

Critical Literacy Sustainability: What Pedagogical Practices? Whose Role?

Lipolelo Thamae

Lihotetso Gloria Matee

<https://orcid.org/0000-0001-7805-0460>

National University of Lesotho, Maseru, Lesotho

Abstract

In today's fast-changing world, it is essential to equip English as a Second Language learners with strong literacy skills, empowering them to critically assess information, adjust to technological shifts, and engage in global discussions. However, what remains questionable is the suitable pedagogical practices and the teachers' and the learners' roles in sustaining literacy in an education system: this study explored pedagogical practices and investigated both stakeholders' roles in sustaining literacy among ESL learning. The study employed a mixed-methods approach, drawing on two theoretical frameworks: Legitimation Code Theory and Constructivism. Data collection involved tests, questionnaires, document analysis, focus groups, and observations, with analysis conducted using thematic (Atlas.ti), Excel and ANCOVA via Stata17 in SPSS. Results verified that employing semantic gravity and density sustain critical literacy skills. Notably, the null hypothesis (h_0) was rejected, confirming influence of the application of semantic gravity and density on informing critical literacy teaching practices.

Keywords: Critical literacy skills, sustainability, pedagogical practices, semantic gravity, semantic density

Introduction

Literacy skills are of great importance, especially in the 21st century. Murnane et al. (2012) stress an increasing demand for strong literacy skills. Historically, the definition of literacy has been limited to the competencies related to reading and writing. However, as stated by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2019), literacy encompasses more than just reading and writing, it is "the ability to identify, understand, interpret, create, communicate and compute using printed, written and visual materials associated with varying contexts" (p.96). While the definitions of literacy vary, a common theme is the "ability to read and write" in order to engage in today's complex world. Literacy is a concept that goes beyond the classroom as Zariņa and Belousa (2011) highlight that it is a lifelong progression. Evidently, this surpasses basic literacy and relates to critical literacy. Achieving critical literacy holds numerous benefits. Dasman (2021) supplements that "literacy is important in the context of self-improvement, personal branding,

professional development, schooling, and national development" (p.1). Collectively, these viewpoints highlight how critical literacy empower people to interact with and confront the issues that affect them. While literacy has a self-serving value, literacy-based skills are susceptible to outside threats, and these literacy challenges emanate from diverse global contexts. For example, academic writing and reading in English are difficult for students in Malaysia, which hinders their progress (Manjet, 2017; 2016; 2015). Over 80 million people, mostly in rural areas, lack literacy in China (China's National Bureau of Statistics, 2020). In a similar vein, 16% of people in the UK struggle with literacy (Ronimus et al. 2019). This empirical evidence suggests that a number of factors influence literacy performance. For instance, literacy performance in China is somewhat impacted by a shortage of human resources, such as teachers (Fan and Xie, 2014). Geographical settlement also affects literacy performance, with urban areas outperforming rural areas (National Center for Education Statistics, 2019).

The Third World Context

Third-world countries also face widespread literacy issues. In Ethiopia, the Ministry of Education (2018), acknowledges that learners face challenges with reading, spelling, poor letter-sound reading habits and incorrect word recognition (Rowe et al. 2016). This contributes to their low proficiency in the English language (EL). Similarly, in Zambia, a considerable proportion of learners encounter difficulties in gaining basic reading comprehension (Brombacher et al., 2015), and failure to read poses a significant risk for failure in upper grades taught in EL (Lyytinen et al. 2019; Sampa et. al., 2018). The literacy problems in the third world are caused by a variety of underlying factors. The basic education system in South Africa does not adequately prepare learners (van Broekhuizen and Spaull, 2017). A lack of qualified teachers, high learner-teacher ratios, low funding allotted to the education sector by numerous African governments, and language policies in the classroom are further obstacles (Beyani, 2013). The creation of literacy development programs is required to address these literacy issues. Resultantly, Uganda launched the Functional Literacy Program and South Africa launched the Run Home to Read Literacy Program; but only 5% of the target population was reached by these programs, so their impact was minimal (UNESCO, 2014). This emphasises that even though third-world nations have tried intervention strategies, the results have been inconsistent, with some achieving favourable outcomes and others still facing serious difficulties.

