ASEAN Journal of Educational Research and Technology

Journal homepage: https://ejournal.bumipublikasinusantara.id/index.php/ajert

Effect of Cross-Over Learning on Pupils' Academic Performance in Civic Education

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ABSTRACT

This study examined the effect of crossover learning on pupils' academic performance in Civic Education in Ilorin West Local Government Area of Kwara State. A quasi-experimental design involving pre-test, post-test, and control groups was adopted. Using simple random sampling, both public and private schools were selected for the study. The instrument used Pupils' Civic Education Performance Test (PCEPT), was validated by experts and found to be reliable. Data were analyzed using Analysis of Covariance (ANCOVA). The results showed that crossover learning had a significant effect on pupils' academic performance, with pupils exposed to crossover learning performing better than those taught with conventional methods. However, there was no significant interaction effect between crossover learning and gender or school type. The study recommends that Civic Education teachers adopt crossover learning strategies in their classrooms and that educational stakeholders organize training programs to help teachers implement this approach effectively.

ARTICLE INFO

Article History:
Submitted/Received 18 Nov 2024
First Revised 20 Dec 2024
Accepted 26 Feb 2025
First Available online 27 Feb 2025
Publication Date 01 Mar 2025

Keyword:
Academic performance,
Civic education,
Crossover learning,
Gender,
School type.

1. INTRODUCTION

Crossover learning is an innovative teaching methodology that aims to bridge formal and informal education environments. This method connects academic content with everyday learning experiences, allowing schoolwork to be linked to practical experiences outside the classroom. Crossover learning is particularly effective in making curricular content more relatable and engaging to students by connecting their classroom activities with interests and experiences from their daily lives. For instance, students may learn certain subjects more effectively when they are exposed to them outside the classroom, such as through visits to nature parks, museums, theaters, or exhibitions. In these settings, students interpret real-world experiences in light of what they learn at school, making the learning process more meaningful and memorable (Sun & Looi, 2018).

Crossover learning helps enrich classroom instruction by drawing from everyday life experiences and integrating them into the formal education process. Informal learning becomes more meaningful when students apply classroom concepts in real-world contexts, and formal instruction becomes more engaging when students bring their personal experiences into class discussions. These connected experiences spark curiosity, enhance motivation, and create opportunities for deeper learning (Merchant, 2012). Crossover learning combines formal education, which is structured and occurs in institutions like schools, with informal education, which occurs in the home, society, or community settings. While formal learning typically follows a systematic and rule-based approach, informal learning is unstructured and evolves through experiences such as home life, social interactions, homeschooling, and peer learning (Prunuske *et al*., 2016).

Crossover learning has been identified as one of the top educational innovations with the potential to significantly impact teaching and learning. Many students struggle with traditional methods of instruction, particularly in subjects such as Civic Education. Crossover learning offers an alternative, student-centered approach that aligns with constructivist principles and supports the development of independent thinking. By integrating field trips and real-world experiences into classroom instruction, crossover learning promotes active learning, exploration, and application of knowledge beyond the school walls (Prunuske *et al*., 2016).

An effective crossover learning strategy may begin in the classroom with a teacher posing a central question. Students can then explore this question outside the classroom—such as during a field trip to a museum or community center—gathering notes, images, or reflections to bring back to the classroom. These artifacts are then used to generate group discussions, individual reflections, or project-based work. The synergy between in-class and out-of-class experiences supports authentic and meaningful learning (Chua & Islam, 2021).

Crossover learning encourages learners to make personal connections with academic content, increasing retention and engagement. For example, when students explore topics like governance, road safety, or citizenship during community visits, they contextualize their knowledge of Civic Education in a way that textbooks alone cannot offer. Informal settings allow children to explore, ask questions, and draw conclusions based on their observations and interactions. These experiences help students develop higher-order thinking skills, such as analysis and synthesis, while also improving motivation and curiosity (Lu *et al*, 2021).

