Relationship of Peer-to-Peer Educational Interventions on Both Academic and Non-Academic Learner Achievement Among Children With Impairments in Inclusive Primary Schools in Uganda

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Abstract

Inclusive education aims to provide equitable learning opportunities for children with impairments. However, evidence on effective interventions in resource-constrained contexts remains limited. This study investigated the impact of peer-to-peer, interventions on learner achievement in inclusive public primary schools in Greater Bushenyi, Uganda.

A mixed-methods convergent design integrated quantitative and qualitative approaches. Quantitative data were collected from 242 respondents using structured questionnaires and analyzed through descriptive statistics, Pearson correlation, and regression. Qualitative insights were obtained from interviews with nine head teachers and analyzed thematically.

Peer-to-peer interventions had a correlation of 0.19 with leaner achievement. Qualitative findings reinforced these results, emphasizing structured peer support, while also identifying persistent challenges such as inadequate resources, limited institutional capacity, and weak policy implementation.

The study concludes that peer mechanisms play a substantial role in learner achievement but observe that there is need to institutionalize it by improving coordinated policy implementation strategies that enhance inclusive education outcomes.

Keywords: educational interventions, learner achievement, children with impairments, inclusive education, peer support, Uganda

1. Introduction

Inclusion in education and research is increasingly framed within comprehensive equity agendas that emphasize fairness across multiple dimensions of identity and opportunity. Recent frameworks, such as those advanced by UNESCO (2024) and Schools (2024), underscore that impairment inclusion cannot be treated in isolation but must be situated within broader commitments to equity. This perspective highlights the interconnectedness of impairment with gender and age, recognizing that barriers to participation often overlap and compound. By aligning impairment inclusion with established principles of gender and age equity, the background of this study affirms that equal opportunities should guide participation and representation, ensuring that no group is disadvantaged in access to higher education or in the benefits derived from inclusive practices.

Even when the above is so, globally, children with impairments remain disproportionately excluded from education. Recent UNESCO monitoring (2024) shows they are less likely to enroll, more likely to repeat grades, and face higher dropout rates compared to peers without impairments. Across Africa, disparities are stark: while impairment prevalence among primary-age children is estimated at 6.4%, only 2.1% of enrolled learners are children with impairments, and dropout rates exceed 30% in some inclusive schools (Ahereza et al., 2026a).

Within the East African Community (EAC), regional strategies (Schools, 2024) emphasize mainstreaming learners with impairments into public schools. Uganda has enacted policies such as the Revised National Policy on Impairment (2023), yet implementation remains weak. For example, 75% of schools in Central Uganda lack inclusive infrastructure such as accessible toilets, pathways, and assistive devices, while teacher training is limited (Muhamad & Rajab, 2025).

In Greater Bushenyi, the Bushenyi District Education Performance Review (2024) and Ahereza et al. (2026a) reveal that children with impairments consistently score 20–30 percentage points lower than peers in literacy and numeracy. Dropout rates exceed 30%, and barriers such as overcrowded classrooms, inadequate materials, and limited teacher preparation persist. These children, contextualized in this study as those with intellectual

impairments and physical impairments (including physical functioning, the deaf, the blind, and the deaf-blind), remain at a significant disadvantage despite Uganda's inclusive education frameworks.

2. Literature Review

Peer educational interventions are strategies that involve students working together to support each other's learning, with a focus on collaboration and mutual aid (Topping, Buchs, Duran, & Van Keer, 2017; Van Ryzin & Roseth, 2018). These interventions aim to enhance the educational experience of children with impairments by encouraging positive interactions, social integration, and academic assistance among peers. Peer support strategies, such as peer tutoring, buddy systems, collaborative learning, and group work, have gained attention for their effectiveness in inclusive education settings, where children with impairments learn alongside their typically developing peers (Carter et al., 2016; Markowski, Bower, Essex, & Yearley, 2021; Tzani-Pepelasi, Ioannou, Synnott, & McDonnell, 2019). In Greater Bushenyi, implementing peer educational interventions can help children with impairments build social connections, receive academic support from classmates, and feel more included in school activities, enhancing both learning outcomes and social integration. While peer educational interventions are frequently associated with positive learner outcomes, some scholars argue that peer-based support mechanisms may unintentionally reinforce social dependency or symbolic labelling if learners with impairments are consistently positioned as recipients rather than active contributors within collaborative learning processes.