Lesotho Context

Although literacy challenges are prevalent in many third-world countries, Lesotho's language policy could be seen as an attempt to improve literacy rates. The 2009 Curriculum and Assessment Policy (CAP), which Makumane and Ngcobo (2021) view as a guide for curriculum development, labels English as both a subject and a medium of instruction from Grade 4 onwards (Ministry of Education and Training (MoET), 2009). The goal of this policy is to enable "effective communication" (p. 9) for early acquisition of functional literacy, which serves as a component of critical literacy. In line with the global emphasis on critical literacy as a fundamental educational component, it can be argued that Lesotho's current educational paradigm seeks to develop well-rounded learners who can navigate the complexities of the modern world (MoET, 2009).

However, within Lesotho's English as a Second Language (ESL) framework, a challenge emerges where some learners fail to master the foundational skills necessary for speaking, writing and reading; this impedes their progress towards comprehensive critical literacy competencies. In order to tackle this issue, the Lesotho integrated curriculum initiative aims to provide a comprehensive learning experience by using a holistic approach to education and connecting different skills. This suggests that integrating language skills, including that of critical literacy, is central to this effort. Nonetheless, lack of evidence-based strategies for enhancing and developing critical literacy within this integrated framework is evident. In recognition of this gap, this study aims to explore the application of semantic gravity and semantic density in Lesotho's integrated curriculum (Grade 9), aiming to enhance ESL learners' critical literacy by filling the void in strategies that boost critical literacy proficiency in the country. This study's focus on critical literacy within Lesotho's educational context aims to contribute to improved participation through communication in a technological-driven world; bridging the gap between aspirations and practical implementation in the integrated curriculum. However, little is known as to which pedagogical practices are appropriate in sustaining critical literacy skills. Emphatically, this knowledge gap underscores the urgency to explore appropriate pedagogical practices and establish the teachers' and learners' roles in rectifying this problem.

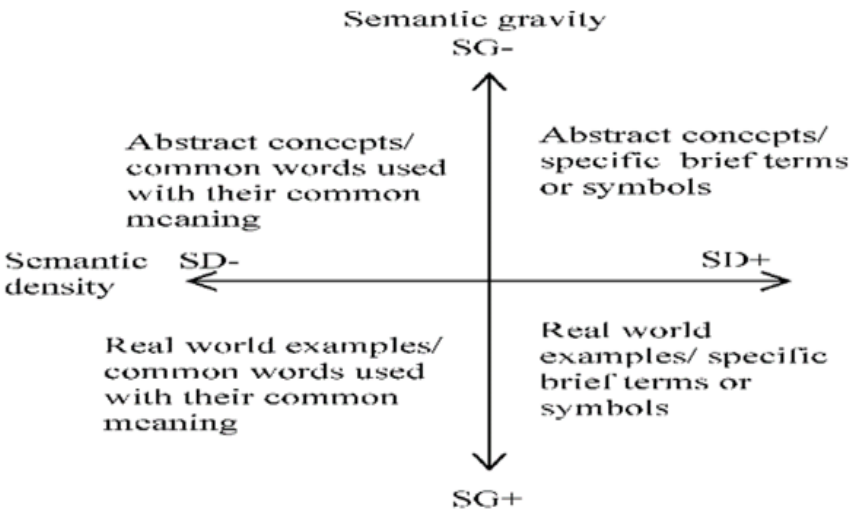
Research questions and a hypothesis

1. What is the baseline assessment of critical literacy among the ESL learners?
 h_0 = There is no significant influence of the application of semantic gravity and semantic density on informing critical literacy teaching practices.
2. What are the specific roles of ESL teachers and learners in sustaining literacy skills?

Theoretical Underpinnings

This study is grounded on the philosophical lenses of a dual theoretical framework, Legitimation Code Theory (LCT) and Constructivism. The Legitimation Code Theory (LCT), developed by Karl Maton and Patrick Thomson, provides a framework for examining and understanding how knowledge and educational practices are legitimised in various social contexts. The legitimisation processes have a significant impact on educational practices (Arbee et al. as well as Vernon, 2021). By identifying those whose pedagogical practices are marginalised because they are not in line with educational objectives, LCT navigates the landscape of acceptable and commendable pedagogical practices. This study's pedagogical practices are significantly influenced by the semantic dimension, one of the dimensions suggested by LCT for organising knowledge.

