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# Fostering Excellence in English Academic Writing Among Health Profession Students and Lecturers: An Action Research

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## ABSTRACT

Academic writing is a critical skill for researchers and educators. However, many, especially in non-native English-speaking contexts, face challenges in mastering it. This study employed action research (AR) involving 27 participants to address these challenges through the design and implementation of an academic writing workshop for postgraduate students and lecturers from the Faculties of Medicine, Health Sciences, and Pharmacy. The AR workshop integrated hands-on learning, structured guidance, and innovative tools such as ChatGPT to enhance participants' academic writing self-efficacy. A validated self-efficacy writing scale and a structured open-ended feedback form were used to evaluate the effectiveness of the AR intervention. A mixed-model repeated-measures analysis of variance (ANOVA) revealed self-efficacy scores increased significantly from 48.39 (SD = 6.71) to 59.07 (SD = 7.27) after the workshop ($p < 0.001$; mean difference = 10.68, 95% CI: 8.37 to 12.99). The main effects of gender and role (student versus lecturer) were not significant. Nevertheless, interaction effects revealed that male participants and students improved significantly more than female participants and lecturers. Using McNiff's AR framework analysis, the thematic synthesis revealed key barriers to academic writing, such as challenges in initiating and structuring ideas, and highlighted the importance of engaging environments and the integration of artificial intelligent (AI) tools. Institutional support is crucial for addressing logistical and methodological challenges, including obtaining ethics approval and raising awareness of the AR research paradigm. While the findings illuminate the path for targeted interventions to enhance academic writing, demographic disparities and systemic barriers warrant further investigation. This study offers actionable insights for developing inclusive, adaptable writing programmes for diverse learners in higher education.

**Keywords**: *Academic writing, Action research, Artificial intelligence in education, Health professions education, Self-efficacy*

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## INTRODUCTION

Academic writing is central to scholarly communication and intellectual growth in health profession education (1). It is the primary medium for academics and researchers to articulate ideas, present research, and contribute to global knowledge. Effective academic writing extends beyond language proficiency; it requires critical thinking, structured argumentation, and adherence to scholarly conventions (2). Nonetheless, many academics and researchers find mastering this skill challenging, particularly in non-native English-speaking contexts (3). These dilemmas are significant barriers to academic and professional advancement in health profession education.

The ramifications of poor academic writing extend beyond individual struggles. Academics with weak writing skills may disengage from research, need help to publish in high-impact journals, and miss opportunities to share valuable insights (4). These limitations hinder professional growth, institutional research output, and societal advancement. Thus, addressing poor academic writing requires initiatives that extend beyond individual efforts.

### Academic Writing Competency

These initiatives need to address the nature of academic writing, which is a formal and structured mode of communication characterised by clarity, precision, and adherence to scholarly conventions (5). It involves presenting complex ideas, constructing evidence-based arguments, and engaging critically with existing literature. Proper citation and referencing are integral to this process, ensuring credibility, transparency, and acknowledgement of intellectual contributions (6). Failure to meet the requirements will result in poor writing skills competency.

Weak academic writing skills have wide-reaching consequences. Academics who struggle with writing often disengage from reading and research, limiting their scholarly contributions. Difficulty publishing in high-impact journals can make research seem unrewarding, discouraging participation and innovation. Poor writing also undermines supervision quality, as faculty may lack the skills to guide students effectively. In a strongly worded article, Mohammad (7) called for clearer academic competency standards in Malaysia to prevent unqualified lecturers from exploiting students for Key Performance Indicators (KPI) gains. Several misconceptions contribute to weak academic writing (8, 9).

