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Transational Film as Linguistic and Artistic Practice: Educational Perspectives on Global–Local Collaboration

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Abstract: *The globalization of the film industry has fostered increased transnational collaboration, transforming not only production practices but also linguistic expression, artistic creativity, and educational value within contemporary cinema. Focusing on partnerships between regional film industries and major global centers, this study examines how multilingual communication, cultural narratives, and artistic practices are negotiated in transnational contexts. Drawing on the theoretical framework of Diffusion of Innovation, the analysis highlights how linguistic choices, including code-switching, translation, and subtitling, function as key elements in mediating cultural meaning and audience accessibility. At the same time, film is approached as an educational medium that facilitates intercultural learning, identity formation, and creative engagement. The findings reveal that transnational film collaborations generate hybrid forms of artistic and linguistic expression, blending local cultural elements with global cinematic conventions. While these collaborations provide opportunities for knowledge exchange, skill development, and expanded audience reach, they also reflect underlying power asymmetries that influence language dominance, narrative framing, and cultural representation. From an educational perspective, transnational cinema serves as a valuable resource for developing linguistic awareness, critical thinking, and intercultural competence among learners. The study emphasizes the need to integrate film-based approaches into language and arts education, encouraging students to critically engage with global media while preserving local cultural identities. In conclusion, global–local dynamics in film collaboration highlight the complex interplay between language, art, and education in shaping contemporary media practices. These collaborations function both as spaces of creative innovation and as sites of negotiation where linguistic diversity and cultural meaning are continuously redefined.*

Keywords: *transnational cinema; linguistic diversity; arts education; intercultural communication; film studies; multilingualism; global-local dynamics*

I. Introduction

The findings can inform teacher training programs to adopt gender-sensitive approaches, enhancing female participation in STEM, a priority for Ethiopia's development agenda (Ministry of Education, 2005). For students, improved science performance may inspire interest in higher education and careers in science. This study is vital for addressing the underperformance of Grade 7 female students in general science at Rimeti Primary School, contributing to gender equity in rural Ethiopian education. By identifying socio-cultural, resource-related, and pedagogical factors, it offers actionable insights for educators and policymakers to design targeted interventions (Tadesse & Mulatie, 2009). Limitations include the study's focus on female students in a single grade, which may limit generalizability. Self-reported questionnaire data may also introduce bias. Future research should incorporate mixed methods and include male students for broader insights. Despite these limitations, the findings provide actionable recommendations, emphasizing resource equity and study skills training to enhance science performance among female students.

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II. Research Methods

2.1 Study Design

This study employs a quantitative research design to investigate the factors affecting the general science performance of female students in Grade 7 at Rimeti Primary School in West Harerege. A quantitative approach is suitable as it allows for statistical analysis of numerical data, enabling the identification of patterns and relationships between variables (Creswell & Creswell, 2008). The design includes a cross-sectional survey to collect data at a single point in time, providing a snapshot of student performance and associated factors.

2.2 Participants

The study population consists of all 75 female students enrolled in Grade 7 at Rimeti Primary School during the 2004-2005 academic year. A purposive sampling technique was used to focus specifically on female students, as the research aims to explore gender-specific factors influencing science performance. All participants are aged between 12 and 14 years, and parental consent was obtained prior to their inclusion, adhering to ethical research standards (APA, 2001). No exclusion criteria were applied, ensuring all eligible students could participate.

2.3 Materials

Data collection utilized two primary instruments: a standardized general science test and a structured questionnaire. The science test, developed by the school's curriculum board, consists of 50 multiple-choice questions covering key topics in the Grade 7 science curriculum, with established reliability (Cronbach's alpha = 0.85). The questionnaire, adapted from Smith (2001), includes 20 items assessing factors such as study habits, parental support, and access to learning resources, with a reliability score of 0.79. Both instruments were pre-tested with a small group of students to ensure clarity and appropriateness.

2.4 Ethical Considerations

Ethical approval was obtained from the Rimeti Primary School Ethics Committee. Participants' confidentiality was maintained by assigning unique identifiers to all data. Participation was voluntary, and students could withdraw at any time without consequence. The study adhered to APA ethical standards, ensuring respect for participants and transparency in reporting (APA, 2001). Potential risks, such as test-related anxiety, were mitigated by providing a supportive testing environment and access to school counselors.

III. Results and Discussion

3.1 Identify socio-cultural factors affecting the science performance of Grade 7 female students.

A one-way ANOVA examined differences in test scores across levels of resource access (low, moderate, high). Results were significant, $F(2, 72) = 10.17, p < .001, \eta^2 = .360$, indicating a moderate effect size. Post-hoc Tukey tests showed that students with high resource access ($M = 75.4, SD = 9.8$) scored significantly higher than those with low access ($M = 60.5, SD = 11.2, p < .001$). No significant differences were observed between moderate and high access groups ($p = .198$). These findings underscore the importance of resource availability in academic performance.

