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EDITORIAL

Our first article features a study conducted by a group of teacher-researchers in Tamale, a town in northern Ghana.

The study examined the perceived effects of the knowledge of economics teachers on level 100 students. The study was conducted in the Tamale metropolis. The researchers employed the survey design. The results showed a statistically positive association between teachers' content knowledge and students' achievement in learning economics. Again, the study revealed that teachers' positive attitude impacted positively on students' learning of economics. Finally, the findings of the study would seem to suggest that the higher the qualification of teachers the higher the student achievement in studying economics.

Another article on pedagogy came from a group of teachers in Kenya.' The study investigated the effect of gamification on learning outcomes of secondary students of computer studies in Kenya. The sample was 142 form 3 secondary students from four secondary schools, selected through purposive sampling.

The differences between the pre-test and post-test means were analyzed using a t-test and analysis of variance (ANOVA).

The results showed that the students in the experimental groups did better than those in the control groups. The researchers concluded as follows: there is a case for including gamification in the pedagogy curricular of future computer science teachers.

Editor – in – Chief

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Effect of Gamification on Secondary School Students' Performance in Computer Studies

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Abstract

This article investigated the effects of using gamification on students' performance in Computer Studies using a quasi-experimental approach. The study targeted twelve secondary schools with computer laboratories, internet connectivity, and students taking Computer Studies as an examinable subject in Murang'a County, Kenya. The Solomon Four Group, Non-equivalent Control Group Design, was employed in the study. A total of 142 Form Three Computer Studies students from four secondary schools with internet connections were purposively sampled. The computer studies class in each of the five schools were randomly assigned to either Experimental or Control groups. The experimental groups (E1 and E2) utilized gamification in their teaching and learning, while the control groups (C1 and C2) used the conventional teaching and learning methods for five weeks. The differences between the pre-test and post-test group means were analysed using a t-test and Analysis of Variance (ANOVA). Results

indicated that the students in the experimental groups outperformed those in the control groups in the post-test. Based on these findings, it was concluded that gamification has the potential to raise students' performance and should be investigated more widely to take a role in modern computer pedagogy, even in a developing country. There is a case for including gamification in the pedagogy curricula of future computer science teachers.

Keywords: Gamification, academic performance, Computer studies, Solomon four groups, conventional teaching method

Introduction

Despite its critical and growing importance, Computer Science is taught in only a small minority of U.S. schools (Langmia, 2012). Kiptalam & Rodrigues (2010) observed that access to ICT facilities is a major challenge facing most African countries. The study observed that in Africa there is a ratio of one computer to 150 students as against a standard ratio of 1:15 students in the developed countries. Eneku & Eneku (2000) mention a similar concern in Nigeria; that there was an interest in Computer Studies (CS) at the secondary school level, but teaching this content was another story. To cope with the emerging science and technology trends in the global arena, many countries in the world are pushing global economies to speed up the teaching and learning of Computer Science within their territories (Kannan & Munday, 2018; Birgili, Seggie & Oğuz, 2021).

Other studies reveal that computer programming is very challenging to teach and learn in developing countries. They argue that

developing countries' teaching and learning programmes are affected by additional factors such as socioeconomic and natural environment (Oroma, Wanga & Ngumbuke, 2012; Cunningham, 2016; Oyier, et. al.). The challenges of teaching and learning computer is further compounded by inadequate computer teaching staff who have computer programming skills.. Baram- Tsabari & Yarden (2011) claim that due to the lack of computers in schools in developing countries many students face challenges in dealing with abstract concepts; especially when they try to resolve scenarios that relate to contemporary world issues. New methods of teaching and learning classroom content, such as the use of technology-integrated gamified education and learning in high schools, referred to as gamification are needed (Goehle, 2013; Mayer & Johnson, 2010).