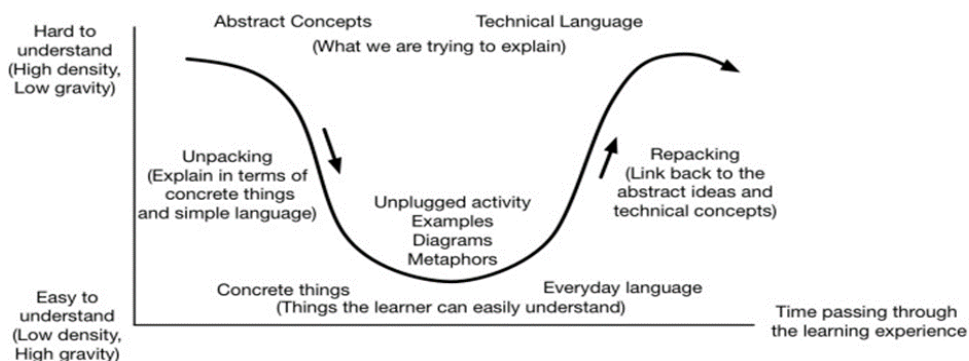
Figure 1
Semantic Gravity and Semantic Density



As asserted by Maton (2019) semantic gravity signifies the degree to which a concept is intertwined with its particular context (Blackie, 2014). For instance, drawing from fig. 1, in an attempt to sustain critical literacy skills in a Grade 9 ESL classroom, high semantic gravity would underscore a focus on technical aspects including analysis, evaluation, questioning of texts, and interrogation of authorial intent through discourse. This might encompass explicit guidance on written or spoken communication as it relates to critical global issues. Thus, a high degree of semantic gravity implies that the ESL teacher prioritises the intricate and precise critical literacy knowledge (Blackie, 2014; Maton, 2014).

On the other hand, semantic density measures the complexity of meaning that is confined to words, symbols, concepts, phrases and gestures (Maton, 2014): it also illustrates the amount of information embedded in a specific representation (Blackie, 2014). Semantic density, in the context of this study, appears to be a concept that clarifies the degree of complexity in the meaning of integrated knowledge in various critical literacy teaching contexts using symbols and appropriate general language use. Specifically, from figure 1, increased semantic density would entail explaining the connections between speech and orthography and other language-related domains like argumentation for or against a particular issue. Semantic density is generally higher when an ESL teacher emphasises the connected aspects of critical literacy knowledge and clarifies how it incorporates other language aspects. This is significant because the goal of this study was to maintain critical literacy, which goes beyond basic literacy. The equilibrium between these two semantic codes is attained through the application of semantic waving. Having explored both semantic gravity and semantic density, the ensuing diagram illustrates semantic waving and is subsequently deliberated upon.

Figure 2
Semantic Waving



Due to differing abilities, the wide range of learners in a classroom can show either strong or weak semantic gravity in their knowledge. In addressing such scenarios, Maton (2014) explicates semantic waving as "an approach that involves strengthening semantic gravity by transitioning from abstract ideas to concrete cases, and weakening it by moving from specific cases towards more abstract notions less dependent on context" (p. 110). Semantic gravity and semantic density changes that occur during educational processes are generally tracked with the help of LCT (Maton, 2016). Semantic wave profiling not only encourages collaborative and engaged pedagogy but also helps teachers balance strong and weak semantic gravity and density to accommodate a variety of learners in a single classroom. In as much as this theory aptly served as a blueprint for critical literacy sustenance in terms of pedagogical practices, it is not explicit regarding the teachers and learners' roles in sustaining critical literacy skills. For this reason, constructivism theory was deemed fit to bridge this gap.