### Common Misconceptions in Academic Writing

#### Equating English proficiency with writing skills

A prevalent misconception is that proficiency in English automatically equates to solid academic writing skills. An insightful study by Lekamge and Rajavarathan (10), conducted among 90 undergraduate science students and 10 lecturers in Sri Lanka whose English is a second language, explores their challenges and coping mechanisms related to academic writing. They discovered a compartmentalised approach to academic writing as the key challenge. Meanwhile, students mainly coped by reading and following model academic papers, spending more time planning, or seeking external assistance (10). While language fluency is undoubtedly beneficial, this study provides a deeper understanding of academic writing skills that demand more than linguistic ability. It requires skills such as structured

argumentation, critical evaluation, and the synthesis of ideas, capabilities that can be cultivated regardless of one's linguistic background. This challenges the notion that English proficiency alone ensures effective writing and highlights the need for targeted skill development.

### Perceiving complexity as quality

Another common misunderstanding is that scholarly writing must be verbose and intricate to appear sophisticated. This often leads to unclear and inaccessible texts, which fail to communicate ideas effectively (11). In contrast, clarity and simplicity are hallmarks of quality academic writing. They enable the seamless communication of complex concepts to diverse audiences, and achieving this balance is a mark of scholarly excellence.

### Neglecting personal perspectives

Academic writing is consistently misunderstood as excluding personal viewpoints (12). However, the thoughtful integration of informed perspectives supported by evidence enriches scholarly work. This is especially true in reflective and interpretative analyses, where personal insights add depth and context. Far from diminishing academic rigour, these perspectives enhance the relevance and impact of the writing.

### Misusing citations

Citations are often misused to assert authority rather than support well-reasoned arguments. Over-reliance on citations undermines the coherence and originality of academic writing. Instead, effective scholarly communication prioritises the intrinsic value of ideas, with citations serving a complementary role to substantiate arguments rather than replace critical thought.

### Plagiarism misunderstandings

Misconceptions about plagiarism extend beyond outright copying to include improper paraphrasing and self-plagiarism (13). Addressing these issues requires more than technical fixes such as plagiarism detection tools. It necessitates cultural and policy shifts that emphasise originality, ethical scholarship, and a deeper understanding of intellectual property. This approach ensures the integrity and credibility of academic writing.

### Action research as a solution

AR offers a practical and participatory approach to address these challenges (14). Unlike traditional research, which often focuses on theoretical understanding, AR emphasises solving real-world problems through iterative cycles of planning, action, observation, and reflection. This method empowers participants to take ownership of the learning process, fostering a collaborative and dynamic environment for skill development.

In this study, AR is used to design and implement academic writing workshops tailored to the needs of the university's staff and postgraduate students. These workshops focus on critical reading, structuring arguments, mastering citation practices, and leveraging tools such as

AI for writing. The main objective of this AR project is to determine the improvement in academic writing self-efficacy. We also collected qualitative data from participants and a reflection postmortem to explore and understand the challenges and practical interventions as sustainable solutions to the chronic dilemmas.

## METHODOLOGY

### Study Design

This study employed an AR approach, integrating reflective practice and cyclical intervention to address challenges in academic writing among university staff and postgraduate students. The design emphasised real-world application within a naturalistic academic setting, consistent with AR's goal of fostering immediate and practical improvements while generating actionable knowledge.

Additionally, we designed the AR intervention with the integration of ChatGPT (15). The integration of generative AI in this AR aligns with contemporary pedagogical strategies to address writer's block and provide real-time feedback (16). AI complements traditional writing instruction by democratising access to language support (particularly for non-native English speakers) and fostering self-efficacy through iterative practice (17). Nevertheless, ethical guidelines were emphasised to prevent misuse (e.g., plagiarism, over-reliance). The mantra we imbued in the workshop is 'AI to boost, not to replace our intelligence.'

### Participants and Setting

The study was conducted in this institution and involved staff and postgraduate students from the Faculty of Medicine, Faculty of Health Sciences, and Faculty of Pharmacy. Participants were invited through targeted communication via email, WhatsApp, and faculty websites. Inclusion criteria required participants to be aged 18 or above, provide informed consent, and attend the workshop. The AR team comprised invited speakers, participating staff, students, and the university's academic leadership as the AR validity group.