Peer support, in the form of cooperative learning and buddy systems, has been found to enhance both the academic and social experiences of children with impairments in inclusive classrooms (Carter et al., 2015). Working alongside their peers, students with impairments can engage in collaborative problem-solving, which improves their learning outcomes and fosters positive social interactions. In Greater Bushenyi, adopting peer support strategies like cooperative learning and buddy systems can improve academic performance and social skills for children with impairments, helping them participate more fully in inclusive classrooms. However, the effectiveness of cooperative learning remains contested in overcrowded classrooms where teachers may struggle to monitor group dynamics effectively, thereby limiting meaningful participation for children with impairments.

Peer tutoring, where students are paired or grouped to help each other with academic tasks, has been shown to significantly improve academic achievement for children with impairments (Bowman-Perrott et al., 2013). This strategy enables children with impairments to receive personalized support in a less formal, non-threatening manner. Peer tutoring not only benefits the children with impairments but also enhances the academic performance of the peer tutors themselves, as teaching others reinforces their own learning (Tzani-Pepelasi et al., 2019). Peer tutoring helps students with impairments feel more confident and competent, promoting a sense of achievement and self-worth. Nevertheless, some scholars caution that peer tutoring may produce uneven outcomes because the quality of support depends heavily on the competence, commitment, and attitudes of peer tutors, factors that are rarely standardized across inclusive classrooms. In Greater Bushenyi, implementing peer tutoring can provide personalized academic support for children with impairments while boosting their confidence and self-esteem, and simultaneously reinforcing learning for their peer tutors.

Buddy systems involve pairing children with impairments with peers who provide social and academic support, helping them navigate the learning environment (Cavender, 2022). This system encourages the development of social skills, improves emotional well-being, and facilitates academic success. Studies show that children with impairments who participate in buddy systems experience greater engagement in classroom activities and improved academic outcomes, as they receive encouragement and assistance from their peers (Cavender, 2022; Paramasivam, 2016). In Greater Bushenyi, buddy systems can help children with impairments develop social skills, boost emotional well-being, and enhance academic engagement by providing consistent peer support within inclusive classrooms. This assumption of naturally supportive peer relations may be problematic in contexts where impairment stigma, bullying, or negative cultural perceptions persist despite formal inclusive education policies.

Collaborative learning was another key component of peer educational interventions. In collaborative settings, students work together in small groups to solve problems, share knowledge, and learn from one another (Jeong & Hmelo-Silver,2016). This approach fosters cooperation and enhances cognitive skills, particularly for students with impairments, as they benefit from peer interactions and diverse problem-solving strategies. When students with impairments are included in collaborative learning environments, they can contribute to and benefit from the collective knowledge of the group, leading to improved academic performance (Cline, 2020; Molina Roldán, Marauri, Aubert, & Flecha, 2021). In Greater Bushenyi, collaborative learning can provide children with impairments opportunities to engage actively with peers, develop problem-solving skills, and improve academic performance through shared learning experiences in inclusive classrooms. Furthermore, existing literature rarely distinguishes whether improved learner outcomes arise primarily from academic collaboration itself or from the emotional belonging and social acceptance generated through peer interaction. Numerous studies have shown that peer support interventions lead to improved academic outcomes for children with impairments (Dunn et al., 2017).

Peer tutoring, for example, has been found to significantly increase learning gains in subjects such as reading, mathematics, an Klangd language. Interacting with peers who provide explanations, encouragement, and feedback, students with impairments can better understand the content and improve their performance. In addition, the social benefits of peer support interventions, such as the development of social skills and the formation of positive peer relationships, further enhance the overall learning experience for students with impairments (Carter, 2017). In Greater Bushenyi, peer support interventions like tutoring and collaborative activities can improve academic achievement and foster social skills for children with impairments, creating a more inclusive and supportive learning environment.

However, much of the evidence supporting peer interventions originates from controlled or well-resourced educational environments, raising concerns regarding the transferability of such findings to rural and resource-constrained schools such as those in Greater Bushenyi.

Peer support interventions have been shown to increase self-esteem and motivation among children with impairments (Van Der Meulen, Granizo, & Del Barrio, 2021). As students with impairments receive social and academic support from their peers, they gain confidence in their abilities and feel more integrated into the classroom community (Bialka, Morro, Brown, & Hannah, 2017). This sense of belonging is crucial for their overall educational success and emotional well-being. Studies like (Shao, Kang, Lu, Zhang, & Li, 2024) indicate that students who feel accepted by their peers are more likely to actively participate in class activities and engage in learning, leading to improved academic achievement.