Constructivism Theory

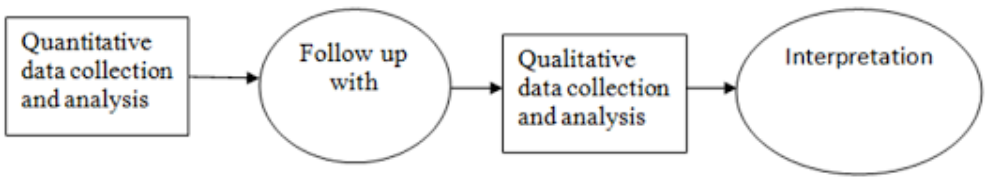
Constructivism Theory (CT) elucidates how individuals actively create knowledge in social and cognitive domains (Piaget, 1977; Vygotsky, 1986). According to Mvududu and Thiel-Burgess (2012), teachers should acknowledge the learners' prior knowledge and promote real-world application. This supports the idea of active learning by prioritising it over passive learning. CT emphasises learners' active role in creating knowledge. Individuals construct new knowledge by drawing on past encounters (Huang et al., 2023) and interactions (Umar et al., 2023). In this way, constructivism encourages active engagement and collaboration to improve learning (Fernando & Marikar, 2017). In the context of critical literacy sustainability, CT aligns with a learner-centered approach (He, 2023), where learners engage, connect, and make sense of new information (Amineh & Asl, 2015). Moreover, in interactions, teachers and peers support learners who need assistance, this is called scaffolding (Aravind & Bhuvaneswari, 2023; Li, 2023). Scaffolding suggests that guided exploration of critical literacy (Andrews et al., 2020), is analogous to Vygotsky's scaffolding concept (Li, 2023) where teachers act as facilitators and support learners. Additionally, reflection and

metacognition are valued in CT (Al-Jarrah et al., 2019). This allows both stakeholders to maintain and avoid overstepping their roles in the process of teaching and learning.

Methodology

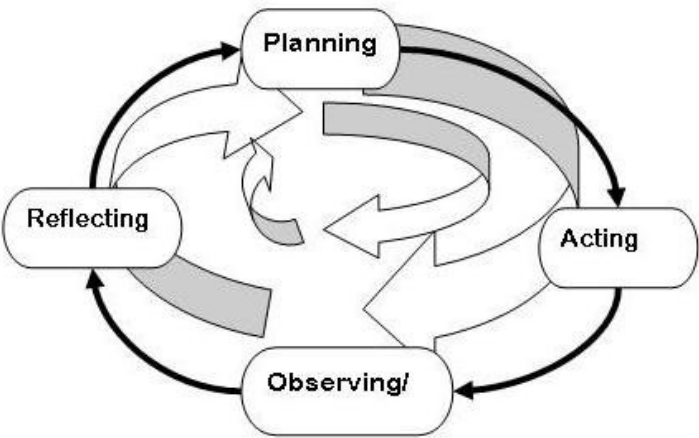
This study was grounded in Pragmatist-Critical Realism (PCR). It is a new paradigm that blends critical realism and pragmatism (Heeks et al., 2019). Aligned with this perspective, this study adopted a mixed-method research approach. In particular, Explanatory Sequential Mixed Method was adopted to follow a two-phase approach to data analysis (Dawadi & Giri, 2021).

Figure 3
Explanatory Sequential Design Creswell & Plano Clark (2007, p.76)



Given that this study had a transformative nature, a case study was considered crucial to support the core method used in this study, which is participatory action research (PAR). PAR is a collaborative research methodology involving researchers and practitioners aimed at solving problems or enhancing practices within a specific context (Carr & Kemmis, 1986). It follows a cyclical process of planning, acting, observing, and reflecting, with the aim of implementing practical and positive changes based on research insights (Gomez, 2020; Griffiths, 2013). By virtue, the researchers taught the participants (to implement SD and SG) for six months.

Figure 4
Action Research Cycle (Lewin, 1946)