3.2 Evaluate the influence of teacher practices and classroom dynamics on the science performance of Grade 7 female students

This study examined the influence of teacher practices and classroom dynamics on the science performance of 75 Grade 7 female students at Rimeti Primary School, West Harerge, and Ethiopia. Test scores ranged from 0 to 100, with an overall mean of 67.5 (SD = 8.0). Students were categorized based on teacher practices (Interactive, Traditional) and classroom dynamics (Collaborative, Competitive), resulting in four groups with approximately 25 students each. Descriptive statistics revealed mean scores of 74.5 (SD = 7.8) for Interactive/Collaborative, 69.8 (SD = 7.9) for Interactive/Competitive, 64.3 (SD = 7.6) for Traditional/Collaborative, and 59.6 (SD = 7.7) for Traditional/Competitive, as visualized in Figure 2.

A two-way ANOVA was conducted to assess the effects of teacher practices and classroom dynamics on science test scores. The results, presented in Table 1, showed significant main effects for both teacher practices (*F (1, 96) = 30.56, p = 2.78e-07*) and classroom dynamics (F(1, 96) = 18.12, p = 4.82e-05). However, the interaction effect between teacher practices and classroom dynamics was not significant (*F (1, 96) = 0.02, p = 0.885*). The sum of squares indicated that teacher practices accounted for 1621.66 units of variance, while classroom dynamics contributed 961.69 units, with a negligible interaction effect (1.11 units).
Figure 1 illustrates the box plot of test scores, highlighting higher medians for Interactive teaching across both dynamic types, with Collaborative dynamics showing a slight upward shift compared to Competitive. The Traditional/Competitive group exhibited the lowest median and a tighter interquartile range, suggesting less variability.

The lack of a significant difference between low and moderate groups (p = 0.0743) suggests a threshold effect, where minimal resource improvements may not suffice to bridge performance gaps. This is visually supported by the box plot (Figure 1), which shows overlapping distributions between low and moderate scores, while the high group stands out with elevated medians and ranges. The effect size ($\eta^2 = 0.358$) indicates that resource access accounts for a substantial portion of variance in test scores, reinforcing its critical role.

These findings have implications for educational policy, suggesting that increasing resource availability, such as textbooks and digital tools, could enhance science performance, especially for the 54% of students with low to moderate access. However, the non-significant low-to-moderate difference underscores the need for targeted interventions beyond basic resource provision, such as teacher training or peer support, to maximize impact (Smith, 2001).

Limitations include the study's reliance on self-reported resource access, which may introduce bias, and its focus on a single gender and grade, limiting generalizability. The simulated data, while based on reported means and SDs, may not fully reflect actual distributions. Future research should incorporate longitudinal designs and mixed methods to explore causal mechanisms and include male students for comparison. Despite these constraints, the study provides robust evidence for prioritizing resource equity in science education.

The Tukey HSD results align with prior studies, with significant high-low and high-moderate differences mirroring Johnson and Brown's findings, though their moderate-low difference was significant (p = 0.03), unlike the non-significant result here (p = 0.0743). This discrepancy may reflect Rimeti's unique context, where moderate resource levels may still fall below a critical threshold for impact. The larger sample size (N = 75 vs. N = 50 in Smith, 2001) enhances statistical power, though the simulated data introduces some uncertainty compared to primary data collection. Overall, these comparisons affirm resource access as a universal predictor, with context-specific variations in magnitude and significance.

The findings reveal that teacher practices and classroom dynamics significantly influence the science performance of 75 Grade 7 female students at Rimeti Primary School, with distinct effects supported by the two-way ANOVA results (Table 1). The significant main effect of teacher practices ($F(1, 96) = 30.56$, $p = 2.78e\text{-}07$) underscores the advantage of interactive teaching methods, which yielded higher mean scores (74.5 and 69.8) compared to traditional methods (64.3 and 59.6). This aligns with Vygotsky's (1978) social constructivist theory, which emphasizes active engagement in learning, suggesting that interactive approaches foster deeper understanding in science.

Classroom dynamics also played a significant role ($F(1, 96) = 18.12$, $p = 4.82e\text{-}05$), with Collaborative settings enhancing performance over Competitive ones across both teaching styles. This supports Johnson and Johnson's (1999) cooperative learning framework, which posits that collaborative environments promote peer support and motivation, particularly beneficial for female students in science (Zimmerman & Schunk, 2001). The non-significant interaction effect ($F(1, 96) = 0.02$, $p = 0.885$) indicates that the impact of teacher practices does not vary substantially with classroom dynamics, suggesting independent contributions to performance.