Gamification utilizes the elements of computer games; taking the qualities that make games more engaging and applying them to other tasks (Kamunya, Oboko & Maina (2020). Dichev et al., 2014 considers

gamification as an extension of video games to motivate and engage the user through surprise, positive feedback and progress scores. High school students depend a lot on the positive effect of peers in raising achievement (DiCarlo, 2006; Ngaruiya, 2018). Gamification creates competition, awards points on achieving a given objective as well as provides prompts and feedback on students' progress on task. In addition, gamification provides leader boards. Many studies claim that computer games are effective in promoting learning and are more motivational for students than non-gaming teaching methods (Annetta, Minogue, Holmes, & Cheng, 2012; Papastergiou, 2009; Van Eck, 2006, Barab et al., 2005; Batson & Feinberg, 2006; de Freitas, 2006; Papastergiou, 2009). Gamification involves selecting elements of games and using these to create a game-like environment in a non-game context to increase user experience and engagement (Deterding et al., 2011; Dominguez, et al., 2014; Turner, Dieksheide, & Anderson, 2013;) Apostol, Zaharescu, & Alexe, 2013; Dominguez et al., 2013; Pedreira et

al., 2014; Turner *et al.*, 2013). Gamification combines intrinsic motivation with an extrinsic one to raise motivation and engagement (Montean, 2011, p. 326). Typically, these game elements include items such as points, leader boards, levelling up, and badges (Barata, Gama, Jorge & Goncalves, 2013; Mekler et al., 2013). Game elements also can include avatars, three-dimensional environments, feedback, ranks, levels, competition, communication systems, and time pressures (Deterding et al., 2011).

Some schools have resorted to gamified learning activities (GLA) to improve students' performance in Computer science. However, there are no studies in Kenya showing how effective this gamified learning activity has enhanced students' academic performance. This forms the basis of this study. Attali & Arieli-Attali, (2015) observed that gamification shows mixed effects across several sectors, such as students' performance, engagement, and learning motivation. However, as these studies focus only on certain disciplines,

there remains a gap in the literature concerning a clear framework of use across academic programmes. Games remain one of the creative strategies to introduce new concepts in programming in Computer science. When the objective of teaching and learning computer concepts has a long-term target, the context should be understood, practised, and constantly applied to retain them. Although little has been studied on how best the computer science concepts can be maintained through gamification in African schools, empirical studies in some other subjects support the GLA in the teaching and learning process. For instance, Taheri (2014) confirmed that language games are effective and suitable techniques for helping students retain long-term memory of English vocabulary.

A recent literature review (Venter, 2020) offers an analysis of research initiatives specifically focusing on applying gamification to programming courses in Higher Education.. The review found twenty-one papers, out of which seventeen examined gamification. Within the

seventeen studies, most used new implementations of gamified systems rather than adopting existing platforms (such as www.codingame.com, KhanAcademy.org, or Kahoot). Minimal research has been done on gamification and its effect on performance at the secondary schools that serve as a foundation before transitioning to a tertiary learning institution.

Equally, Njoroge, Ndung'u, and Gathigia (2013) show that by using puzzle games, students can develop vocabulary and retention, that it was an effective teaching strategy of vocabulary instruction compared to the traditional one. In addition, Shabaneh and Farrah (2019) claimed that the efficiency of games could help students retain unfamiliar vocabulary, associate new information with their surroundings, and help develop language and communication skills of learners.

Some studies have alluded that gamified learning activities (GLA) improves learner motivation (Deterding, 2011). Mao et al., (2013), associate it with high productivity in teaching and learning

while Pedersen et al., 2016) links it with efficiency in the learning process. In higher education levels such as universities and colleges, GLA has additionally, been associated with positively influencing learners' engagement and motivation as well as enhancing academic performance (Subhash & Cudney, 2018). Yildirim (2017) suggests that computer games positively impact students' academic achievement.