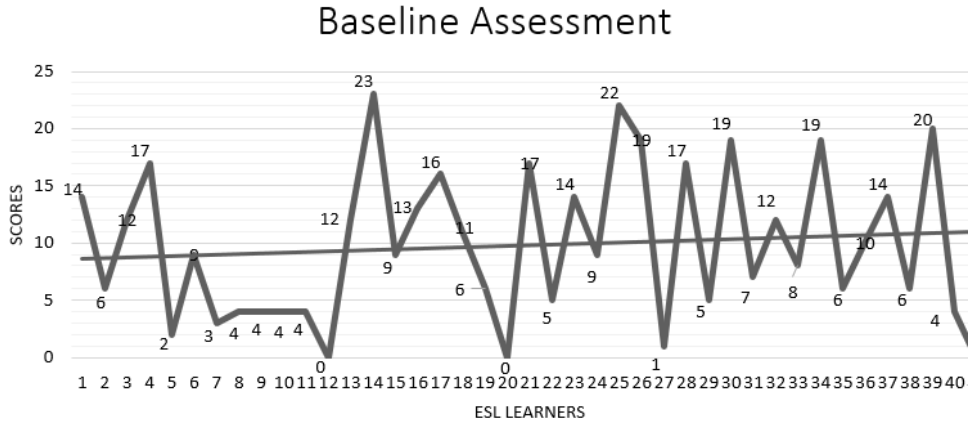


Out of seven EL teachers at school X, five participated in this study. These teachers were selected purposefully; they had participated in more than two Education for Sustainable Development (ESD) workshops; they teach EL at Grade 9 level. Their teaching experience ranged between 5 and 20 years; which is ideal as they experienced several curriculum reforms that place emphasis on sustainability and literacy in general. The participants also comprised 40 Grade 9 EL learners selected using a systematic sampling technique from a pool of other learners. This technique entails dividing the population into equal-sized clusters and then randomly selecting samples from each group (Bertram & Christiansen, 2014). These were learners who struggled to grasp the newly implemented curriculum in Lesotho; they were survivors of epistemic violence by the state, and they had acquired functional literacy skills. The 40 of them were included as this study was a classroom-based action research. Data was collected using six methods; pre and posttests, structured questionnaire, document analysis, focus group discussion, observation and reflective activity. Quantitative data was analysed by descriptive statistics and inferential statistics via Stata software while thematic analysis was employed for qualitative data via Atlas.ti software.

Results

RQ1: What is the baseline assessment of critical literacy among the ESL learners?

Figure 5
Baseline Assessment



The baseline assessment results shown in the graph above provide a summary of the initial performance of ESL learners in their then critical literacy skills. The graph demonstrates a wide range of scores, ranging from 0 to 23 (the lowest score was 0 while the highest was 23 out of 25). This indicates a diverse group of learners with varying levels of proficiency in critical literacy. Besides that, several learners (n=12) have very low scores (0–5), indicating they may need support and intervention or treatment integrated within their learning, and sustaining their critical literacy skills. On the other hand, a few learners have high scores (above 20), suggesting they have a relatively stronger foundation in critical literacy. Learner 13 scored the highest with 23 marks, this indicates that they have a strong command of the assessed critical literacy skills.

Learners 11, 19, 25 and 27 scored a 0, showing that these learners struggled with the baseline assessment and might be at the foundation stages of their critical literacy skills development. Meanwhile, learners 8, 9, 10 and 11 scored consistently low, with scores ranging from 2 to 4. This suggests a need for targeted intervention (semantic gravity and semantic density) in this group. This inconsistency in scores (from 0 to 23) indicates that this group is heterogeneous; which suggests that a “one-size-fits-all” pedagogy may not be effective. Thus, differentiated instruction would likely be necessary to fulfill the several needs of these learners.

Table 1
Descriptive Statistics

Statistics	Mean	Median	Mode	SD	SE	Range	Min	Max	Sum	Count
Value	10.075	9	4	6.430646	1.016774	23	0	23	403	40

The count 40 is the total number of learners who took the assessment. This gives context to the other statistics, as they are based on the performance of these 40 learners. The mean score 10.075 indicates the average performance of the learners in this assessment. This value helped to understand the general level of this class, which appeared to be slightly below the midpoint, signifying that the majority of learners may need additional support to improve their critical literacy skills. The standard deviation (6.430646) measured the amount of dispersion of the scores from the mean. This SD is relatively high compared to the mean of 10.075, this indicates that there is a wide spread in the learners' scores. This suggests that while some students performed much better or worse than the average, the group's performance is not uniform. The minimum score is 0, meaning that at least one learner did not score any points in the assessment: this highlights significant struggle with critical literacy. Meanwhile, the maximum score is 23, which is the highest score achieved, and shows that at least one learner scored nearly twice the class average. The median score was found to be 9, this means that 22.5% of the learners scored below 10: this is close to the mean and reflects the central tendency of the data, suggesting that the middle-performing learners are close to the average performance. The SD of 6.430646 shows a data points' modest dispersion from the mean. The table also shows how the standard error (SE) measures the precision of the sample mean ($\bar{x}$) as an estimate of the population mean (μ). The SE is smaller than the SD because it accounts for the sample size (n). In this study, the formula for SE is given as $SE = \frac{SD}{\sqrt{n}}$ indicating that as the sample size increases, the SE decreases, making the sample mean a more accurate estimate of the population mean.

