

The Effect of Knowledge Acquisition on Academic Development: A Comparative Study of English Medium and Sinhala Medium GCE (A/L) Arts Students in the Uva Province, Sri Lanka

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Abstract

This study examines the impact of knowledge acquisition on the academic growth of GCE (A/L) arts students in Sri Lanka, comparing English-medium and Sinhala-medium students in the Badulla Educational Zone of Uva Province. A quantitative approach was employed, utilizing structured questionnaires to collect primary data from 204 students (102 English-medium and 102 Sinhala-medium) through a multi-stage sampling method. The data was analyzed with Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine how individual, instructional, and contextual factors influenced academic development. The results indicate that all three factors have a positive impact on the academic progress of both groups. However, instructional and individual factors have a more substantial influence on English-medium students, while contextual factors are more significant for Sinhala-medium students. The study also revealed that English-medium students achieve higher academic success than Sinhala-medium students, likely due to differences in teaching methods, resource availability, and language skills. These insights provide valuable guidance for educators and policymakers to develop targeted instructional strategies that improve student outcomes in both modes of instruction.

Keywords: academic development, English medium, GCE (A/L) arts students, knowledge acquisition, Sinhala medium

Introduction

In Sri Lanka, students who lack a strong foundation in Science and Mathematics in lower grades often select Arts and Commerce streams at the General Certificate of Education (GCE) Advanced Level (A/L). According to the Annual School Census Report (2020), out of the 2,932 schools offering GCE (A/L) education, only 1,000 schools (34.1% of those offering the GCE (A/L) stream) are classified as Type 1AB schools, which provide all streams of education: Arts, Science, Mathematics, Commerce, and Technology. The remaining schools, classified as Type 1C, typically have limited educational options. This discrepancy in the availability of schools offering diverse streams contributes to the higher enrollment rates in the Arts and Commerce streams (Ministry of Education, 2021). Furthermore, the educational system in Sri Lanka produces an excess of graduates in humanities and social sciences. Conversely, the number of graduates in fields such as science, engineering, and information technology (IT) remains relatively low. This is a concern because graduates from humanities and social sciences often struggle to find suitable jobs, with many ending up in sectors unrelated to their fields of study (Ministry of Education, 2007).

The issue of the medium of instruction plays a critical role in students' academic journeys. English has become a dominant global language, especially in the information economy, international trade, and scientific research. In Sri Lanka, Bilingual Education (BE) has been incorporated into the national curriculum, enabling students to learn selected subjects in English, particularly from grades 6 to 13. Research indicates that BE enhances students' economic prospects by improving English proficiency, which is highly valued in national and international job markets (García & Lin, 2017). In Sri Lanka, BE has gained attention, with the introduction of the BE Program in 2001 significantly changing the medium of instruction.

Despite the popularity of BE, students who complete their GCE Ordinary Level (O/L) exams in English do not always choose English medium subjects for their GCE (A/L) arts stream, possibly due to uncertainty about its long-term benefits (Fernando, 2017). Research has shown that students following the BE curriculum in junior secondary grades tend to demonstrate higher English proficiency compared to those studying in the Sinhala medium (Gunasekera & Silva, 2020). In the Uva Province (Badulla zone), BE has gained significant popularity as parents believe it enhances English proficiency and future career prospects. However, despite students' confidence in pursuing GCE (A/L) arts subjects in English, many remain uncertain about its impact on their academic development and career prospects in the future. The medium of instruction is a crucial factor in shaping students' academic success and career opportunities. However, students face challenges in choosing between the Sinhala and English medium, especially in the arts stream, where they fear they may be at a disadvantage compared to students in the science stream or those studying in the Sinhala medium. This uncertainty influences their academic decisions, career choices, and access to higher education.

Given these challenges, this study examines the impact of knowledge acquisition on the academic development of GCE (A/L) arts students in Sri Lanka, comparing those who study in English with those who study in Sinhala. This research aims to understand the role of the language of instruction in academic outcomes within the arts stream and to provide insights into how different educational media influence students' academic progress and career prospects.