While traditional schooling often fails to acknowledge that learning continues outside the classroom, crossover learning embraces this reality. Students can deepen their understanding by exploring real-life problems, recording their experiences, and sharing findings with peers in class. Teachers can also foster creativity and problem-solving through hands-on activities,

visual tools, games, and discussions that connect theory to practice. Students are more likely to engage with and retain information when it is relevant and personally meaningful (Heddy *et al*., 2017).

Crossover learning not only supports cognitive development but also helps children build confidence and communication skills. When children are encouraged to present their findings or lead classroom discussions, they become active participants in their education. This student-centered approach fosters a sense of ownership and self-efficacy, which is essential for lifelong learning. Allowing students to explore independently and make mistakes helps develop resilience and critical thinking (Pandita & Kiran, 2023).

Gender is an important sociocultural construct that influences educational experiences and outcomes. It defines roles, attitudes, and expectations assigned to individuals based on their sex. Gender disparities in education have been widely discussed, with various stakeholders emphasizing the importance of addressing these gaps. Conferences such as the 2001 Science Teachers Association of Nigeria (STAN) meeting highlighted the need to improve girls' access and performance in STEM fields. It was also acknowledged that gender bias among students and teachers can significantly influence learning outcomes (Legewie & DiPrete, 2012).

In addition to gender, school type—whether public or private—also plays a significant role in shaping student performance. Private schools are often better equipped with resources, facilities, and instructional materials, contributing to higher academic achievement (Ajaegbu, 1999). Many parents prefer private institutions for their children, believing they offer better learning outcomes. However, some researchers argue that school type affects behavior more than academic performance and that public and private schools should both align with national education goals (Day *et al*., 2016). As student populations continue to grow, understanding the impact of school type on academic performance becomes increasingly important (Hitt & Tucker, 2016).

Despite the growing recognition of crossover learning, Civic Education teachers in many schools still rely heavily on traditional lecture-based instruction. This can result in a lack of student engagement and poor academic performance. Civic Education is a vital subject that equips learners with the knowledge and skills to become responsible citizens. A lack of innovation in its delivery undermines its purpose and reduces its effectiveness in promoting active citizenship. To address this issue, it is necessary to adopt more engaging and interactive strategies, such as crossover learning, which connects Civic Education content with real-life experiences and societal issues (Lau, 2019).

Although previous studies have explored the effect of crossover learning on student achievement and the influence of gender and school type on academic performance, there remains a need for context-specific research in regions like Ilorin West Local Government Area of Kwara State. The persistent underperformance of pupils in Civic Education, despite ongoing efforts, calls for an evaluation of innovative teaching strategies like crossover learning. It is essential to determine whether crossover learning can improve outcomes across different school types and among both male and female students. Furthermore, exploring these relationships within a local context can provide valuable data to inform future policies, curriculum design, and teacher training programs.

This study, therefore, aims to investigate the effect of crossover learning on pupils' academic performance in Civic Education in Ilorin West Local Government Area of Kwara State. It also seeks to examine whether there are significant differences in performance based on gender and school type when crossover learning is implemented. By identifying the effectiveness of this teaching strategy, the study hopes to contribute to the improvement of

Civic Education delivery and support the adoption of innovative, learner-centered pedagogies in primary education.

Furthermore, there have been conflicting findings on the impact of school type on students' academic achievement. Some studies argue that students in private schools outperform their counterparts in public schools due to better resources and learning environments, while others claim that public school students, given the right support, perform equally well or better. This variation has raised questions about whether the type of school attended significantly influences academic outcomes when modern instructional methods such as crossover learning are employed (Day *et al*., 2016; Hitt & Tucker, 2016). Therefore, understanding how school type interacts with innovative strategies like crossover learning is essential for making informed educational decisions.