Hypothesis testing

h_0 = There is no significant influence of the application of semantic gravity and semantic density on informing critical literacy teaching practices.

Table 2*Paired Sample t – test*

Variable	Obs	Mean	Std. err	Std. dev.	[95% conf. interval]		
Posttest	40	17.075	.5399282	3.414806	15.98289	18.16711	
	40	10.075	1.016774	6.430646	8.01838	12.13162	
Pretest							
Diff	40	7	.8133501	5.144078	5.354844	8.645156	
Mean(diff) = mean (Posttest-Pretest) h_0 : mean(diff) = 0 h_a : mean(diff) < 0 Pr(T < t) = 1.0000							
Paired t test: Posttest Pretest $t = 8.6064$ Degrees of freedom = 39 h_a : mean(diff) > 0 Pr (T > t) = 0.0000							
	Obs	Mean1	Mean2	Dif	St_Err	t_value	p_value
Posttest – Pretest	40	17.075	10.075	7	.8135	8.6064	0

The figure above illustrates a t-value of 8.6064, which expresses the difference between the pre- and post-intervention groups' means in relation to their internal variability. A larger t-value in hypothesis testing usually denotes a more significant difference between the groups (Sand, 2022). Further, the substantial t-value of 8.6064 indicates a significant difference in the two groups' academic performance.

In light of this interpretation, a significance level (α) of 0.05 was used to compare the computed t-value against the critical t-value for the degrees of freedom (39) at that alpha level. Therefore, the null hypothesis (h_0) was rejected because the calculated t-value (8.6064) is greater than the critical value. (h_0) rejection means that there is strong evidence for a significant difference in academic performance between the assessment conducted before and after the intervention. Contextually, the t-test provides enough evidence to reject the null hypothesis, indicating that the implementation of semantic gravity and semantic density had a significant influence on informing critical literacy teaching practices. However, to make a definitive decision, we also considered the degrees of freedom, the p-value corresponding to the t-value and the chosen significance level. These factors collectively aided in determining whether the observed difference in academic performance is statistically significant or if it could have occurred by random chance. Before concluding about h_0 , a significance level (α) of 0.05 was selected to strike a balance between Type I and Type II errors in hypothesis testing, following the rationale presented by Sand (2022). Sand (2022) argues that an α of 0.05 reduces the risk of Type I error (false positive), which is the probability of incorrectly rejecting the null hypothesis when it is true. Simultaneously, it reduces the likelihood of Type II error (false negative), which occurs when one fails to reject h_0 when it is actually false (Sand, 2022). Having determined the α and the t-value, the below figure outlines the conclusion.

Figure 6
Rejection of h_0

H_0 : There is no significant difference in the application of semantic gravity and semantic density on informing critical literacy teaching practices.
$\alpha = 0.05$
p-value = 0
Conclusion: Reject h_0

The presentation above denotes that the t-value (8.6064) exceeded the critical value (1.96), which is represented as $t > 1.96$, leading to the rejection of the null hypothesis (h_0). Thus, there was a significant performance difference between the pre and post implementation of semantic gravity and semantic density, supporting the acceptance of the alternative hypothesis (h_a).

Stakeholder Roles

RQ2: What are the specific roles of ESL teachers and learners in sustaining literacy skills?