According to Bandura (1978), self-efficacy is a person's ability to achieve a set of goals. People tend to get information regarding their self-efficacy from various sources such as performance attainment, whereby they feel competent based on previous performances; through observing other people's performances; through negative or positive feedback they receive upon performing a task; and from physiological states such as stress (Bandura, 1982). Deci and Ryan (2000) explain that Self-Determination Theory (SDT) is a motivational and personality theory that describes a person's distinctive psychological needs that drive their self-motivation and personality. In addition, it

conditions the learner's positive attitude towards learning, and helps to motivate the student to learn (Ryan & Deci, (ibid).

The computer studies KCSE examination has two papers: Paper 1 (theory) and Paper 2 (practical). To improve the performance of the compulsory question in computer studies paper one examined in KCSE examinations, gamification in teaching and learning should be explored. Oktaviati (2018) found that gamification can motivate and engage students and thus make their performance more effective and attractive to programming. According to Kim (2015), gamification can provide an optimal context to change behaviour and improve user engagement and performance. Caceffo et al. (2021) indicate that gamification enhances the active participation of learners in gamified learning activities, which translates to improved learning outcomes.

Research Objective

The objective of the study was to investigate whether there is a difference in performance in Computer Studies between secondary

school students utilizing gamification pedagogy and those using conventional teaching methods (CM). Ultimately, the study tested the hypothesis that “There is no significant difference in performance in Computer Studies between secondary school students taught utilizing gamification and those taught using conventional methods.”

Methodology

The study adopted a Quasi-Experimental design based on Solomon's Four-Group, Non-equivalent Control Group Design. Solomon's Four-Group design is rigorous enough for quasi-experimental studies (Borg & Gall, 1989). Quasi-experimental design involves no randomization of the subjects to the sample groups but randomly assigning intact classes to sample groups. This design controls all threats to internal validity except those associated with history and maturation (Cook & Campbell, 1979). The various combinations of tested and untested groups with treatment and control groups in the Solomon Four-Group design ensured that confounding variables are

minimised in the outcomes. For instance, it enabled the researcher to check whether the pre-test affected the results. The pre-test also enabled the researcher to assess the groups' homogeneity in terms of students' academic level before the start of the experiment. The treatment and control groups were recruited from different schools to avoid the effects of experimental contamination.

The target population was the twelve public secondary schools in Gatanga Sub-County, where Computer Studies is an examinable subject at the Kenya Certificate of Secondary Education (KCSE) and had an internet connection. The study utilized purposive sampling to select a sample of four schools out of twelve schools that have internet connectivity and were offering computer studies as an examinable subject. The sample selected was also influenced by the need to ensure that gamification pedagogy could be implemented during the intervention. . Two large boarding single-sexed schools with similar academic rating were selected: a "Boys only" and a "Girls only"

secondary schools. In addition, the study also purposively selected two sub-county mixed day secondary schools. The assignment of schools to either experimental or control conditions was done using simple random sampling.

Experimental Group schools A and B had 26 and 33 students, respectively, while Control Group schools C and D had 36 and 47 students, respectively. The total number of students in the four groups (schools) was 142, and this constituted the sample size for the study. The study used Computer Studies Assessment Test (CSAT 1) – pre-test, Computer Studies Assessment Test (CSAT 2) – post-test, and a Teacher Gamification Training Manual. The study also used a web-based treatment instrument, TalentLMS, an online gamified software as the instructional package for the experimental groups. The tests were used to measure students' academic performance, while a teacher gamification training manual was used to train learners and teachers on how to utilize the gamified online learning resource.

Each student participating in the study was assigned a unique identification number for tracking purposes in the succeeding procedure. Furthermore, the researcher prepared all the learning and evaluation materials using the approved Kenya Institute of Curriculum Development (KICD) syllabus and Kenya National Examination Council (KNEC) Computer Studies paper I. KNEC examiners and specialists in measurement and evaluation reviewed the materials for consistency. The researcher also prepared the user manual used to train the teachers and students in treatment groups (E1 and E2). The teachers received a user manual to help in delivering uniform treatment to the groups.