### The AR Intervention

A two-day academic writing workshop was conducted, guided by a curriculum adapted from the Academic Writing Course for Postgraduate Studies by the Institute of Education, University College London (UCL) (18). The workshop's tentative schedule covers:

a. Features of academic writing
b. Reading and writing critically
c. Structuring, paragraphing, and developing an argument
d. EndNote and Mendeley software: Referencing, citation, and avoiding plagiarism
e. ChatGPT for academic writing: Ethics considerations and hands-on practice

Each session began with a mini lecture, followed by guided hands-on practices. The competency-based workshop was designed to maximise opportunities among workshop participants to ask and perform hands-on practices to receive feedback on their

understanding and skills. The workshop content emphasised hands-on learning with dedicated time for writing, fostering an engaging and reflective environment.

## Data Collection

### Qualitative data

Qualitative data were collected using open-ended questionnaires administered post-workshop to capture participants' perspectives on challenges in academic writing, perceived benefits of the workshop, and suggestions for improvement. Qualitative reflections were analysed following McNiff (14) action-research framework, employing both surface-level coding to identify immediate observations and deep-level thematic interpretation to develop meaningful insights.

As part of AR cycles of intervention, action researchers also conducted postmortems based on feedback directly or indirectly given to us and our own reflective writing and reflection during guided strengths, weaknesses, opportunities, and threats (SWOT) sharing during the postmortem discussions.

### Quantitative data

Pre- and post-workshop data were collected using the Self-Efficacy Writing Scale by Bruning et al. (19), a validated instrument employing a 5-point Likert scale. This questionnaire measured changes in participants' perceptions and knowledge of academic writing.

### Action research cycle

Following the AR framework, the workshop served as the first intervention in three planned workshops. Post-workshop reflections among the research team, alongside participant feedback, informed modifications to subsequent interventions. The AR cycle involved:

a. Planning: Designing the workshop based on identified needs and literature.
b. Action: Implementing the workshop.
c. Observation: Collecting data from participants and researchers.
d. Reflection: Analysing outcomes to refine the next cycle.

### Data analysis

Qualitative data were analysed using thematic synthesis, identifying key themes and subthemes. Participant responses were systematically coded using an inductive approach to identify emerging patterns and themes. Initial codes, such as 'difficulty starting writing' and 'challenges with grammar,' were grouped into broader themes such as 'barriers to academic writing.'

Quantitative data were analysed using mixed-model repeated measures ANOVA to evaluate changes in self-efficacy scores between pre- and post-workshop assessments and interaction effects with gender, roles (students or lecturers), and time (pre- and post-workshop).

Statistical assumptions, including normality and sphericity, were assessed to ensure the validity of the results. Statistical analyses were conducted via Excel Statistics (XLSTAT) software premium package version 2024.3.0 (20).

# RESULTS

## Quantitative Analysis: Repeated Measures ANOVA with Mixed Model

### Descriptive statistics

A total of 39 participants attended the workshop, and 27 participants completed both pre-test and post-test questionnaires on academic writing self-efficacy. From the 27 participants, the majority were female (66.7%, n = 18), with males representing 33.3% (n = 9). Regarding roles, 66.7% (n = 18) were lecturers, and 33.3% (n = 9) were students. Most participants were aged 21 to 29 years (70.4%, n = 19), followed by those aged 30 to 39 years (14.8%, n = 4), 40 to 49 years (11.1%, n = 3), and 50 to 59 years (3.7%, n = 1).

The overall mean self-efficacy score across all participants and conditions was 53.15 (SD = 8.74), with scores ranging from 35 to 78. When categorised by time, the mean self-efficacy score was 48.39 (SD = 6.71) at pre-test and 59.07 (SD = 7.27) at post-test, demonstrating a substantial increase.