Figure 7

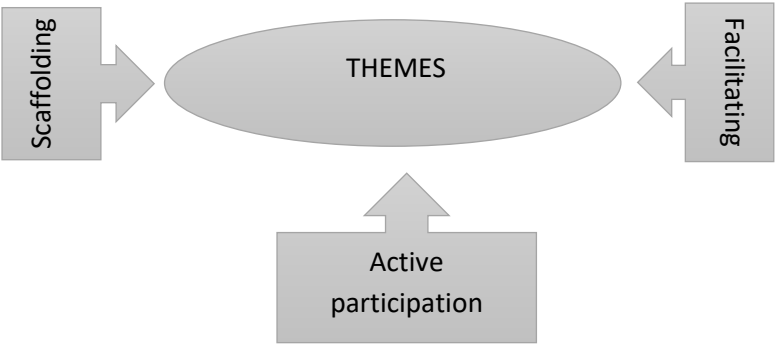
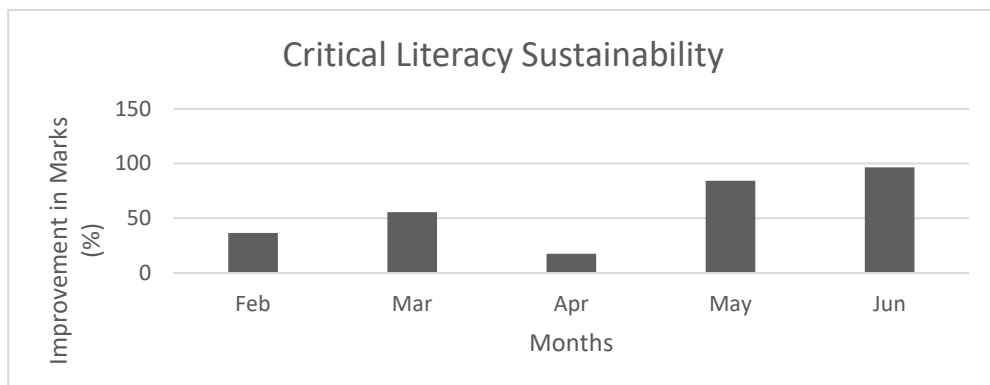


Figure 7 illustrate the themes derived from a focus group that established both stakeholders' roles in sustaining critical literacy. The themes were established using thematic analysis which involves becoming acquainted with the data, generating codes, recognising patterns, analysing themes, defining and naming them, and compiling the final report (Coker, 2024). It was discovered that teachers play roles of facilitators and scaffold learners, while learners were found to be active participants in their learning; to sustain critical literacy skills.

Figure 8*Critical Literacy Sustainability Over Time*

The graph above shows the sustenance of the Grade 9 ESL learners' critical literacy skills over time. The graph indicates a noticeable increase in critical literacy skills between February and June. The greatest percentage for the acceleration of these skills was seen in June at 96.5(%), while the lowest percentage (17.7%) was noted in April. The scores of critical literacy skill acceleration in February and March were 36.6 % and 55.5 %, respectively.

Discussion

Having assessed the then current level of critical literacy among ESL students, an intervention was implemented, therefore the h_0 was tested and rejected, alternative hypothesis (h_a) was accepted. An acceptance of (h_a) shows a substantial performance difference between the pre- and post-implementation phases of SG and SD, which is consistent with Brady et. al. (2022)'s definition of intervention. Intervention entails acting to alter a particular condition to achieve a desired outcome. In this context, the implementation of SG and SD served as the intervention to enhance critical literacy skills. Furthermore, this implementation represents a modification of the teaching approach, introducing a new method that emphasises a unique pedagogical practice. Accepting the alternative hypothesis suggests that this modification resulted in improved performance, indicating that the Grade 9 ESL learners likely enhanced their critical literacy skills as a result of the introduced intervention. The intervention led to observable and measurable improvements in the desired outcome.

Post rejecting h_0 , it was deemed crucial to investigate the roles of ESL teachers and learners in sustaining critical literacy skills development. This was key because teachers play a crucial role as key enablers of sustainable education (Iliško, 2019; Pipere, 2019). It was found that the researchers were facilitators and scaffolded the learners. Facilitating learning promotes learners' critical thinking, an indispensable aspect in critical literacy. It was reflected upon that the researchers carefully structured progression and ensured that the learners systematically built their understanding, a fundamental aspect of scaffolding in learning. To accentuate, in an interview, one learner said *"You support and motivate us, teacher (one of the researchers)."* These findings resonate with the study by Hayikaleng et al. (2016), emphasising the

significant impact of teacher support on learners' success. This buttresses Heasley et al. (2020)'s stance that teachers cannot be divorced from the process of sustaining education. Another learner stated, *"You always encourage us to do our school work."* This response aligns directly with Nguyen's (2019) investigation into motivation in English language learning, where Nguyen found that highly motivated learners performed well.