Before the intervention, the researcher and the teachers agreed on the class activities for the duration of the study to boost their confidence during the treatment. The researcher gave a pre-test (CSAT1) to teachers in respective schools under groups E1 and C1 for administration. The Gamified intervention was followed in groups E1

and E2. The intervention lasted for five-weeks, and it was implemented as an additional package for utilization after the regular teaching of the students. The other two groups, C1 and C2, continued having normal classroom sessions with their teachers.

At the end of the gamification intervention period, all the students in the four groups constituting the control and treatment groups were subjected to a post-test. The assessment sheets were administered by Computer Studies teachers in the respective schools. However, the marking of assessment sheets was done by the principal researcher, who compiled the scores and gave feedback to the schools. The feedback included assessment scripts and the marking scheme for CSAT (1 and 2). Additionally, the researchers carried out a difference to compare the mean in academic performance for one experimental and control group before the gamification and all four groups after the gamification intervention on two groups. The overall response rate for those who consented and participated in the study was 91.57%.

Results and Discussion

The study sought to establish whether there was a statistical difference in students' Computer Studies scores between students taught through gamification method and those taught through the conventional method (CM). Students taught using the CM through teacher explanation, questions and examples formed the control groups and, therefore, never received any treatment. To achieve the objective, data was collected, organised, and analysed.

Quasi-experimental research requires that both the control and experimental groups have similar pre-trend or must fulfil the parallel assumption property. That is, the sample in the study must have similar entry behaviour. The students were comparable in the pre-selection entry behaviour based on the Kenya Certificate of Primary Education (KCPE); a summative examination done at the end of 8 years of primary education, and used as a selection criterion for entry into high school. The overall school entry mean score for the sample is 302 marks out of

five hundred, with a standard deviation of forty-seven marks. The lowest mark for the overall sample was 195, while the highest score was 367. Further, the finding reveals that the lowest entry mark student was found in the experimental group (pre-test and post-test) while the highest entry mark student was found in the experimental group for the post-test.

These KCPE scores were scaled down from 500 to a 100 for comparability with test results obtained in the quasi experiment. Figure 1 shows the comparability of the students in the groups in terms of their high school entry scores.

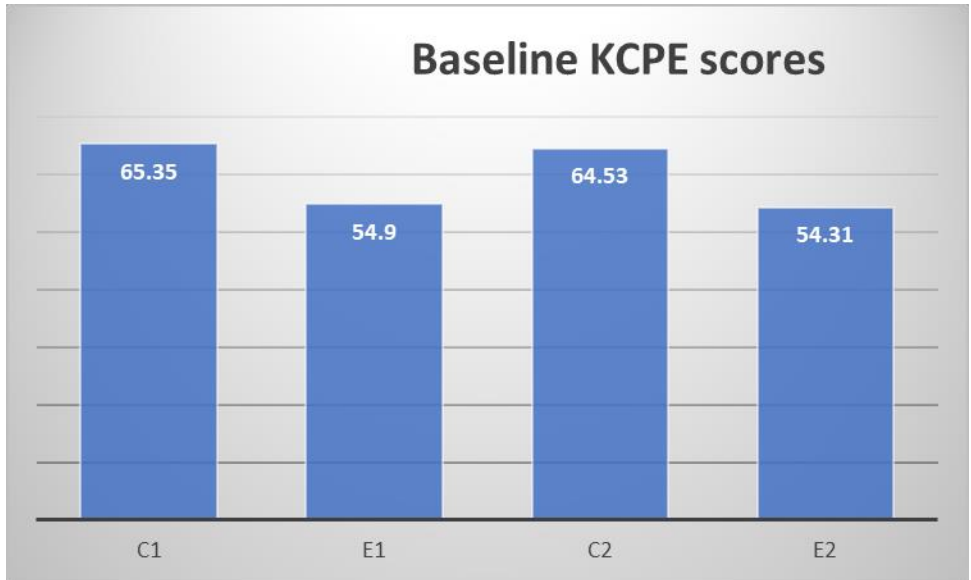


Figure 1: Groups Baseline Student Mean Ability Levels by KCPE mark (%).

