prior research cautions that less proficient writers may overuse connectives and rely heavily on noun and content word overlap to maintain coherence (Crossley & McNamara, 2012). Cheng and Tsang (2021), for example, found that ESL learners frequently overuse (and even misuse) connectives, especially among less advanced learners. In light of the participants' status as lower-proficiency students, the enhanced cohesion may therefore signal both strategic advancement and the persistence of lower-proficiency speaking tendencies.

Notably, there was no significant change in the use of modifiers per noun phrase (SYNNP). This pattern is likely attributable to the reflective nature of the video task. Reflective genres foreground narration, introspection, and evaluation, seldom requiring the detailed descriptive noun phrases that are more characteristic of genres such as narrative fiction (Biber, 1995). Thus, the stability in this index aligns with the discourse demands of the task and may not be a developmental gap.

4.2.2 Shift in Rhetorical Stance and Stable Vocabulary Use

The analysis of word choice reveals a compelling shift in rhetorical stance. Post-course reflections featured a significant decrease in first-person singular pronouns (WRDPRP1s) and a corresponding increase in third-person plural pronouns (WRDPRP3p). This suggests a move away from a purely personal, subjective perspective toward a more objective and generalized stance. This shift is further supported by the significant increase in word concreteness scores (PCCNCz, WRDCNCc), indicating that participants grounded their reflections in more specific, tangible language rather than abstract terminology. Interestingly, the average age of word acquisition (WRDAOAc) decreased, suggesting the use of more common, accessible vocabulary (Crossley, Salsbury, & McNamara, 2010). However, there were no significant changes in word familiarity (WRDFAMc) or word frequency (WRDFRQc, WRDFRQa). This

indicates that the shift in vocabulary accessibility may have stemmed from concreteness and age of acquisition, not necessarily from using more frequent or familiar words.

Lexical diversity measured by type-token ratio (LDTTRc) and vocd-D (LDVOCD) decreased. This result could be attributed to increased text length (Koizumi & In'nami, 2012) and increased referential cohesion, where the strategic repetition of key terms for clarity naturally lowers the ratio of unique words. However, it is important to note that MTLTLD (LDMTLTLD) showed no significant change. MTLTLD is often considered more robust and reliable because it is designed to be less sensitive to text length (McCarthy & Jarvis, 2010). This stability suggests that the range of productive vocabulary was not compromised even as participants produced longer spoken texts.

4.2.3 Readability and Accessibility

Finally, the readability metrics synthesized these changes. The decrease in Flesch Reading Ease (RDFRE) and the concurrent increases in both the Flesch-Kincaid Grade Level (RDFKGL) and the Coh-Metrix L2 Readability Index (RDL2) confirm that the post-course texts became more linguistically demanding. However, this increased difficulty should be interpreted as a positive outcome, reflecting greater informational density and syntactic complexity, as supported by a decline in syntactic simplicity (PCSYNz), rather than a decline in clarity. The texts became more challenging precisely because they were more sophisticated. Prior research shows that lower readability is associated with increased syntactic complexity and the use of more advanced vocabulary (Crossley, Greenfield, & McNamara, 2008). Importantly, these were moderate shifts, indicating that the texts remained broadly accessible even as complexity increased. Moreover, as Section 4.2.1 discusses, increases in cohesion and lexical concreteness (e.g., higher connectives and concreteness scores) may have helped preserve comprehensibility for the listener, potentially balancing the effects of greater structural sophistication.

In summary, the specific indices from the Coh-Metrix analysis provided multi-faceted evidence that the intervention fostered positive development in students' language proficiency. Students evolved from producing simple, loosely connected, and personal narratives to crafting more complex, cohesive, and objective reflections.

5. Conclusion

This study evaluated the impact of a GCE-themed ESL course on university students' global citizenship awareness and English oral proficiency, combining survey, linguistic, and qualitative approaches to address three key research questions (RQs). Findings from pre- and post-programme questionnaire data, focus group interviews, and Coh-Metrix analysis offer a nuanced picture of the programme's impact.