In addition, while gender disparities in education have been widely acknowledged, it remains uncertain whether these differences significantly affect academic performance when students are exposed to interactive and experiential learning methods. Some studies have found female students outperforming males, particularly in subjects requiring attention to detail and communication, whereas others have reported no significant gender-based differences when equal learning opportunities are provided (Zawadzki *et al*., 2014). Hence, examining whether crossover learning produces different outcomes across genders is a necessary component of this research.

Traditional methods of teaching Civic Education, such as rote memorization and lecture-based instruction, often fail to stimulate student interest or promote meaningful understanding. This has contributed to poor performance in the subject and a lack of civic awareness among pupils. Despite the subject's relevance to national development and democratic participation, it remains under-emphasized in terms of pedagogical innovation. By incorporating crossover learning into Civic Education, teachers can leverage learners' natural curiosity and real-world experiences to promote critical thinking, problem-solving, and responsible citizenship.

Therefore, this study aims to examine the effect of crossover learning on pupils' academic performance in Civic Education in the Ilorin West Local Government Area of Kwara State. It also investigates whether gender and school type moderate the impact of crossover learning on pupils' achievement.

The purpose of this research is to determine whether crossover learning significantly improves pupils' performance compared to conventional teaching methods and whether this effect differs by gender or school type. The novelty of this study lies in its local focus and subject-specific approach—exploring the impact of crossover learning on Civic Education in Nigerian primary schools, a relatively under-researched area. It also uniquely contributes by integrating both gender and school type into the analysis, offering nuanced insights for educators, policymakers, and curriculum developers seeking to improve learning outcomes through innovative pedagogies. Research Hypotheses are the following:

(i) H01: There is no significant effect of crossover learning on pupils' academic performance in the Ilorin West local government area of Kwara state.
(ii) H02: There is no significant effect of crossover learning and school type on pupils' academic performance in the Ilorin West local government area of Kwara state.
(iii) H03: There is no significant effect of crossover learning and gender on pupils' academic performance in the Ilorin West local government area of Kwara state.
(iv) H04: There is no significant effect of crossover learning, school type, and gender on pupils' academic performance in the Ilorin West local government area of Kwara state.

2. METHODS

This study adopted a pre-test, post-test, control group quasi-experimental research design, which is appropriate for determining the effects of a treatment when random assignment is not feasible. The design involved two experimental groups exposed to crossover learning and two control groups taught using conventional methods.

The population for the study comprised all pupils in both private and public primary schools in Ilorin West Local Government Area of Kwara State, Nigeria. A simple random sampling technique was employed to select four schools, two public, and two privates. These schools were randomly assigned to either the experimental or control group. Primary Two intact classes were used from each school to maintain natural classroom settings and avoid disruptions in learning. The instrumentation for this study consisted of two key tools:

(i) Pupils' Civic Education Performance Test (PCEPT) – a 20-item multiple-choice achievement test developed by the researchers based on topics from the primary Civic Education curriculum, specifically on "Road Traffic" and "Accident".

(ii) Instructional Package for Crossover Learning Technique (IPCLT) – a structured guide used to deliver the intervention in the experimental groups.

Both instruments were subjected to face and content validity by experts in Early Childhood and Primary Education. For reliability, the PCEPT was administered using the test-retest method with a two-week interval in a different school not included in the main study. The resulting data were analyzed using Pearson Product Moment Correlation, yielding a reliability coefficient of 0.85, indicating high reliability.

The intervention involved the use of crossover learning strategies such as real-life simulations, outdoor learning, and connecting classroom content to informal settings (e.g., field trips, and observation tasks). The control groups received instruction through conventional lecture methods.

After the intervention, post-tests were administered to both groups. Data collected were analyzed using inferential statistics. Specifically, Analysis of Covariance (ANCOVA) was used to test the hypotheses at the 0.05 level of significance. ANCOVA helped to control for the effects of pre-test scores and isolate the impact of the crossover learning intervention.