In this study, a pre-test was administered to a section of the experimental group (group E1) and a section of the control group (group C1) to determine the students' entry behaviour. This follows the Solomon four group design, where pretest is given to some groups and

not to others to control for the pretest effect, helping guard against both threats to internal and external validity (McGagee & Tingen,, 2009).

Table 1 reveals the finding of the pre-test.

Table 1: The Independent Sample t-test of the Pre-test Mean Scores

Group	N	mean	Std error	Std dev	df	t-value	p-value	
Pre-test	C1	34	23.941	1.016741	5.928	55	-1.599	0.1202
	E1	23	28.130	2.413159	11.573	diff = mean(C1) - mean(E1) = -4.189258		

From Table 1, the difference in their pre-test mean scores of the C1 and E1 groups was 4.189. The t-test was used to check if the difference was significant, and it returned a p-value = 0.1202 >.05 implying that the difference in the mean scores is not significant.

To determine the effect of gamification on students' performance in Computer Studies, an analysis of the students' post-test mean scores was compared. The post-test (CSAT2) was administered to all groups. The post-test was administered to enable the researcher to find out whether the use of gamification affected students' performance. Figure 2 shows the mean scores of the four groups after the post-test was administered.

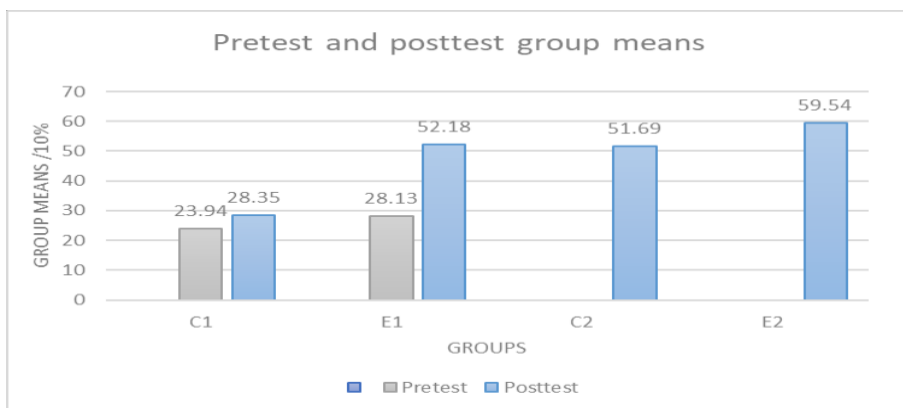


Figure 2: Summary Means of Pre-test and post-tests for all groups.

Both the experimental groups E1 and E2 (E1 52.18 and E2 59.54) achieved higher post-test mean scores than the control groups C1(28.35) and C2 (51.69). This shows that gamification influenced performance positively as compared to conventional teaching methods.

The second hypothesis stated that “There is no significant difference in performance in Computer Studies between secondary school students utilizing gamification and those utilizing conventional methods”. To test the hypothesis (HO2), ANOVA was used to compare the performance of experimental and control groups. The results are shown in Table 2.

Table 2: ANOVA Result for Post test

Post-test	Group	ss	df	Mean square	F	P-value
	Between groups	17972.3669	3	5990.78898	26.07	0.0000**
	Within groups	29188.3812	127	229.829773		
Total		47160.7481	130	362.774985		

** significant at .05

The result from Table 2 reveals a significance p value of = 0.0000, which is less than alpha = 0.05; the implication is that there is a significant difference in performance between students utilizing gamification and those utilizing conventional methods, and thus the null hypothesis is rejected. This means that there was a significant difference

between the post-test mean scores of the groups in the study. This finding concurs with Sanchez, Langer and Kaur (2019) who found that students performance in a test was higher when taught through gamified quizzes, at least in the short term. To find out which of these groups exhibited this significant difference, the Least Significance Difference (LSD) post hoc comparison to know which groups were statistically significantly different. Table 3 shows the post hoc comparison of the post-test mean scores for the groups E1, C1, E2, and C2.