5.1 Impact of the Programme

Statistical analysis of pre- and post-programme questionnaire data revealed no significant changes in students' self-reported global citizenship awareness (RQ1). The students entered the course with relatively high levels of awareness (4 out of 5), likely shaped by previous exposure to global issues through compulsory curricula such as Liberal Studies. Such a foundation may have limited the scope for further measurable gains within a single semester. Moreover, as attitudinal and dispositional change is often gradual and multi-layered, short-term interventions may be insufficient for shifting survey scores in constructs like global citizenship.

Nevertheless, qualitative evidence from focus group interviews and open-ended responses highlighted important developments in students' attitudes and behaviors following the programme (RQ2). Participants described adopting environmentally responsible habits and demonstrating greater empathy and engagement with global issues. Although it is important to note that findings based on self-reports from a small sample may not be representative of the entire cohort, students reported new routines for energy conservation on campus and re-evaluated personal consumption choices, reflecting a heightened sense of personal agency and ethical responsibility. Collaborative activities and international dialogues were repeatedly cited as transformative, fostering a sense of unity and shared purpose. These accounts indicate that, even in the absence of significant changes on survey measures, experiential, reflective, and dialogic pedagogies can cultivate behavioral and dispositional shifts, supporting the broader objectives of global citizenship education.

Linguistic analysis of students' reflective videos demonstrated clear positive developments in their English proficiency (RQ3) over the duration of the course. Their discourse evolved from simple, personal accounts to more syntactically complex, cohesive, and objective reflections. Specifically, they produced longer, more sophisticated sentences, used a greater variety of connectives to build logical arguments, and adopted a more objective rhetorical stance by reducing their use of first-person pronouns. While a positive indicator, the observed increase in cohesion, however, warrants a nuanced interpretation. Chinese ESL/EFL learners tend to employ an abundance of connectives and high lexical overlap as a primary strategy to maintain coherence (Zhou, 2024), sometimes compensating for limitations in syntax or

vocabulary. Indeed, participants' stable use of familiar/frequent words highlights ongoing areas for lexical development. Therefore, in the context of this study's lower-proficiency cohort, this finding likely signals a genuine advancement in strategic organisation alongside the continued use of foundational, less sophisticated speech patterns. Although some lower-proficiency speaking features may persist, this transition over one semester signifies meaningful progress toward more advanced and effective communication.

5.2 Pedagogical Implications for ELT Practitioners

The findings support a theoretical framework where language acquisition and global citizenship are mutually reinforced. Pedagogically, integrating GCE into ESL fosters authentic, motivating contexts for language use and creates opportunities for students to co-construct global awareness and language skills through reflective and collaborative activities. Thematically rich, experiential, and reflective learning tasks can co-advance communicative competence and global-mindedness. Modules such as Household Waste and Fast Fashion, and activities such as Global Dialogues webinars and COIL exchanges are effective in eliciting rich language reflections oriented toward GCE.

For ELT practitioners facing limited resources, mini-Global Dialogues with local speakers can be organized and free e-platforms like Flip can be utilized for student video reflections. To create GCE-themed tasks that simultaneously support language development, practitioners can design activities around current global issues, encourage collaborative projects, and integrate reflective exercises. Reflection videos serve as valuable tools for promoting language practice by enabling students to articulate their thoughts, opinions, and solutions in English, while also enhancing their global citizenship awareness through critical self-examination and engagement with diverse perspectives. Other than using tools like Coh-Metrix to assess students' language development, teachers can monitor progress using observation checklists or rubrics that focus on lexical variety, syntactic complexity, and global citizenship knowledge and practices to ensure a holistic approach to both language and global citizenship learning objectives.

5.3 Limitations of the Study

Certain limitations of this study should be considered. The reliance on self-report questionnaires for measuring global citizenship awareness may not fully capture attitudinal and behavioral changes. Similarly, while the automated linguistic analysis provided robust and objective data on language production, it inherently overlooks subtle aspects of pragmatic competence and interactional nuances that are crucial to communication. Though a valuable learning activity for GCE and English-speaking development, the use of reflective videos may introduce genre-specific effects that influence language use. The small sample size of the focus group interviews also constrains the generalizability of the qualitative data. Future research could adopt a longitudinal, mixed-methods approach, integrating portfolio assessment, longitudinal interviewing, and observation to track both language and global citizenship development over time.

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