### Checking the assumptions

Both pre-test and post-test self-efficacy scores satisfied normality assumptions, as confirmed by Shapiro-Wilk tests ($p = 0.419$ and $p = 0.725$, respectively), along with additional normality tests (Anderson-Darling, Lilliefors, and Jarque-Bera; all $p > 0.05$). Since this study only has two levels of time (pre vs post), the sphericity assumption is automatically met. Meanwhile, Levene's test indicated no significant difference in variances across groups ($F(1, 63) = 0.057$, $p = 0.812$). Similarly, Bartlett's test confirmed homogeneity of variances, with no significant difference observed ($\chi^2(1) = 0.197$, $p = 0.658$). As both tests yielded $p$-values greater than 0.05, the assumption of homoscedasticity is met.

### Main effects

Table 1 shows the results of mixed model repeated measures ANOVA that revealed a significant main effect of Time, $F(1, 31) = 68.351$, $p < 0.0001$, indicating that self-efficacy scores significantly improved after the intervention. Nonetheless, there were no significant main effects for Gender ($F(1, 31) = 0.380$, $p = 0.542$) or Role ($F(1, 31) = 2.261$, $p = 0.143$).

**Table 1:** Type III tests of fixed effects

| Effects | Num DF | Den DF | F | Pr > F |
|---|---|---|---|---|
| Gender*Role | 1 | 31 | 0.870 | 0.358 |
| Gender*Time | 1 | 31 | 5.138 | 0.031 |
| Role*Time | 1 | 31 | 5.694 | 0.023 |
| Gender*Role*Time | 1 | 31 | 4.272 | 0.047 |

### Interaction effects

The post hoc analyses revealed that male participants demonstrated greater improvements in self-efficacy than female participants, lecturers exhibited more significant improvements in self-efficacy compared to students, and the pattern of changes in self-efficacy after the AR workshop intervention varied based on both gender and role. The complete result parameters are outlined in Table 2.

**Table 2:** Complete parameters of mixed model repeated measures ANOVA

| Source | Value | S.E | DF | t | Pr > \|t\| | Lower bound (95%) | Upper bound (95%) |
|---|---|---|---|---|---|---|---|
| Intercept | 39.667 | 3.750 | 51.8 | 10.579 | < 0.001 | 32.149 | 47.184 |
| Gender-Male | 0.000 | – | – | – | – | – | – |
| Gender-Female | 5.667 | 4.592 | 51 | 1.234 | 0.223 | –3.540 | 14.874 |
| Role-Student | 0.000 | – | – | – | – | – | – |
| Role-Lecturer | 7.833 | 4.592 | 51 | 1.706 | 0.094 | –1.374 | 17.040 |
| Time-Pre-Test | 0.000 | – | – | – | – | – | – |
| Time-Post-Test | 25.000 | 3.951 | 31 | 6.327 | < 0.001 | 17.078 | 32.922 |
| Gender-Male*Role-Student | 0.000 | – | – | – | – | – | – |
| Gender-Male*Role-Lecturer | 0.000 | – | – | – | – | – | – |
| Gender-Female*Role-Student | 0.000 | – | – | – | – | – | – |
| Gender-Female*Role-Lecturer | –1.667 | 5.624 | 51 | –0.296 | 0.768 | –12.943 | 9.610 |
| Gender-Male*Time-Pre-Test | 0.000 | – | – | – | – | – | – |
| Gender-Male*Time-Post-Test | 0.000 | – | – | – | – | – | – |
| Gender-Female*Time-Pre-Test | 0.000 | – | – | – | – | – | – |
| Gender-Female*Time-Post-Test | –14.500 | 4.839 | 31 | –2.996 | 0.005 | –24.202 | –4.798 |
| Role-Student*Time-Pre-Test | 0.000 | – | – | – | – | – | – |
| Role-Student*Time-Post-Test | 0.000 | – | – | – | – | – | – |
| Role-Lecturer*Time-Pre-Test | 0.000 | – | – | – | – | – | – |
| Role-Lecturer*Time-Post-Test | –14.833 | 4.839 | 31 | –3.065 | 0.004 | –24.535 | –5.131 |
| Gender-Male*Role-Student*Time-Pre-Test | 0.000 | – | – | – | – | – | – |
| Gender-Male*Role-Student*Time-Post-Test | 0.000 | – | – | – | – | – | – |
| Gender-Male*Role-Lecturer*Time-Pre-Test | 0.000 | – | – | – | – | – | – |