In Greater Bushenyi, peer support interventions can boost self-esteem, motivation, and classroom participation for children with impairments, helping them feel included and enhancing both their academic and social development. Although peer acceptance is associated with improved learner confidence and participation, existing studies inadequately explain how schools can sustain positive peer cultures in environments characterised by poverty, overcrowding, and limited teacher supervision.

The impact of peer educational interventions on learner achievement has been well-documented across a range of studies, with strong evidence supporting the effectiveness of peer support in promoting academic success for children with impairments (Dunn, Shelnut, Ryan, & Katsiyannis, 2017). The success of these interventions lies in their ability to reduce isolation, increase participation, and build confidence in students with impairments.

While peer educational interventions have proven effective, their implementation is not without challenges (Maillé, Beaulieu, Lachance, & Grégoire, 2025). One key challenge is ensuring that peer tutors or buddies are adequately trained to provide meaningful support to children with impairments (Carter et al., 2016). Without proper guidance, peer tutors may struggle to offer the level of assistance needed, potentially limiting the effectiveness of the intervention (Bowman-Perrott et al., 2013).

Furthermore, teachers must create a structured environment where peer support is encouraged and monitored, ensuring that students with impairments receive the help they need without being marginalized or excluded. In Greater Bushenyi, implementing peer educational interventions effectively requires training peer tutors and structuring classroom activities to ensure children with impairments receive meaningful support and are fully included in learning experiences. This suggests that the effectiveness of peer educational interventions may depend less on the intervention model itself and more on the institutional capacity of schools to structure, supervise, and sustain inclusive peer interactions.

Another challenge is the attitudes of students towards children with impairments (Gallego-Ortega & Rodríguez-Fuentes, 2021). In some cases, students may not have the necessary social skills or empathy to support their peers effectively, which can undermine the goals of peer educational interventions (Ginevra, Di Maggio, Valbusa, Santilli, & Nota, 2022). It is essential to foster an inclusive school culture where all students, regardless of ability, are valued and encouraged to engage with one another in supportive ways (Haines, Gross, Blue-Banning, Francis, & Turnbull, 2015). This may require ongoing training and awareness campaigns to promote positive attitudes towards impairment and inclusion within the school community. Consequently, inclusive education policies alone may be insufficient to transform peer behavior unless accompanied by broader cultural and attitudinal change initiatives within schools and communities.

In Greater Bushenyi, fostering positive student attitudes and an inclusive school culture is essential for peer educational interventions to succeed, ensuring that children with impairments receive genuine social and academic support from their classmates.

In rural areas, such as Greater Bushenyi, the effectiveness of peer educational interventions can be influenced by factors such as limited resources, teacher training, and cultural perceptions of impairment. In these settings, there may be fewer opportunities for professional development, and teachers may have limited experience with inclusive education practices. This can affect the ability of teachers to implement effective peer support interventions. However, studies in similar rural contexts suggest that, with appropriate training and support, peer support

strategies can be adapted to fit local needs and effectively enhance the learning outcomes of children with impairments (Topping et al., 2017).

In rural areas like Greater Bushenyi, peer support interventions may face additional challenges, but they also hold great potential for fostering inclusive learning environments and enhancing the overall educational experience of children with impairments.

While the global literature supports the effectiveness of peer educational interventions, some scholars argue that the success of such interventions heavily depends on contextual variables that are often underexplored in current research. For example, Topping et al. (2017) suggest that while peer tutoring improves learning outcomes, its effectiveness can vary across impairment types, subject areas, and classroom settings. Furthermore, questions remain about the sustainability of such interventions in environments where educational resources and teacher capacity are limited, conditions that typify rural Ugandan contexts like Greater Bushenyi. Indeed, much of the available literature originates from high-income countries with well-resourced education systems, which may not translate directly to the challenges of implementing peer interventions in under-resourced, rural, and culturally distinct regions.

Nevertheless, some scholars caution that peer-based interventions may unintentionally reinforce dependency or social labeling among children with impairments if not carefully structured. Furthermore, much of the literature assumes positive peer attitudes toward impairment, yet studies from low-resource settings suggest that stigma and exclusion often persist despite inclusive education policies. A major unresolved debate within the literature concerns whether peer educational interventions primarily enhance academic achievement directly or whether their influence is mediated through improved emotional well-being, classroom participation, and social belonging. Existing evidence remains inconclusive regarding the relative contribution of these mechanisms.