Methodology

This research examines the relationship between knowledge acquisition and academic development, drawing on existing theories discussed in the literature review. Therefore, when developing the relationship between independent and dependent variables, the efficiency of the framework is deductive. As mentioned earlier, this research explores and clarifies existing theories in a practical context. Hence, the philosophy of this research is positivism. The adopted methodological approach is quantitative. The unit of analysis for this study was GCE (A/L) arts students. The sample was limited to English Medium and Sinhala Medium students to compare the effect of knowledge acquisition on academic development between these two modes of instruction. A multistage sampling method was used to select the sample. First, the study purposefully selected the Badulla education zone in Sri Lanka for the survey. Out of the six national schools in the zone, two schools -Vishaka Girls' High School and Badulla Central College-were chosen using simple random sampling. There were 566 students across both schools (146 English medium and 420 Sinhala medium). Based on the sample size calculation, 204 students were selected. Ultimately, 102 students from the English medium and 102 students from the Sinhala medium were chosen to ensure equal representation. Simple random sampling was used to select the respondents. Data was collected using a pre-tested, structured questionnaire. The questionnaire was organized into four sections to gather information from students. Knowledge acquisition was assessed through three dimensions: individual factors (using four items), instructional factors (using eight items), and contextual factors (using 14 items), as adopted by Bercovitz and Feldman (2017) and Cukurova et al. (2018). Academic development was assessed through three dimensions: access to quality education (using three items), support system (using four items), and learning environment (using eight items), as adopted by Sanchez et al. (2019) and Topor et al. (2011).

A Partial Least Squares Structural Equation Model (PLS-SEM) was used as the primary analysis method to test hypothetical relationships. A first-order analysis was conducted to assess the validity and reliability of the questionnaire items and constructs. Internal consistency reliability, indicator reliability, convergent validity, and discriminant validity were used to evaluate the measurement's reliability and validity. The structural model was assessed based on first-order and second-order results. It examined multicollinearity, the significance of path coefficients, coefficients of determination, R-squared values, and the effect size.

Results and Discussion

Knowledge acquisition was evaluated using individual, instructional, and contextual factors, while the academic development assessment covered the learning environment, support system, and access to high-quality education. High indicator reliability was demonstrated by all the first-order factor loadings exceeding the preset threshold of 0.07. Moreover, at a 95% confidence level, the t-statistics indicated that each factor loading was statistically significant, showing a strong correlation with the corresponding items. The study employed Composite Reliability and Cronbach's alpha to assess internal consistency reliability, with a threshold of 0.7 or higher, considered acceptable. The study examined the convergent validity of each first-order latent variable using the Average Variance Extracted (AVE) method. The AVE values confirmed convergent validity for all first-order constructions above the necessary cutoff of 0.5. Discriminant validity measures a construct's ability to distinguish itself from other constructs reliably. The Average Variance Extracted (AVE) for each construct must exceed the highest squared correlation with any other construct to establish discriminant validity. According to the criterion outlined by Fornell and Larcker, discriminant validity is confirmed if the correlation values between latent variables are less than the square root of the AVE for each variable. The diagonal entries in the results show the correlations between the latent variables and the square root of the AVE. The second step in evaluating the structural model was to assess the importance of the proposed relationships. The PLS technique was initially used to evaluate path coefficients. It was then essential to determine the significance, magnitude, and signs of the path coefficients. The statistical significance of each path coefficient was estimated using t-values. At a significant level of 0.05, the critical t-value for a two-tailed test was 1.96. Based on the model results, Table 1 displays the hypothesis testing outcomes, as indicated by the t-value.

Table 1

Path coefficients and their significance

English Medium								
Hypotheses					Path coefficients	T statistics	P value	Decision
H1. E	Individual Development	Factors	->	Academic	0.294	4.264	0.000	Accepted
H2. E	Instructional Development	Factors	->	Academic	0.422	5.441	0.000	Accepted
H3. E	Contextual Development	Factors	->	Academic	0.288	5.632	0.000	Accepted
Sinhala Medium								
H1. S	Individual Development	factors	->	Academic	0.204	1.979	0.040	Accepted
H2. S	Instructional Development	Factors	->	Academic	0.207	1.985	0.048	Accepted

H3. S	Contextual factors -> Academic Development	0.425	3.493	0.001	Accepted
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Note. Data from the authors, 2024

An R^2 value of 72.9% for knowledge acquisition indicates that the predictors (individual, instructional, and contextual factors) account for approximately 73% of the variance in how well English medium students acquire knowledge. Similarly, an R^2 value of 56.5% for academic development indicates that the predictors account for approximately 57% of the variance in the academic development of Sinhala medium students. It indicates a moderate predictive power of the model, showing that the variables in the model can explain a significant portion of the academic development outcomes.