(*Continued on next page*)

**Table 2.** (*continued*)

| Source | Value | S.E | DF | t | Pr > \|t\| | Lower bound (95%) | Upper bound (95%) |
|---|---|---|---|---|---|---|---|
| Gender-Male*Role-Lecturer*Time-Post-Test | 0.000 | – | – | – | – | – | – |
| Gender-Female*Role-Student*Time-Pre-Test | 0.000 | – | – | – | – | – | – |
| Gender-Female*Role-Student*Time-Post-Test | 0.000 | – | – | – | – | – | – |
| Gender-Female*Role-Lecturer*Time-Pre-Test | 0.000 | – | – | – | – | – | – |
| Gender-Female*Role-Lecturer*Time-Post-Test | 12.250 | 5.927 | 31 | 2.067 | 0.047 | 0.367 | 24.133 |

### Post hoc comparisons

Pairwise comparisons indicated significant increases in self-efficacy scores from pre-test to post-test for specific gender × role groups.

Male students demonstrated the most significant improvement, with a mean increase from 39.67 (pre-test) to 64.67 (post-test). In contrast, female lecturers exhibited moderate improvements, with scores increasing from 51.50 (pre-test) to 59.42 (post-test).

### Summary of quantitative results

The results indicate that the intervention was effective in enhancing self-efficacy for academic writing. While overall improvements were observed across participants, the extent of improvement was influenced by gender and role, with male students benefiting the most.

## Qualitative Analysis

The thematic synthesis is divided into two sections: (a) participants' perspectives and (b) reflection of action researchers.

### Section 1: Participants' perspectives

Four main themes were derived from qualitative responses of workshop participants (WP) to the open-ended questions.

*Challenges of academic writing – how to get the ball rolling*

Participants identified significant barriers to effective academic writing, particularly in initiating their work and structuring their ideas. Common sentiments included struggles with foundational skills and support. Additionally, mastering academic conventions such as citation techniques and incorporating respondent feedback emerged as areas of difficulty, reflecting limited exposure to these aspects of scholarly writing.

On the question of what the biggest or main challenges in academic writing are, two workshop participants below provided an apt description of their opinion.

> Finding the idea and how to start writing. (WP 12)
>
> The structure of sentences in writing and the lack of confidence in my grammar are my biggest challenges. (WP 23)

*Use of artificial intelligence (AI) for effective workshop intervention*

Participants viewed the workshop as a valuable opportunity to develop practical writing skills, emphasising the utility of integrating modern tools. For instance, one participant noted that understanding writing concepts and then using AI enhanced his/her ability to compose academic texts. The workshop's hands-on approach was particularly appreciated, as participants preferred learning through doing rather than passive instruction.

> I can learn from zero and build step by step. (WP 19)

The quote from one of the participants illustrates the valuable use of AI for self-directed training and practice to enhance academic writing skills and competency.

*Suggestions for improvement*

Participants suggested several improvements for future workshops, including targeted sessions on citation methods, literature reviews, and handling feedback. A recurring recommendation was the provision of dedicated time during workshops to focus on actual writing tasks, which participants believed would alleviate distractions and improve outcomes. They also expressed a preference for engaging, off-campus venues to create a more refreshing and inspiring learning environment.

> I would like more focus on citation techniques and how to manage references effectively. (WP 4)
>
> Workshops in a pleasant, engaging venue will help us focus better and feel more motivated. (WP 7)

## Section 2: Action researchers' perspectives

*Team composition and dynamics*

The reflections underscored the importance of assembling a diverse and cohesive team for the success of the AR project. Team members' varied backgrounds and complementary skills created a supportive and motivational environment. As one researcher remarked, "We have a team with various backgrounds, abilities, and experiences. The team could be successful if it is well-integrated and developed". Effective communication and camaraderie further strengthened the team's ability to collaboratively address challenges.