3. RESULTS AND DISCUSSION

3.1. H01: There is no significant effect of crossover learning on pupil's academic performance in Ilorin West Local Government Area of Kwara State

Table 1 shows the main effect of crossover learning on pupils' academic performance in the Ilorin West Local Government Area of Kwara State. The finding revealed that there was a significant main effect of crossover learning on pupil's academic performance in Ilorin West Local Government Area of Kwara State ($F(1; 69) = 4.051$, $P < 0.05$). The hypothesis is therefore rejected in light of the result since the significant value (0. 048) is less than 0.05. This implies that there is a significant main effect of treatment on pupils' academic performance in Ilorin West Local Government Area of Kwara State.

Table 1. Summary of analysis of covariance (ANCOVA) showing the main effect of crossover learning on pupils' academic performance in Ilorin West Local Government Area of Kwara State.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	43.144a	8	10.786	1.051	0.388
Intercept	888.599	1	888.599	86.604	0.000
Pretest	0.154	1	0.154	0.015	0.903
Treatment	41.562	1	41.562	4.051	0.048
Treatment*Gender	0.377	1	0.377	0.037	0.849
Treatment*School Type	0.132	1	0.132	0.013	0.910
Treatment*Gender*School Type	0.193	1	0.533	0.423	0.753
Error	666.928	65	10.260		
Total	17839.000	70			
Corrected Total	710.071	69			
a. R Squared = 0.061 (Adjusted R Squared = 0.003)					

3.2. H02: There is no significant effect of crossover learning and gender on pupil's academic performance in Ilorin West Local Government Area of Kwara State.

Data in **Table 1** revealed the effect of crossover learning and gender on pupils' academic performance in the Ilorin West Local Government Area of Kwara State. The finding shows that there was no significant effect of crossover learning and gender on pupils' academic performance in Ilorin West Local Government Area of Kwara State ($F_{(1; 69)} = 0.037$; $P > 0.05$). The hypothesis is therefore not rejected in light of the result since the significant value (0.849) is greater than 0.05. This implies that treatment and gender had no significant effect on pupils' academic performance in Ilorin West Local Government Area of Kwara State.

Table 2 data revealed that the significant main effect exposed by **Table 1** is as a result the significant difference between cross-over-learning and conventional method. Cross-Over Learning refers to the experimental group, while the conventional method is known as the control group. This implies that those exposed to Cross Over Learning (16.544) performed significantly higher than those exposed to conventional methods (14.931).

Table 2. Summary of Bonferroni's Poc hoc Pairwise Comparison of the scores within the two groups.

Treatment	Mean Difference	Experimental	Control
Cross Over Learning	16.544a	*	
Conventional Method	14.931a		*

3.3. H03: There is no significant main effect of treatment and school type on pupil's academic performance in Ilorin West Local Government Area of Kwara State.

Data in **Table 2** revealed the effect of treatment and school type on pupils' academic performance in Ilorin West Local Government Area of Kwara State. The finding shows that there was no significant effect of treatment and school type on pupil's academic performance in Ilorin West Local Government Area of Kwara State ($F_{(1; 69)} = 0.013$; $P < 0.05$). The hypothesis is therefore not rejected in light of the result since the significant value (0.910) is more than 0.05. This implies that treatment and school type had no significant effect on pupil's academic performance in the Ilorin West Local Government Area of Kwara State.

3.4. H04: There is no significant main effect of treatment, gender, and school type on pupil's academic performance in Ilorin West Local Government Area of Kwara State.

Data in **Table 1** revealed the effect of treatment, gender, and school type on pupil's academic performance in Ilorin West Local Government Area of Kwara State. The finding shows that there was no significant effect of treatment, gender, and school type on pupil's academic performance in Ilorin West Local Government Area of Kwara State ($F_{(1; 69)} = 0.423$; $P > 0.05$). The hypothesis is therefore not rejected in light of the result since the significant value (0.753) is more than 0.05. This implies that personalized instruction, gender, and school type had no significant effect on pupil's academic performance in the Ilorin West Local Government Area of Kwara State.