Table 3: Post hoc Comparison of the post-test Mean Scores for the Groups

Paired Group	Mean difference	P-value
E1-C1	24.42967	0.0000**
E1-E2	-6.753106	0.1218
E1-C2	-1.086957	0.7350
C1-E2	-31.18277	0.0000**
C1-C2	-23.34271	0.0000**
E2-C2	-7.840062	0.0299 **

** significant at .05 level

From the result in Table 3, it is observed that post-test means of groups between E1 and C1, C1 and E2, C1 and C2, and between E2 and C2 are significantly different at 0.05 level of significance ($p < 0.05$). The significant difference between E1 and C1 shows that experimental group outperformed the control group, showing that the gamification treatment was effective. The findings agree with Subhash and Cudney (2018), Khan, Amad and Malik (2017) and Pedersen et al. (2016), who found that gamification positively influences learners' engagement and retention of concepts for enhanced academic performance. The significant results for C2 and E2 groups show that effect of the pre-test coloured the results of the gamification to some extent. However, the difference between C2 and E2 was not significant implying that there was no interference from other external factors, and thus indicative of a high external reliability of the study and its findings. Compared with the Baseline KCPE data, the experimental groups performed as well as the

baseline score or even better, while the control groups C1 and C2 performed well below the baseline.

Conclusion and Recommendations

From the study findings, it is evident that the utilization of the gamification approach in teaching and learning Computer Studies significantly improved students' performance. Further, we concluded that students' gender plays a role in the gamified teaching and learning of Computer Studies in Kenya. The study revealed that the utilization of the gamification approach in teaching and learning Computer Studies improved students' performance more than the traditional/conventional approach in the same subject.

Computer science teachers need to consider newer and innovative pedagogies to complement the traditional method of teaching computer science. The Curriculum authorities and teacher trainers should encourage both pre-service teachers and practising teachers to

utilize gamification pedagogy to improve student's performance in
Computer Studies.

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**INTERNATIONAL JOURNAL OF PEDAGOGY, POLICY AND ICT IN
EDUCATION**

CALL FOR PAPERS

The Journal invites articles that address research, theory or practice in pedagogy, Language Policy and ICT in education. In addition to articles that would reflect the multidisciplinary nature of the journal, we will also be interested in the use of Artificial Intelligence (AI) in education and its regulation. The Call is open from 20th February to 30th September 2024. Accepted articles are expected to be published in the last quarter of 2024. Depending on response rate, the publication could be earlier.

Submission “Protocols”

Preliminary requirements: All articles should have the following subheadings in the body as the organizing principle: *topic, abstract, the problem, objectives/purpose, research questions or hypotheses, significance of the study, methodology, the results/findings, discussion of findings, conclusion and recommendations* (may include suggestions for further research) and *references*. **NB:** Articles that disregard these preliminary requirements would be deleted, with no further action taken.

1. A cover letter should accompany each article. **It should include all authors’ names and institutional affiliation.** The cover letter should have the **email of the corresponding author**, to whom all correspondence regarding the article would be directed. The mailing address, to which copies of the journal, after publication, would be shipped should also be provided.

2. **Every effort should be made to see that the manuscript itself contains no clues to the authors.** The cover page should contain the title of the manuscript, names and addresses of the authors.
3. Manuscripts should not exceed 18 pages including the references. The abstract should not exceed one hundred and fifty (150) words. Typescripts should be Times New Roman on A4 paper, double-spaced and typed on one side only, if printed. Pages should be numbered. About five keywords that best describe the article should be provided.
4. Letters to the Editor are encouraged to promote interactivity and healthy debate on current research issues regarding AI. Such letters should not be more than 1000 words. **They should include all authors' names, degrees, institutional affiliation and contact address.** Again, letters should use references to strengthen arguments being made.
5. Articles must be original, coherent, logical and devoid of typographical errors.
6. Referencing should follow the American Psychological Association (APA 7th Edition, 2020) manual of publication. Authors to must painstakingly match in-text citations with end references to ensure **that authorities cited are referenced and that all references on the end reference list are cited in the body of the manuscript. Manuscripts that fail to comply may be rejected and deleted.**
7. After initial submission, if it is determined that the article is worth reviewing, the author will be asked to pay a **non-refundable, review fee** of GH¢150.00 for Ghanaians and USA\$50.00 for all foreigners. These fees would also cater for prevailing internet as well as cost of printing and photocopying.