> The most important aspect of strengths for this project is ONE – get the right individuals for the AR team. (Action researcher)

The importance of conducting research meetings and preparation in a leisure setting. The choice of venue emerged as a critical factor in fostering creativity and engagement. Holding the meeting in a comfortable and informal setting provided what researchers described as an 'escape environment', encouraging fresh perspectives and productive discussions. Inspired by this success, researchers proposed conducting future workshops in similar off-campus settings to enhance participant focus and creativity.

> Next time, let us try a hotel venue to make it both refreshing and professional. (Action researcher)

### *Navigating institutional challenges*

Researchers encountered significant barriers in securing ethical approval for their AR methodology. Institutional demands often clashed with the nature of AR, which is set in real rather than experimental settings. The differences in research paradigm forced the team to make methodological adjustments to satisfy the ethical board reviewers. One researcher described this process as a submission to ensure project approval while striving to retain methodological integrity. This experience highlighted the need for greater institutional understanding of alternative research paradigms, beyond the positivist research framework.

### *Leveraging networks and resources*

The researchers recognised the value of institutional support in overcoming logistical challenges. Connections with administrative personnel, such as the Deputy Vice Chancellor (Research and Innovation) office, facilitated access to venues and resources essential for project execution. Additionally, researchers emphasised the importance of tailoring workshops to prioritise hands-on facilitation and dedicated time for writing, drawing on successful models from previous academic initiatives.

> Workshop model showed that providing dedicated time for participants to write is far more effective than lengthy lectures. (Action researcher)

## Results Summary of Mixed-Method Analysis

Table 3 shows the key findings from the qualitative and quantitiative analysis of this study.

**Table 3:** Key qualitative and quantitative findings from this study

| Theme | Supporting qualitative evidence | Quantitative evidence (self-efficacy scores) |
|---|---|---|
| Barriers to academic writing | Finding the idea and how to start writing. | Pre-test mean: 48.39; post-test mean: 59.07. This significant improvement highlights that academic writing self-efficacy can be hindered by modifiable barriers. |
| Benefits of AI tools | Using AI enhanced my ability to compose texts. | Significant time effect ($p < 0.001$) suggests that ChatGPT is a highly beneficial tool for improving academic writing competency. |

(*Continued on next page*)

**Table 3.** (*continued*)

| Theme | Supporting qualitative evidence | Quantitative evidence (self-efficacy scores) |
|---|---|---|
| Importance of engagement | Workshops in pleasant venues motivate us more. | Positive gender × role × time interaction effects indicate that while workshops improve self-efficacy, engagement levels vary among participants. |
| Suggestions for workshop improvements | I would like more focus on citation techniques and how to manage references effectively. | Diverse participant profiles suggest consistent recommendations for workshop improvements, which could be generalisable to broader populations and inform future interventions. |

## DISCUSSION

### Academic Writing Competency is Modifiable

This study demonstrates that academic writing self-efficacy is dynamic and can be significantly improved through targeted interventions. The observed increase in self-efficacy scores (mean rise from 48.39 to 59.07) with significant main and interaction effects, as presented in Table 2, underscores the effectiveness of structured workshops in enhancing participants' confidence and capabilities. These results confirm that practical interventions are vital to fostering writing skills (21). Explaining this phenomenon, Street (22) eloquently described the intricate relationship between theory and practice of academic writing. The interesting study began by investigating the recent literature on theories related to academic writing and the ethnographic methods used to study and understand these theories in practice. Among key theories relevant to academic writing education are adult learning, experiential learning, and social learning theories. These philosophical underpinnings explain how the exposure to the concrete experience of hands-on practice feeds into new reflection and understanding that is driven by the motivation to address real-world problems and influence the community of practice (23). These theories explain the modifiable aspects of self-efficacy in academic writing that are dynamic and improved through systematic educational intervention.