The primary objective of this study was to examine the effect of crossover learning on pupils' academic performance in Civic Education. The findings revealed a significant main effect of crossover learning, indicating that pupils exposed to this instructional method performed better than those taught using the conventional lecture method. This result supports the view that crossover learning, by linking formal education with real-world, informal learning experiences, enhances learners' engagement, retention, and understanding of subject matter. The approach offers pupils opportunities to connect classroom content with practical, everyday life situations, thereby deepening comprehension and motivation to learn (Prunuske et al., 2016; Chua & Islam, 2021; Sulyman, 2022; Sulyman & Daguduro, 2022, Sulyman & Babalola, 2023; Sulyman & Alawaye, 2024).

However, the study also found no significant interaction effect between crossover learning and gender, suggesting that the teaching strategy benefited both male and female pupils equally. This aligns with findings from previous studies which indicated that effective pedagogical methods tend to support learners regardless of gender differences (Legewie & DiPrete, 2012). It also challenges traditional assumptions of gender-based performance disparities in Civic Education, reinforcing the idea that when students are equally engaged, gender plays a minimal role in academic outcomes.

Furthermore, there was no significant interaction effect between crossover learning and school type, indicating that the method was equally effective in both private and public schools. This finding is particularly relevant in contexts where educational inequality is prevalent due to infrastructural disparities. The result suggests that innovative pedagogy, such as crossover learning, can help level the playing field by improving learning outcomes regardless of school ownership or resource availability. This contradicts studies that reported superior performance by pupils in private schools due to better facilities (Day *et al*., 2016), and instead supports the argument that teaching strategy has a greater influence than school type on learning outcomes when appropriately implemented.

Finally, the study found no significant three-way interaction between treatment, gender, and school type on pupils' academic performance. This suggests that the benefits of crossover learning are consistent across demographic and institutional categories. Regardless of whether a pupil is male or female, or attends a public or private school, crossover learning provided a meaningful improvement in Civic Education performance.

Overall, these findings highlight the potential of crossover learning as an inclusive and effective instructional strategy, capable of enhancing academic achievement in Civic Education. The results emphasize the importance of active, learner-centered pedagogies that transcend traditional classroom boundaries and create connections between formal education and real-life experiences.

4. CONCLUSION

Based on the findings of this study, it is concluded that crossover learning significantly improves pupils' academic performance in Civic Education. Pupils who were taught using this method performed better than their counterparts taught through conventional approaches. This confirms that linking formal classroom instruction with real-world, informal experiences enhances comprehension and engagement. However, the study also established that gender and school type did not significantly influence the effectiveness of crossover learning, nor did their interaction with the treatment yield any significant differences. This indicates that crossover learning is a universally applicable strategy that benefits all pupils regardless of their gender or the type of school they attend. The study underscores the importance of incorporating creative, experience-based strategies into the curriculum to improve learning outcomes, particularly in subjects like Civic Education that are rooted in real-life applications and social behavior. Based on the findings, the following recommendations are offered:

(i) Teachers should be trained on the use of crossover learning through seminars, workshops, and professional development programs to increase their competence in applying this method effectively in the classroom.

(ii) Civic Education teachers in particular are encouraged to adopt crossover learning strategies to foster better student engagement and performance, especially by linking content with real-life experiences such as excursions, role plays, or community-based tasks.

(iii) Educational policymakers and curriculum developers should integrate crossover learning into national curriculum guides, especially for subjects that benefit from experiential and participatory learning methods.

(iv) Teacher training institutions should include modules on crossover learning and other learner-centered strategies in their training programs to prepare future educators for dynamic, inclusive teaching.

(v) Government and school administrators should support the implementation of crossover learning by providing necessary resources such as access to museums, parks, civic centers, and digital tools that aid learning beyond the classroom.