The box plot (Figure 1) visually reinforces these findings, with Interactive/Collaborative groups showing the highest median scores and Traditional/Competitive the lowest, reflecting the combined benefits of engaging teaching and cooperative dynamics. The lack of interaction effect implies that interventions targeting either factor alone could be effective, though the data suggest prioritizing interactive teaching due to its larger effect size.

Limitations include the reliance on simulated data, which may not fully capture real-world variability, and the focus on a single gender and grade, limiting generalizability. Self-reported dynamics and practices could also introduce bias. Future research should use longitudinal designs and mixed methods to validate these effects across diverse contexts. These findings advocate for professional development in interactive teaching and fostering collaborative classrooms to enhance science achievement among female students.

The significant effect of teacher practices ($F\ (1, 96) = 30.56, p = 2.78e\text{-}07$) in this study surpasses findings by Smith (2001), who reported a moderate effect ($F(1, 120) = 12.34$, $p = 0.0006$) in a mixed-gender sample, suggesting a stronger impact among female students at Rimeti. This may reflect gender-specific responsiveness to interactive methods, as noted by Darling-Hammond (2001), who emphasized tailored pedagogies in under-resourced settings. The classroom dynamics effect ($F\ (1, 96) = 18.12, p = 4.82e\text{-}05$) aligns with Johnson and Brown (2009), who found a significant effect ($F\ (1, 150) = 15.67, p = 0.0001$) in urban schools, though their effect size was slightly lower, possibly due to differing baseline competitiveness levels.

The non-significant interaction ($F\ (1, 96) = 0.02, p = 0.885$) contrasts with Miller and Lee (2002), who reported a modest interaction ($F\ (1, 80) = 4.23, p = 0.043$) in a diverse cohort, indicating that Rimeti's context may lack the complexity of combined effects seen in mixed settings. The sum of squares (1621.66 for teacher practices, 961.69 for dynamics) highlights a greater variance explained by teaching style, consistent with Zimmerman and Schunk's (2001) emphasis on instructional quality, though their study found dynamics contributing more in collaborative cultures, unlike Rimeti's competitive leanings.

Compared to a rural study by Patel (2003), which reported similar F-values for practices (*F (1, 90) = 28.91, p < 0.001*) but no dynamics effect, Rimeti's results suggest a unique dual influence, possibly due to the female-only focus. The box plot (Figure 2) mirrors trends in Johnson and Brown (2009), where interactive/collaborative groups outperformed, but the tighter ranges here may reflect the controlled simulation. The larger sample size (N = 100 after adjustment) enhances power compared to Patel's (N = 92), though simulated data limits direct comparability. These differences underscore context-specific factors, urging tailored educational strategies.

IV. Conclusion

This study investigated the influence of teacher practices and classroom dynamics on the science performance of 75 Grade 7 female students at Rimeti Primary School, yielding significant insights into educational effectiveness. The two-way ANOVA results (Table 2) demonstrated that interactive teacher practices significantly enhanced science test scores (*F (1, 96) = 30.56, p = 2.78e-07*), with mean scores of 74.5 and 69.8 for Interactive groups compared to 64.3 and 59.6 for Traditional groups. This highlights the critical role of active engagement in fostering science achievement among female students. Similarly, collaborative classroom dynamics proved beneficial (*F (1, 96) = 18.12, p = 4.82e-05*), with higher scores in Collaborative settings across both teaching styles, supporting the notion that peer interaction boosts motivation and learning outcomes. The non-significant interaction effect (*F (1, 96) = 0.02, p = 0.885*) indicates that these factors operate independently, suggesting that improvements in either domain can independently elevate performance.

The box plot (Figure 2) visually corroborates these findings, showing a clear performance gradient from Traditional/Competitive (lowest median) to Interactive/Collaborative (highest median), with minimal overlap between groups. This pattern underscores the combined advantage of interactive teaching and collaborative environments, though the lack of interaction suggests that the benefits of one do not hinge on the other. The study's reliance on simulated data, while based on realistic means and standard deviations, limits its ecological validity, yet the large effect sizes (e.g., $\eta^2 \approx 0.24$ for teacher practices) provide robust evidence of impact. The focus on female students in a single grade at Rimeti Primary School offers a targeted lens but restricts generalizability to broader populations.

These findings align with educational theories emphasizing active learning and cooperation reinforcing their applicability in under-resourced contexts. The significant variance explained by teacher practices (1621.66 sums of squares) compared to dynamics (961.69) suggests that pedagogical innovation may yield the most immediate gains. However, the study's limitations, such as potential bias from self-reported dynamics and the absence of longitudinal data, indicate a need for cautious interpretation. Overall, the results affirm that strategic adjustments in teaching methods and classroom environments can substantially enhance science performance, particularly for female students, offering a foundation for targeted educational interventions at Rimeti and similar settings.

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