### Gender and Role Differences in Learning Outcomes

The statistical analysis results also support the dynamic interplay between various factors that impact the intervention outcomes. The main effects analysis indicated that time is the only significant factor, explaining the substantial improvement in the self-efficacy score of academic writing before and after the workshop. In comparison, there is no significant difference when the score was analysed based on gender and role (status as a student or a lecturer). These results suggest comparable competency levels among workshop participants despite differences in the background profiles. Yet, when these variables were factored in together with time, they yielded significant interaction effects (see Table 2). While all participants experienced significant improvements in self-efficacy following the workshop, the magnitude of this improvement varied across subgroups. Male participants demonstrated significantly greater improvement than female participants, as indicated by the significant interaction between gender and time (Gender-Female × Time-Post-Test, $p = 0.005$). Similarly, student participants exhibited a larger increase in self-efficacy compared to lecturers (Role-Lecturer × Time-Post-Test, $p = 0.004$). Interestingly, the three-

way interaction (Gender-Female × Role-Lecturer × Time-Post-Test, $p = 0.047$) suggests that female lecturers, in particular, experienced the smallest improvement among all subgroups. Possible explanations include differences in baseline confidence levels, professional roles, and engagement styles. Nonetheless, these results confirmed the complex dynamic interplay between various factors, and future AR workshops should explore tailored strategies to ensure equitable outcomes across all participant groups.

## Action Research – The Value of Doing Research Based on Real Actions

Additionally, the reflection from our experience also illustrates that translating the idea to address these modifiable factors into practical solutions was considerably challenging. From the idea's conception, we observed that making changes requires a strong commitment and readiness to invest time and resources. Marković (9) shared similar challenges when publishing a book dedicated to helping students and academic staff improve their skills in academic writing. The six-chapter book elaborates on several key challenges of academic writing for students. These challenges include needing to know where to begin and how to be educated in academic writing knowledge and skills (9). In comparison, the qualitative results of this study, as presented above, illustrate how participants had low self-esteem and confidence, coupled with poor proficiency in English, as one of the key elements that discouraged the motivation to learn and practice academic writing. Thus, challenges associated with addressing modifiable factors to academic writing competency are not limited to awareness but also ease of access to a safe and encouraging climate to learn and practice.

Hence, the authors purposely chose action research due to its systematic and methodological approach to problem-solving. Through AR, we committed to well-planned preparations with the motivation to do a postmortem after the workshop. As shared by one of the action researchers above, the methodological approach in AR created an environment that allowed us to 'escape' the typical set-up of doing quality improvement. In that situation, we are commonly driven by policy-making and KPIs to perform and deliver an intervention for improvement in quality education. In contrast, AR imbues problem-solving strategies with a research component, making the derivation of new knowledge and understanding from conducting this workshop emerge as a scholarly journey instead of a purely experiential gain. Our experience resonates well with the experience of other action research. For example, Shen and Feng (24) adopted the AR approach to enhance the practicality and effectiveness of 22 undergraduate nursing clinical training at Shulan (Hangzhou) Hospital in China. Likewise, the 2019 study by Scott et al. (25) used AR cyclical interventions to improve the training module of health professional educators at Westmead Health Precinct, Australia. Despite the distinct environment, culture, and nature of practice, the AR approach to problem-solving encapsulates a systematic and scientific approach to synthesising practical solutions to complex real-world problems. Therefore, AR as a dual approach to real problem-solving and a research-oriented focus proves practical and rewarding, particularly as knowledge and academic evidence advance.

## AI Tools May Prove More Valuable Than Expected

The qualitative feedback from participants of this study demonstrates that integrating AI tools such as ChatGPT has emerged as a highly valued aspect of the workshops. These tools provided immediate feedback, offered examples, and helped participants overcome