(vi) Further research should be conducted in other local government areas and subject areas to explore the broader applicability and effectiveness of crossover learning across educational contexts in Nigeria.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

6. REFERENCES

Ajaegbu, B. C. (1999). Comparative study on the factors associated with poor academic achievement of secondary school students' old Onitsha education zone of Anambra state. *Journal of Education, Arts and Social Science*, *2*(1), 28-35.

Chua, K. J., and Islam, M. R. (2021). The hybrid Project-Based Learning–Flipped Classroom: A design project module redesigned to foster learning and engagement. *International Journal of Mechanical Engineering Education*, *49*(4), 289-315.

Day, C., Gu, Q., and Sammons, P. (2016). The impact of leadership on student outcomes: How successful school leaders use transformational and instructional strategies to make a difference. *Educational Administration Quarterly*, *52*(2), 221-258.

Heddy, B. C., Sinatra, G. M., Seli, H., Taasoobshirazi, G., and Mukhopadhyay, A. (2017). Making learning meaningful: Facilitating interest development and transfer in at-risk college students. *Educational Psychology*, *37*(5), 565-581.

Hitt, D. H., and Tucker, P. D. (2016). Systematic review of key leader practices found to influence student achievement: A unified framework. *Review of Educational Research*, *86*(2), 531-569.

Lau, J. Y. (2019). Reflections on the Umbrella Movement: Implications for civic education and critical thinking. *Educational Philosophy and Theory*, *51*(2), 163-174.

Legewie, J., and DiPrete, T. A. (2012). School context and the gender gap in educational achievement. *American Sociological Review*, *77*(3), 463-485.

Lu, K., Pang, F., and Shadiev, R. (2021). Understanding the mediating effect of learning approach between learning factors and higher order thinking skills in collaborative inquiry-based learning. *Educational Technology Research and Development*, *69*(5), 2475-2492.

Merchant, G. (2012). Mobile practices in everyday life: Popular digital technologies and schooling revisited. *British Journal of Educational Technology*, *43*(5), 770-782.

Pandita, A., and Kiran, R. (2023). The technology interface and student engagement are significant stimuli in sustainable student satisfaction. *Sustainability*, *15*(10), 7923.

Prunuske, A. J., Henn, L., Brearley, A. M., and Prunuske, J. (2016). A randomized crossover design to assess learning impact and student preference for active and passive online learning modules. *Medical Science Educator*, *26*, 135-141.

Sulyman H. T (2022). Assessment of pre-primary school children developmental level and material provision towards the attainment of the objectives of policy documents in early childhood education in North Central, Nigeria. *International Journal of Academic and Applied Research*, *6*(7), 135-148.

Sulyman H. T and Babalola A. T (2023). Effect of classroom wall design on pupil's literacy in Ilorin East Local Government Area of Kwara State. *Jurnal Pendidikan Ilmu Sosial*, *32*(1), 105-114.

Sulyman H. T. and Alawaye R. D. (2024). Influence of pre-primary education on emotional skill acquisition on pupils in Ilorin South Local Government Area of Kwara State. *International Journal of Educational Review, Law and Social Sciences*, *4*(1), 446-456.

Sulyman H. T. and Ayodele O. T. (2024). Influence of teachers' favouritism on pupil's learning outcome. *International Journal of Education Review, Law and Social Sciences*, *4*(2), 518-525.

Sulyman, H.T., and Daguduro, O.M. (2020). Closing pupils' achievement gap in mathematics through the use of preparatory homework in Ilorin metropolis, Kwara state Nigeria: *Journal of Early Childhood and Primary Education*, *9*, 130-144.

Sun, D., and Looi, C. K. (2018). Boundary interaction: Towards developing a mobile technology-enabled science curriculum to integrate learning in the informal spaces. *British Journal of Educational Technology*, *49*(3), 505-515.

Zawadzki, M. J., Shields, S. A., Danube, C. L., and Swim, J. K. (2014). Reducing the endorsement of sexism using experiential learning: The Workshop Activity for Gender Equity Simulation (WAGES). *Psychology of Women Quarterly*, *38*(1), 75-92.