Discussion

According to Hypothesis 1, the relationship between English and Sinhala medium, individual factors, and the academic development of GCE (A/L) arts students in the Uva Province is positive and significant. The Sinhala medium findings for the hypothesis test show a path coefficient of 0.204, a t-statistic of 1.979, and a p-value of 0.040, which support the acceptance of the hypothesis, as shown in Table 1. The hypothesis was accepted for the English medium, where the path coefficient was 0.294 with a t-statistic of 4.264 and a p-value of 0.000. These results suggest that individual factors have a more substantial impact on the academic development of English-medium students compared to their Sinhala-medium counterparts. Specifically, English-medium students have a higher path coefficient, indicating that individual factors significantly influence their academic growth more. This finding aligns with previous studies on the influence of language and instructional medium on student performance. For example, Bista and Foster (2016) found that English medium instruction significantly improves students' academic performance due to greater exposure to global academic resources and enhanced cognitive skills.

Hypothesis 2, concerning both English and Sinhala media, posits that instructional factors have a significant impact on the academic development of students. The hypothesis was accepted after the Sinhala medium path coefficient, t-statistic, and p-value were found to be 0.207, 1.985, and 0.048, respectively. The hypothesis was likewise accepted for the English medium, where the path coefficient was determined to be 0.422 with a t-statistic of 5.441 and a p-value of 0.000. These results highlight the important benefits that instructional factors in both language media have for academic development and validate the positive correlation between instructional factors and academic development in both languages. Similarly, the work of Johnson et al. (2019) highlighted that instructional factors, including teacher quality and pedagogical approach, were more impactful in English medium instruction, leading to higher academic performance compared to students in native language instruction. The results demonstrate that the path coefficient of instructional factors on academic improvement for English-medium students is more significant than that for Sinhala-medium students. Rapid technological advancements have a profound impact on education, and multimedia technologies play a crucial role in enhancing the learning process.

According to H3 regarding English and Sinhala mediums, contextual factors have a significant positive impact on the academic development of GCE (A/L) art students. The hypothesis was accepted when the results of the hypothesis test for the Sinhala medium showed a path coefficient of 0.425, a t-statistic of 3.493, and a p-value of 0.001. The hypothesis was also accepted for the English medium, where the path coefficient was 0.288, the t-statistic was 5.632, and the p-value was 0.000. These results highlight the importance of contextual factors, such as the learning environment, socioeconomic status, and cultural influences, in shaping the academic development of students in both language media. The results further demonstrate that the contextual factors for Sinhala medium students have a more significant impact on academic development than those for English medium students. They contend that the lack of necessary cognitive stimulation that children from low-income households frequently experience is made worse by stress coping strategies, parental expectations, and parenting philosophies. These

findings align with existing research emphasizing the impact of contextual factors on academic success. Similarly, Jones and Lee (2015) found that contextual factors, including school culture and teacher-student relationships, played a crucial role in improving students' academic outcomes in English and native language media. In line with these studies, the current research highlights the critical role that contextual factors play in shaping the academic development of English and Sinhala medium students.

Conclusion

This study examined the influence of knowledge acquisition on the academic progress of GCE (A/L) arts students in Sri Lanka, with a specific focus on students in the English and Sinhala medium streams within the Badulla Educational Zone of the Uva Province. It analyzed how individual, instructional, and contextual factors influenced academic performance using a quantitative approach. The results indicated that individual and instructional factors have a more substantial effect on the academic development of students in the English medium. Conversely, contextual factors are more influential for students in the Sinhala medium. The study concluded that acquiring knowledge through the English medium has a greater influence on academic growth than through the Sinhala medium. Furthermore, the study provides empirical evidence that enhances understanding of how the medium of instruction and contextual factors shape student outcomes in Sri Lanka. The findings emphasize the importance of tailoring teaching methods to the language of instruction and highlight the need for effective knowledge transfer to foster academic success. Additionally, they highlight the importance of targeted interventions, such as teacher training, cognitive-behavioral techniques, and emotional regulation support, in addressing the specific challenges faced by students in both language streams. Based on the findings, the following recommendations are suggested to promote academic development. Schools should focus on improving teacher training, incorporating culturally relevant content in Sinhala and English, and creating customized support programs for students. Furthermore, resource allocation should address cognitive and emotional needs, ensuring that English-medium students receive appropriate cognitive support, while Sinhala-medium students benefit from emotional and behavioral interventions.

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