The literature on peer-to-peer educational interventions generally presents a strong case that approaches such as peer tutoring, buddy systems, and collaborative learning enhance both academic achievement and social inclusion for children with impairments. I agree with the importance of peer interaction in inclusive education because it creates opportunities for shared learning, support, and participation that teachers alone may not always provide. However, I also find that much of this literature is overly optimistic and does not sufficiently interrogate the conditions under which peer support actually produces meaningful learning outcomes.

A key conceptual weakness, in my view, is the assumption that peer relationships are automatically positive in inclusive classrooms. This is a rather idealized assumption that does not always reflect reality, especially in contexts where stigma, bullying, or negative perceptions of impairment still exist. In such environments, peer interventions may not necessarily lead to inclusion; instead, they may reinforce exclusion, dependency, or social labeling of learners with impairments. This limitation is not always adequately acknowledged in the literature.

Another important gap is the lack of clarity on the actual mechanism through which peer interventions influence learner achievement. While many studies report improved academic performance and participation, they rarely explain whether these outcomes are driven by academic scaffolding (such as explanation and correction), emotional support (such as belonging and confidence), or increased exposure to classroom content. I consider this a serious theoretical weakness because it leaves the process of learning improvement largely unexplained.

There is also a strong contextual limitation in the existing body of evidence. Much of the literature is based on studies conducted in well-resourced or highly structured educational environments. From my reading, this raises concerns about whether the same positive outcomes would be achieved in rural and resource-constrained settings such as Greater Bushenyi, where overcrowded classrooms, limited teacher supervision, and inadequate learning resources may significantly affect how peer interactions function in practice. I therefore question the generalizability of many of the reported findings.

All this together, while I acknowledge the value of peer educational interventions in promoting inclusion and learning, I argue that the literature does not sufficiently explain their boundaries, mechanisms, and contextual dependence. This leaves a conceptual gap in understanding how, when, and under what conditions peer interventions genuinely contribute to learner achievement among children with impairments, particularly in rural inclusive education settings. And while global literature supports the effectiveness of peer interventions, a significant debate exists regarding their sustainability in environments like Greater Bushenyi, where teacher capacity to monitor these interactions is limited. Without structured 'buddy systems,' peer-to-peer interaction risks being incidental rather than instructional, potentially reinforcing social labeling rather than academic achievement.

3. Methodology

3.1 Introduction

This chapter presents the research paradigm, research approach, research design, study population, sample size and sample size determination, sampling techniques, data collection methods, data collection instruments, validity

and reliability, data analysis, measurement of variables, development of instruments, procedure for data collection, methods of data analysis and ethical considerations.

3.2 Research Paradigm

This study was anchored in the pragmatic research philosophy, which emphasizes the use of methods and strategies that best address the research problem. Pragmatism rejects the rigidity of purely positivist or interpretivist positions, focusing instead on what works to understand real-world issues (Elgeddawy & Abouraia, 2024). Pragmatism enabled the study to combine statistical evidence on learner outcomes with rich descriptions of stakeholder experiences and the contextual factors that influence these outcomes.

3.3 Research Approach

The study adopted a mixed-methods research approach, integrating both quantitative and qualitative methods to provide a comprehensive understanding of the relationship between educational interventions and learner achievement among children with impairments (Stadtländer, 2009). The mixed-methods approach is appropriate because it allows the collection of both measurable data and contextual insights within a single study, leading to a richer, more holistic understanding of the research problem (Ahmed, Pereira, & Kimberly, 2023).

3.4 Research Design

This study employed a Convergent Mixed Methods Design, in which quantitative and qualitative data are collected concurrently, analyzed separately, and then integrated during interpretation to provide a comprehensive understanding of the research problem (Creswell, 2014; Creswell & Plano Clark, 2018). The design was considered appropriate because the study sought not only to establish the statistical influence of educational interventions on learner achievement among children with impairments but also to understand the contextual, institutional, and policy-related factors that shape these relationships within inclusive public primary schools in Greater Bushenyi.

3.5 Sampling Procedure

The target population for this study comprised all mainstream government primary schools with inclusive practices in the five districts of Greater Bushenyi: Buhweju, Bushenyi, Mitooma, Rubirizi, and Sheema. These schools were selected because they are directly influenced by government policies and rely on public funding, both of which affect the resources available for interventions supporting children with impairments. The sampling frame consisted of official lists of all-inclusive government primary schools in the five districts, obtained from the respective District Education Offices. These lists helped identify the distribution of inclusive schools and guide the selection of study districts. Within Greater Bushenyi, the study focused on Bushenyi and Mitooma Districts. The choice of these two districts was justified by both statistical evidence and contextual considerations based on their larger numbers compared to those of other districts. The study used Krejcie and Morgan (1970) table to determine the sample size. The choice was based on the fact that it offers a simple and widely accepted method for selecting and statistical rigor.