8. We follow a double-blind review process and offer a fee for each article reviewed. In principle, we pay two reviewers per article.
9. If an article is accepted for publication the author(s) will be asked to respond to comments by our reviewers and send a soft copy of the revised article in Word Document file format, with a non-refundable publication fee, to the Editor-in-Chief.

The publication fee, referred to above, will be communicated only to authors whose articles are accepted for publication.

10. Authors need to be patient after payment of publication fees, since we only print after meeting our publication targets and standards. It is in the interest of authors to be patient because when we maintain high publication standards, they would be joint beneficiaries of our excellent final product. Please bear in mind that one article will not be accepted as a journal by most institutions for assessing staff. The quality of the journal is also assessed.
11. Articles may not be simultaneously submitted or published elsewhere. This would have copyright implications. Manuscripts should be accompanied by a letter stating that the manuscript **has not been published or submitted elsewhere**.
12. The decision of the journal's reviewers to either publish a manuscript or not is normally communicated without delay. Over the years, our average acceptance rate is 90%. Even so, in the past, some rejected articles that were substantially revised according to reviewers' suggestions and resubmitted were eventually published.
13. After publication, a soft copy of the journal is sent to the lead/corresponding author of each article.

Are you ready to submit? Please cross-check with the preliminary requirements and all the 13 points above before submitting. This would speed up things and improve your chances.

Submit **either hard or soft copies** to: Dr Naah Yemeh (Editor-in-Chief), Department of English Education, P. O. Box 25, Winneba, Ghana, West Africa; at: dryemeh@yahoo.com.



IJOPPIE

**REVUE INTERNATIONALE DE PÉDAGOGIE, DE POLITIQUE ET
DE TIC DANS L'ÉDUCATION**

APPEL À CONTRIBUTIONS

Le journal invite les articles qui traitent de la recherche, de la théorie ou de la pratique en matière de pédagogie, de politique linguistique et de TIC dans l'éducation. En plus des articles qui reflètent la nature multidisciplinaire des journal, nous serons également intéressés par l'utilisation de l'intelligence artificielle (IA) dans l'éducation et sa réglementation. L'appel est ouvert du 20 février au 30 septembre 2024. Les articles acceptés devraient être publiés au cours du dernier trimestre 2024. En fonction du taux de réponse, la publication pourrait intervenir plus tôt.

« Protocoles » de soumission

Exigences préliminaires : Tous les articles devraient avoir les sous-titres suivantes dans l'organisme comme principe d'organisation : sujet, résumé, problème, objectifs/but, questions ou hypothèses de recherche, importance de l'étude, méthodologie, résultats/résultats, discussion des résultats, conclusion et recommandations (peuvent inclure des suggestions pour des recherches postérieures poussées) et des références.

NB : Les articles qui ne tiennent pas compte de ces exigences préliminaires seraient supprimés, sans que d'autres mesures ne soient prises.