Having established the teachers' (researchers in this case as this was a participatory action research) role in sustaining critical literacy skills, it was discovered that learners are required to be active participants to sustain the same skills. One learner mentioned, *"I've been participating in class, mistress"* and *"I was not the kind of person who talked in groups, but now I can talk."* These results are in line with constructivism theory, which holds that learners actively participate in their education (Vygotsky, 1986). The statement *"I've been participating in class, mistress"* highlights the learner's active engagement in constructing their understanding by interacting with ideas, peers, and the researcher. Therefore, this aligns with constructivism's perspective of learners as active knowledge constructors. Another learner disclosed, *"You made us feel equal by giving all of us chance to do the work in class."* This finding implies that the researchers engaged in a legitimization practice that recognised and legitimised the learners' perspectives and experiences. A more equitable distribution of semantic gravity was the outcome of the researchers' legitimization practice, which involved empowering learners to actively participate in the learning process and challenging traditional hierarchies by creating an environment where each learner's contributions were valued equally. According to Maton (2014), this finding is consistent with the fundamental principles of LCT, which support equitable knowledge practices that consider a variety of opinions.

Upon having discovered that teachers scaffold and learners actively participate to sustain critical literacy, it was discovered that the more knowledgeable learners also scaffold their peers. One learner disclosed that *"...other learners taught us how to pronounce some words,"* focused on the linguistic support provided by peers. This finding aligns with the constructivism theory, particularly its collaboration principle (Fernando & Marikar, 2017). In this study, peers not only share information but actively contribute to improving pronunciation skills, reinforcing the idea that learning from one another enhances language proficiency, a component in critical literacy. Similarly, the response *"They helped me realise I can't do something alone, so I still need other people"* aligns with the scaffolding principle.

Effective scaffolding entails progressively lowering support as learners gain competence Utami (2016). In this case, the support provided by peers in teaching pronunciation acts as a temporary scaffold. Similarly, the notion that *"They helped me realise I can't do everything alone"* relates to the concept of the ZPD. Learners often achieve more when guided and supported by peers within their ZPD (Knoblauch & Pfadenhauer, 2023). This finding illustrates how these peers help bridge this gap. Moreover, *"We successfully collaborated with others"* and *"They helped me realise I can't do everything alone"* reflect collaboration, a fundamental aspect of the constructivism theory. Collaborative activities involve collective efforts and shared responsibilities, aligning with the idea that learning is enhanced when learners work together (Knoblauch & Pfadenhauer, 2023; Fernando & Marikar, 2017). Consequently, the recognition by Grade 9 ESL learners that collaboration is essential for success places emphasis of constructivism on cooperative efforts.

Conclusion

This study confirms that the strategic application of semantic gravity and semantic density, coupled with scaffolding and active learner participation, is key in developing and sustaining critical literacy skills among ESL learners. The rejection of the h_0 further validates the significant impact of these pedagogical practices on enhancing critical literacy proficiencies. Further, the integration of LCT and Constructivism provided a full-bodied framework for understanding the complex dynamics at play in critical literacy's progressive development and sustenance, emphasizing the need for an active role for both teachers and learners in the learning process. The findings highlight the effectiveness of these approaches in promoting more sustained engagement with literacy practices, ultimately contributing to better learning outcomes.

Limitations

Owing to the small sample size and possible lack of diversity, the results may not be applicable to larger populations of ESL learners from different linguistic backgrounds and educational settings. Additionally, it was difficult to give explanation for all possible confounding factors, despite efforts to control the variables that could affect the results. External factors such as the unique learning preferences and past academic experiences of the Grade 9 ESL students were not fully considered.

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All the correspondence concerning this article should be addressed to Lipolelo Thamae, National University of Lesotho, Maseru, Lesotho e-mail: lipolelothamae977@gmail.com