writer's block. During the session with ChatGPT to improve writing, we observed many participants raising their phones and recording the step-by-step guides and tips we shared. This observation was unique and did not occur in other sessions. The value of using AI in academic writing is not necessarily higher than that of other crucial knowledge and skills to achieve academic writing competency. However, participants' behaviour and attitude reflect their interest and commitment to learning AI compared to other sessions. We acknowledge some concerns regarding the misuse and abuse of ChatGPT and other AIs in academic writing. For example, a recent critical analysis of the literature by Mahama et al. (26) concluded that generative AI, such as ChatGPT, is helpful for academic writing. Still, they warned that inaccuracies and issues related to over-reliance might prove costly to the integrity of educational practice in the long term. We share the same opinion, considering concerns about ethical issues that we raised with the participants during the session on plagiarism. However, quantitative and qualitative analyses of this study revealed that improvement in academic writing competency is significant and substantial; nevertheless, it is not necessarily uniform for all. As a result, we believe leveraging participants' interest in AI may unlock the potential to accelerate minimum competency attainment in academic writing that is relatively universal despite differences in participants' profiles.

## Institutional Barriers Challenge Action Research

The implementation of this study highlighted significant institutional barriers, particularly related to ethical approval processes and biases toward positivist paradigms. Researchers had to navigate these challenges while maintaining the integrity of the AR approach. These include addressing questions related to conducting research using an experimental design. While a randomised controlled trial is the gold standard for comparing the effectiveness of an intervention, it is not always possible in a real practice environment, which sets AR apart from other research designs. Furthermore, complex problems almost always require a systematic approach to solution and time to mature. In this regard, knowledge and evidence derived from a strict experimental design may not immediately be applicable. Instead, cyclical interventions with a methodological approach to data analysis and reflection in AR nicely fit this requirement. Additionally, since the lead researcher of this project is also a qualified biostatistician, the weight of that credential may also help secure buy-ins and support from the ethics board following this engagement. The challenges associated with conducting AR in the healthcare field are known. For these reasons, the findings of this study underscore the importance of advocating for broader acceptance of participatory and iterative methodologies within academic institutions. In other words, addressing these systemic barriers will be essential for the success of future AR initiatives.

## Study Limitations

AR's real-world orientation is a notable strength, as it provides an authentic research setting where interventions can be immediately assessed for practical applications. Nonetheless, like workplace-based education, this approach entails inherent challenges associated with real-world practice.

Firstly, the absence of a control group limits the ability to quantify the precise magnitude and direction of the workshop's impact compared to a standard intervention. While this limitation restricts the study's capacity to establish causal relationships, using pre-test scores as a baseline offers valuable insight into participants' general levels of self-efficacy in

academic writing. We believe these pre-test scores reflect the broader population of students and lecturers in medical, pharmacy, and health sciences, lending credibility to the observed improvements.

Secondly, participant recruitment relied on voluntary responses to invitations, reflecting the typical dynamics of workshop attendance. Consequently, some participants could only complete some workshop sessions due to scheduling conflicts, resulting in an attrition rate of 30.8% (12 out of 39 participants). Despite this limitation, the parametric assumptions for repeated measures ANOVA were met with the remaining 27 participants, ensuring the robustness of the statistical analysis. This attrition underscores the importance of advanced planning for future workshops and securing firm commitments from participants to minimise scheduling conflicts and ensure full participation.

These limitations highlight the challenges of conducting AR in authentic settings while also offering valuable lessons for improving future research and interventions. In addition, they serve as key lessons for addressing these issues to ensure that future interventions may prove more practicable and efficient in supporting academic writing competency.

## CONCLUSION

This study underscores the transformative potential of targeted academic writing interventions, particularly when supported by hands-on learning, AI tools, and engaging environments. However, challenges such as demographic disparities in learning outcomes, institutional barriers, and the evolving role of AI require continued exploration. Future research may focus on refining workshop designs, addressing systemic challenges, and fostering inclusive and adaptive strategies to enhance academic writing in higher education. The findings of this study contribute to a deeper understanding of how to support students and academicians in their academic writing competency effectively.

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## ETHICAL APPROVAL

Ethical approval was obtained from UniSZA Human Research Ethics Committee (UHREC) with approval code UniSZA/UHREC/2024/662. Participants provided informed consent and were assured confidentiality. Data were anonymised, and access was restricted to the research team.

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