1. Une lettre doit accompagner chaque article. Il devrait inclure tous les noms des auteurs et leurs l'affiliation institutionnelle. La lettre d'accompagnement devrait avoir l'adresse courriel de l'auteur correspondant, à qui toute correspondance concernant l'article serait dirigée. L'adresse postale, à laquelle des copies du journal, après publication, seraient expédiées devrait également être fournie.
2. Tout effort doit être fait pour que le manuscrit lui-même ne contienne aucun indice des auteurs. La page de couverture doit contenir le titre du manuscrit, les noms et les adresses des auteurs.
3. Les manuscrits ne doivent pas dépasser 18 pages, y compris les références. Le résumé ne doit pas dépasser cent-cinquante (150) mots. Les scripts de type doivent être Times New Roman sur papier A4, à interligne double et tapé sur un seul côté, s'ils sont imprimés. Les pages doivent être numérotées. Environ cinq mots clés qui décrivent le mieux l'article doivent être fournis.
4. Les lettres adressées au Rédacteur en chef sont les bienvenues pour promouvoir l'interactivité et un débat sain sur les questions de l'IA. Ces lettres ne devraient pas dépasser 1000 mots. Ils doivent inclure le nom, les diplômes, l'affiliation institutionnelle et l'adresse de contact de tous les auteurs. Encore une fois, les lettres devraient utiliser des références pour renforcer les arguments avancés.
5. Les articles doivent être originaux, cohérents, logiques et dépourvus d'erreurs typographiques.

6. Le style de référenciassions doit suivre l' « American Psychological Association » (édition 7, 2020). Les auteurs doivent soigneusement faire correspondre les citations en texte avec les références de fin pour s'assurer que les autorités citées sont référencées et que toutes les références sur la liste de référence finale sont citées dans le corps du manuscrit. Les manuscrits qui ne se conforment pas peuvent être rejetés et supprimés.
7. Après présentation initiale, s'il est déterminé que l'article mérite d'être examiné, l'auteur sera invité à payer des frais de révision non remboursables de 200,00 GH pour les Ghanéens et de 50,00 \$US pour tous les étrangers. Ces frais couvriraient également l'Internet en vigueur ainsi que le coût de l'impression et de la photocopie.
8. Nous suivons un processus de double revue anonymes au frais payable pour chaque article revu. En principe, nous payons deux examinateurs par article.
9. Si un article est accepté pour publication, l'auteur(s) sera invité à répondre aux commentaires de nos examinateurs et à envoyer une version électronique de l'article révisé au format du fichier « Word Document », avec des frais de publication non remboursables, au Rédacteur en chef. Les frais de publication, mentionnés ci-dessus, ne seront communiqués qu'aux auteurs dont les articles sont acceptés pour publication.
10. Les auteurs doivent être patients après le paiement des frais de publication, puisque nous n'imprimons qu'après avoir atteint nos objectifs de publication et nos normes. Il est dans l'intérêt des auteurs d'être patients parce que lorsque nous maintenons des normes de

publication élevées, ils seraient les bénéficiaires conjoints de notre excellent produit final. Veuillez garder à l'esprit qu'un article ne sera pas accepté comme journal par la plupart des institutions pour évaluer le personnel. La qualité de la revue est également à évaluer.

11. Les articles ne peuvent pas être soumis ou publiés simultanément ailleurs. Cela aurait des répercussions sur le droit d'auteur.
12. Les manuscrits doivent être accompagnés d'une lettre indiquant que le manuscrit n'a pas été publié ou soumis ailleurs.
13. La décision des examinateurs de la revue de publier ou non un manuscrit est normalement communiquée sans délai. Au fil des ans, notre taux d'acceptation moyen est de 90 %. Néanmoins, dans le passé, certains articles rejetés qui ont été substantiellement révisés selon les suggestions des examinateurs et soumis à nouveau ont finalement été publiés.
14. Après publication, une copie du journal est envoyée à l'auteur principal/correspondant de chaque article. Des exemplaires supplémentaires sont vendus à un prix subventionné aux co-auteurs du numéro actuel.
15. Sur demande, nous envoyons des versions électroniques d'articles extraits avec les détails de publication, par courriel, aux auteurs qui auront besoin d'avoir des plus tôt en raison de les présentes pour évaluation / promotion. Ces auteurs ne sont pas exemptés de payer les frais de publication réguliers mentionnés au numéro 9 ci-dessus

Êtes-vous prêt à soumettre ? Veuillez vérifier les exigences préliminaires et tous les 14 points ci-dessus avant de soumettre. Cela accélérera les choses et améliorera vos chances.

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