Table 1. Sample Size

District	Number of Schools	School Sample Size	Teacher Sample Size (2 per school)	Sample size for Head teachers (1 per school)	Number of Learners with impairments	Pupil Sample Size	Response, n (%)
Bushenyi	29	25	25	25	226	109	98 (89.9)
Mitooma	37	32	32	32	180	87	87 (100.0)
Total	**66**	**57**	**57**	**57**	406	**196**	**185 (94.4)**

3.6 Sampling Techniques

Probability sampling techniques were used for quantitative data to enhance representativeness, while purposive sampling was employed for qualitative participants to ensure selection of information-rich cases relevant to inclusive education.

3.7 Data Collection Methods

Quantitative and Qualitative methods of data collection were used. The study used questionnaires for the quantitative strand and interviews for the qualitative strand.

3.8 Data Quality Control

To ensure the reliability and validity of the quantitative data in this study, a series of rigorous measures were implemented. Research assistants underwent comprehensive training to familiarize themselves with the study objectives, data collection tools, and ethical guidelines. A pilot study was conducted in a small sample of inclusive public primary schools that were not part of the study to test the effectiveness of the data collection instruments. Feedback from the pilot phase was used to refine the tools and address ambiguities (Mackiewicz, 2018). In addition, all instruments were pre-tested for clarity and relevance to minimize errors during the actual data collection process (Taherdoost, 2016). Content validity was further ensured through expert review and alignment of instrument items with established literature and validated scales.

Standardization of the data collection process was maintained across all participating schools to ensure uniformity. To maintain data integrity, all collected data were cross-checked for completeness and accuracy, while ethical considerations were prioritized throughout the study.

The reliability of the quantitative instruments was assessed using Cronbach's alpha (1971) to confirm internal consistency and determine whether the instruments consistently measured the intended constructs (Bonett & Wright, 2015). The scales and constructs demonstrated acceptable to excellent reliability ($\alpha \geq 0.70$). Specifically, alpha coefficients for the constructs were: II = 0.963, PF = 0.962 and SES = 0.952. The overall learner achievement scale also demonstrated acceptable reliability ($\alpha = 0.782$), confirming its suitability for analysis. Teacher support and care and teacher–learner communication showed acceptable reliability ($\alpha \geq 0.75$), while mutual respect ($\alpha = 0.800$) and teacher responsiveness ($\alpha = 0.845$) demonstrated good reliability. The overall teacher-learner educational intervention scale exhibited excellent reliability ($\alpha = 0.912$), indicating that the items consistently measured the intended constructs.

For the qualitative component of the study, trustworthiness and credibility of the data were prioritized. Research assistants were trained in qualitative data collection techniques, particularly in conducting in-depth interviews, to ensure consistency and depth in the information gathered (Anderson, Herr, & Nihlen, 2007).

A pilot study was conducted in inclusive schools that were not part of the study to test the interview guides. Credibility was further enhanced through triangulation and member checking, where participants were given the opportunity to review and confirm the accuracy of their responses to ensure that their perspectives were accurately represented (Solutions, 2020).

To further ensure linguistic validity, all qualitative data collected in Runyankore were subjected to a 'back-translation' process, where transcripts were translated into English and then back to Runyankore by an independent linguist to confirm that the original meanings and cultural details of the participants were preserved.

3.9 Measurements

The instruments were aligned with both the quantitative and qualitative components of the study. Questionnaires captured measurable variables, while interview guides explored perceptions, experiences, and contextual influences.

3.10 Procedure for Data Collection

The study was conducted between 5th- 27th February-27th 2026 in Mitooma district, and 2nd-31st March 2026 in Bushenyi district using a structured, stepwise approach. Preparations involved validating tools, training two assistants in special needs education, and pre-testing instruments in non-sampled schools. Data collection in each district spanned three weeks, beginning with head teacher briefings, followed by questionnaires, interviews with teachers and head teachers, and learner assessments.

Teachers completed questionnaires on the same day, while children with impairments were assessed using achievement score sheets and the Rosenberg Self-Esteem Scale, each lasting 10–15 minutes depending on impairment type. Head teachers participated in audio-recorded interviews with consent. At the end of each week, the researcher reviewed instruments for accuracy, organized data for entry, and securely stored both digital and hard copies.

3.11 Methods of Data Analysis

The study used a mixed-methods approach, combining quantitative and qualitative techniques. For peer-to-peer interventions, descriptive statistics summarized learner-learner relationships, social acceptance, peer support, and positive interactions. Pearson correlation assessed the strength and direction of these relationships with learner achievement, while regression analysis determined their predictive effect. Qualitative thematic analysis explored

how peer relationships, social inclusion, and collaborative learning influenced outcomes. Integration of findings showed that peer support and interaction significantly contributed to learner achievement, with qualitative insights explaining the statistical associations.

3.12 Ethical Considerations

Ethical clearance was obtained from Kabale University Research Ethics Committee (REC) and approval granted by the Uganda National Council for Science and Technology (UNCST). Written informed consent was obtained from parents or legal guardians of participating children, and assent was sought from the children using impairment-friendly and age-appropriate approaches (verbal, written, or sign language). Confidentiality was maintained by coding responses and securely storing data, with findings reported anonymously. Participation was voluntary, with the right to withdraw at any stage without consequence. Psychological risks were minimized by creating safe environments, discontinuing interviews if distress was observed, and referring participants to school counseling services when necessary. Academic integrity was upheld through strict anti-plagiarism measures and similarity checks.

3.13 Limitations of the Study

The study faced several limitations: variability in impairment types constrained generalization, with intellectual impairments analyzed separately and physical impairments grouped broadly; access to learners was restricted by consent requirements and institutional gatekeeping; communication challenges for deaf, blind, and deaf-blind learners introduced interpreter bias and logistical constraints; potential bias from teachers and staff remained despite confidentiality and triangulation; standard academic tests inadequately captured achievement, even with adapted tools; resource and feasibility constraints limited scope and depth; and survival bias affected representativeness, as only current learners who persisted were included.

4. Data Presentation, Analysis and Interpretation of Findings

4.1 Introduction

This chapter deals with data presentation, analysis, and interpretation of research findings on the influence of Educational Interventions and Learner Achievement for Children with impairments in Inclusive Public Primary Schools of the Greater Bushenyi District in Western Uganda.

Table 2. Pearson Correlation for Peer-to-Peer Educational Interventions and Learner Achievement (N = 185)

Variable	1	2	3	4	5	6	7	8	9
1. Learner Achievement (LA)	1.000								
2. Intellectual Impairment (II)	0.480***	1.000							
3. Physical Impairment (PI)	0.471***	-0.438***	1.000						
4. Self-Esteem (SES)	0.580***	0.052	0.120	1.000					
5. Peer-Peer School Educational Interventions (PPEIs)	0.190**	0.192**	0.046	0.006	1.000				
6.Learner-Learner Relationships (LLRs)	0.157*	0.130	0.065	0.008	0.869***	1.000			
7. Social Acceptance (SA)	0.125	0.158*	0.026	-0.044	0.963***	0.861***	1.000		
8. Peer Support (PS)	0.215**	0.189*	0.055	0.053	0.931***	0.692***	0.868***	1.000	
9. Positive Peer Interactions (PPIs)	0.194**	0.220**	0.025	0.001	0.923***	0.699***	0.834***	0.847***	1.000

*p < 0.05 **p < 0.01 ***p < 0.001

Peer-to-peer educational interventions were positively linked to learner achievement (r=0.190, p<0.01), indicating that improved peer interactions enhance outcomes for children with impairments. Stronger associations were observed for **peer support** (r=0.215, p<0.01) and **positive peer interactions** (r=0.194, p<0.01), while **learner–**

learner relationships showed a weaker but significant effect (r=0.157, p<0.05). This suggests that active help and cooperation from classmates matter more than mere presence in the same classroom.

By contrast, **social acceptance** (r=0.125, p>0.05) was not significant, implying that being "liked" without active support does not improve academic performance. Overall, the findings highlight that achievement gains stem from peers who actively assist and engage, rather than passive acceptance alone.

Very high correlations were observed among peer-to-peer intervention constructs (r=0.692–0.963), showing substantial overlap. This suggests possible multicollinearity if entered together in regression models and indicates that these constructs form a unified dimension of school interventions. In practice, peer support, interaction, and learner relationships occur together—improving one typically strengthens the others, reflecting interconnected experiences in real classrooms.

The above is further backed by the following qualitative findings from head teachers:

"When learners with impairments receive encouragement from their classmates, they show more confidence in class and attempt tasks they previously avoided. I have seen children who once kept quiet begin to raise their hands and participate actively. Peer support makes a visible difference in their achievement, because it transforms the classroom into a space where they feel capable and valued." ***Bushenyi Head Teacher****:*

Relatedly, another head teacher had to say:

"It is not enough for children with impairments to be accepted socially; what truly helps is when peers actively assist them in learning activities. For example, when classmates share notes, explain concepts, or patiently guide them through exercises, the learners improve both their performance and self-esteem. That cooperation is what bridges the gap between inclusion and actual academic success." ***Mitooma Head Teacher****:*

These enriched quotations highlight the lived experiences of school leaders, directly reinforcing the statistical evidence that peer support and positive peer interactions are more impactful for learner achievement than mere social acceptance.

Table 3. Regression Results

Variable	B	SE	β	t	p-value
PPEIs (Peer –Peer Educational Interventions)	0.140	0.054	0.190	2.61	0.010**
Constant	3.563	0.187		19.06	0.000
R^2	0.036				
Adj. R^2	0.031				
F-statistic	6.82				0.010
N	185				

*p < 0.05 **p < 0.01 ***p < 0.001

A simple linear regression examined the effect of peer educational interventions (PPEIs) on learner achievement (LA) among children with impairments. The model was significant, F (1,183) = 6.82, p=0.010, showing that PPEIs predict achievement. Regression results (B = 0.140, β = 0.190, p = 0.010) confirm a positive effect.

These findings suggest that peer interactions foster belonging, collaboration, and emotional support, contributing to achievement. However, the moderate relationship indicates that peer support alone cannot overcome deeper institutional and instructional barriers. As one head teacher in Mitooma noted, *"I observed learners with impairments making progress when classmates offered assistance during lessons."*

Learners would actively support one another in understanding classroom content:

"It was an English lesson. Then I observed the classroom situation where one student with impairment raised up his hand and other learners were happy to teach him how to pronounce some English word. The disabled learner felt valued and went on praising her colleagues throughout after class."

Similarly, the same head teacher (DT4) notes that it is important to encourage peer-to-peer learning especially in inclusive classrooms. Such peer-to-peer learning enables learners to feel free when studying because they are talking to people that they relate with on a daily basis. In his own words, the head teacher says,

> *"In peer-to-peer sessions, children with impairments discuss freely with fellow learners because they are age mates. Such informal peer discussions create a comfortable learning*

environment that promotes understanding and participation for all learners." (Head teacher Mitooma district.)

The theme of positive peer relationships further strengthens improved achievement where learners reported being socially accepted and emotionally supported.

"When you encourage all children to play together, they really feel at home (…). It becomes difficult for fellow learners to segregate those that are disabled (…). Positive peer-relations enable learners in inclusive classrooms and schools enjoy being around children with impairments. These experiences confirm that inclusion and belonging reduce anxiety

and increase engagement." A head teacher (HT4) from Bushenyi district shared views as told by his teacher who told him as above.

All this implies that when learners feel accepted and valued by peers, they become more confident and more willing to participate in learning activities, which ultimately improves academic performance. However, the model explains only a small proportion of variance in learner achievement ($R^2 = 0.036$), suggesting that although peer dynamics are important in learning for children with impairments, they are still not sufficient on their own to determine effective learning outcomes. There is need for more peer sensitization to boost peer-to-peer interactions, as one head teacher (DT1) indicated:

"Peer sensitization efforts such as assemblies and equality messaging are indeed necessary to encourage learners in inclusive school to value respect for all. We always hold assemblies to sensitize these learners (…) because we think that by telling them that they should support their fellow learners like the disabled, it brings about equality. These structured awareness practices help reduce stigma and foster more supportive peer environments, which reinforce positive learning." (Head teacher, Mitooma district)

Peer-to-peer relations in classrooms and outside of class help to build positive attitudes and strong support mechanisms for children with impairments. They enable reduction in occasional stigma and exclusion. They also support functional and academic needs through guiding visually impaired learners and assisting with tasks. Through peer support children with impairments are guided to acc**ess** learning.

Table 4. ANOVA Results for Peer-Peer Interventions and Learner Achievement (N = 185)

Source of Variation	Sum of Squares (SS)	Df	Mean Square (MS)	F	Sig.
Regression	11.16	1	11.16	11.84	0.000***
Residual (Error)	171.84	183	0.94		
Total	183.00	184			

ANOVA results show that peer–peer relationships significantly influence learner achievement among children with impairments ($F=11.84$, $p=0.001$). Positive interactions contribute meaningfully to academic outcomes, as learners who are accepted, supported, and engaged by peers participate more actively and perform better.

Peer support fosters inclusive classrooms where learners feel valued, reducing isolation, boosting confidence, and encouraging both academic and social engagement.

One head teacher explained:

"Whenever children with impairments are included in group discussions and classroom activities together with their friends, they become more confident and willing to participate. Their classmates often help them understand instructions, share learning materials, and encourage them to contribute during lessons." (DT3-Mitooma District)

Similarly, another respondent observed:

"We encourage learners to work together in mixed groups so that children with impairments do not feel left out. Through these interactions, they develop friendships, improve communication skills, and become more motivated to attend and participate in class." (HT2- Bushenyi district)

However, peer support alone does not guarantee academic success. Respondents acknowledged that factors such as family support, availability of learning materials, teacher assistance, and the nature of the impairment also influence educational outcomes. Nevertheless, the results suggest that strengthening positive peer relationships

within inclusive classrooms can significantly contribute to improved learning experiences and achievement among children with impairments.

5. Study Findings

Peer-to-peer interventions had a positive, significant effect on learner achievement, with peer support and positive interactions stronger than social acceptance, which was not significant. Qualitative evidence showed peers reduced stigma and boosted participation, confidence, and motivation, though exclusion and negative attitudes persisted.

These findings align with prior studies (Bialka et al., 2017; Carter et al., 2015; Dunn et al., 2017; Shao et al., 2024; Van Der Meulen et al., 2021), which highlight peer collaboration and integration as beneficial for academic and psychosocial outcomes. Authentic, reciprocal engagement (Molina Roldán et al., 2021) enhances learning, while informal or poorly structured interventions may have limited impact in resource-constrained contexts (Bowman-Perrott et al., 2013; Carter et al., 2016; Maillé et al., 2025).

Recent reviews (Felső & Fehérvári, 2026) show peer-led programs consistently improve empathy and school climate but yield modest academic gains, often constrained by reliance on self-reports and short follow-ups. Thus, peer support's primary value lies in fostering inclusion and psychosocial well-being rather than strong academic outcomes.

In practice, peer systems such as "study buddies" or inclusive debate clubs help learners with impairments build collaboration, confidence, and leadership skills. Formalizing such structures transforms everyday interactions into competence-building opportunities for inclusive participation.

Conclusion: Peer interventions enhance achievement mainly through authentic, supportive engagement, though effects remain modest and context-dependent.

5.1 Conclusion

Peer-to-peer interventions significantly improved learner achievement, with peer support ($r=0.215$) and positive interactions ($r=0.194$) stronger than social acceptance, which was not significant. Qualitative evidence showed peers reduced stigma and boosted confidence, though exclusion and negative attitudes remained.

These results align with prior studies (Bialka et al., 2017; Carter et al., 2015; Dunn et al., 2017; Shao et al., 2024; Van Der Meulen et al., 2021), highlighting peer collaboration and authentic engagement (Molina Roldán et al., 2021) as key to inclusion. Poorly structured interventions, however, may have limited impact (Bowman-Perrott et al., 2013; Carter et al., 2016; Maillé et al., 2025).

Systematic reviews (Felső & Fehérvári, 2026) show peer-led programs consistently improve empathy and school climate but yield modest academic gains, often constrained by self-report measures and short follow-ups. Thus, peer support's main value lies in fostering inclusion and psychosocial well-being rather than strong academic outcomes.

Practical approaches such as "study buddies" or inclusive debate clubs help learners with impairments build collaboration, confidence, and leadership. Formalizing such structures turns everyday interactions into competence-building opportunities for inclusive participation.

Conclusion: Peer interventions enhance achievement through supportive engagement, though effects remain modest and context-dependent.

5.2 Recommendations

Institutionalize structured peer support and inclusive school cultures for children with impairments. In Greater Bushenyi, peer support should be embedded to promote social inclusion and build lifelong competencies. For instance, peer tutoring in mathematics enables learners with impairments to practice numeracy while peers gain mentoring skills. Inclusive extracurriculars, such as drama clubs with sign language performances, reinforce communication and confidence.

To sustain these practices, sub-county hubs functioning as inclusive schools can serve as demonstration centers, offering model peer-support programs and guidance on complex integration cases. Embedding peer interventions into school culture ensures alignment with Uganda's competence-based curriculum and contributes to improved learner achievement.

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