



جامعة المنصورة  
كلية التربية



# The effectiveness of Online Training Program based on Academic Integrity to Enhance Scientific Writing skills of Medical Scholars

*By*

**Aya Maher Tawfik Mohamed Ali**

**TEFL Training & Development Specialist**

**at The Vice President for Post Graduate Studies, Research and Cultural  
Affairs office, Mansoura University**

*Supervised by*

**Prof. Aly Abdul-Samea Qoura    Prof. Adel Abd Alhaliem Alsheikh**

*Professor of Curriculum & Instruction  
(TEFL)*

*Mansoura University  
Faculty of Education*

*Professor of Curriculum & Instruction  
(TEFL)*

*Mansoura University  
Faculty of Education*

***Journal of The Faculty of Education- Mansoura University***

***No. 119 – July. 2022***

---

---

## **The effectiveness of Online Training Program based on Academic Integrity to Enhance Scientific Writing skills of Medical Scholars**

**Aya Maher Tawfik Mohamed Ali**

### **Abstract**

This research aimed at examining the impact of applying an “Academic Integrity and Scientific Writing” online training program on bio/medical scholars’ attitudes, knowledge, and performance toward academic integrity, and scientific writing skills at Mansoura University. Furthermore, the study investigated the relationship between academic integrity, and scientific writing skills before starting the administration of the program and at the end of administrating it. A quasi-experimental pretest-posttest was used. At the start and completion of the ten-week program, participants’ self-report attitudes surveys and program tests were examined. At the end of the program, participants were asked to complete a self-evaluation rubric after producing their initial manuscript draft. Descriptive statistics and t-tests showed attitudes, knowledge, and performance of academic integrity, and scientific writing increased significantly. In addition, Pearson’s correlation rate analysis proved the connection between academic integrity and scientific writing. Moreover, the effect size of the online program was found to be high. Therefore, this research recommended using academic integrity online program with the integration of scientific writing learning skills to avoid academic misconduct and raise the responsible conduct of research (RCR).

**Keywords:** Scientific writing (SW); Online learning; Academic Integrity (AI); Academic misconduct; Falsification, Fabrication, Plagiarism (FFP).

### **Introduction**

The main goal of any scientific research is to get a scientific article published in a prestigious journal. Scientific publication is considered to be the channel of disseminating knowledge and gaining prestige and promotion. In addition, the scientific publication reflects on the academic significance of institutions’ reputations and societal policies. Many reasons affect scholars conduct and publish a scientific research paper in a peer-reviewed journal as they want to: share their results with others, make progress in science, declare their intellectual property, gain reputation, money, professional promotion, and promote their institutions or universities’ academic level (Donev, 2013).

---

---

And to achieve this, scholars need to avoid research misconduct and raise their scientific writing and research integrity learning skills. Therefore, this research will explore the improvements in scientific writing, and academic integrity over a ten-week-long online training program to present whether there are any significant connections between these variables and to reveal if these variables have an impact on the scholars' attitudes, knowledge, and performance.

### ***Literature review***

#### ***1) Scientific writing***

The emergence of the scientific writing concept in English is in the 14<sup>th</sup> century by Sir Francis Bacon and he mentioned that language of science should be structured “in the simplest and least abstruse language” (Taavitsainen & Pahta, 2004). In 1665, the *Journal des Sçavans* in France and the *Philosophical Transactions* of the Royal Society of London in England published their first scientific periodicals. Since then, scientific journals have been regarded as the primary repository of scientific intercultural communication. Furthermore, Robert Boyle emphasized avoiding losing the reader's attention with a boring, plain writing style (Harmon & Gross, 2007).

Every scientific subject has its own set of rhetorical, stylistic, and formatting standards that scholars must comply with and understand. Trevitt (2020) highlighted that the American Psychological Association (APA) has been widely used as the publication writing standard in practically all scientific research; nevertheless, some researchers still find the APA style difficult to employ when publishing research in high-impact periodicals. This trouble appears as a result to reach the approved standards of scientific research paper requires many skills and sub-skills such as critical thinking, computer, statistical, and academic/scientific writing skills besides APA style guidelines. Accordingly, treating each sub-skill as a separate ability rather than combining those abilities into one will increase the efficacy of scientific writing.

#### ***Scientific writing concept***

The concept of scientific writing is defined as “a form of communication that allows the clear and precise dissemination of scientific ideas, empirical data, unique theories and concepts, reviews of previous data, and new proofs” (Lintern & Greenfield, 2007, p.49). As well as, Sholapurkar (2011) explained it as “Humans have been able to communicate for a considerable number of years; however, scientific

---

communication is relatively rare. Science is often hard to read and write as well. The quality, clarity, understanding, communication, and language of writing are the key characteristics of science which is of large and practical significance. Improving the quality of writing improves the quality of thought. Scientific writing is the basis of going to institutions, universities, libraries to gain information and knowledge and present it concisely” (p.3).

Day & Gastel (2016) mentioned that the concept of “scientific writing commonly denotes the reporting of original research in journals, through scientific papers in a standard format. In its broader sense, scientific writing also includes communication about science through other types of journal articles, such as review papers summarizing and integrating previously published research. And in a still broader sense, it includes other types of professional communication by scientists; for example, grant proposals, oral presentations, and poster presentations. Related endeavors include writing about science for the public, sometimes called science writing” (P. 3). Moreover, Hanganu & Flaherty (2020) defined scientific writing as a style of writing that aims to disseminate scientific information in an objective, succinct, and effective manner.

To summarize the above conceptions, writing for different fields or specializations include steps and processes: (a) planning, which involves researching and reading resources; (b) writing the first draft; and (c) editing and proofreading. Scientific writing is a demanding and complex genre to master, rich in linguistic, stylistic, and genre-specific requirements. Scientific writing is characterized by continuity and a logical flow of ideas, a strict foundation in English sentence construction, usage, and punctuation. As well as, it includes some features of technical writing such as manuscript organization, citing the work of others, displaying figural information appropriately, proper jargon usage, and more.

#### *Characteristics of scientific writing*

Scientific writing, according to Day and Gastel (2012), is a style of writing that conveys a distinct message to the reader who is being the targeted audience. The use of metaphors, similes, and idiomatic expressions is not permitted in scientific writing since they confuse while conveying information, therefore they should not be utilized when writing a research report. Accuracy and clarity are key indicators in communicating research facts (Day & Sakaduski, 2011). Furthermore, Salager-Meyer (2011) claimed that hedging is the most important component in scientific writing, which

---

---

indicates that possibility, adequate precision, caution, and humility are all important factors in scientific research papers.

Giba, (2014) summarized characteristics of scientific writing into seven characteristics as follows: (a) clarity, writing should be explicit and deliver a clear message to the reader; (b) correctness, writing should not have any mistakes; (c) completeness, writing should include all the needed information; (d) comprehensibility, writing should avoid any difficult meanings; (e) concision, writing should not include unneeded information; (f) consistency, writing should use the right structures and technical terms; (g) conformance, writing should be committed to the defined publication standards.

Writing in simple, clear, concise, well-organized, coherent, and proper structure and technical language will result in a good scientific report. Proper scientific writing will lead to success in the publishing process for major journals.

#### *Scientific writing and publishing benefits*

Any scientific writing culminates with the publication of a scientific paper in a high-impact journal. Some scientists regard publication as a means of distributing information to obtain status and advancement (Lolas & Outomuro, 2006). Furthermore, scientific publications have academic relevance for the reputations of institutions and social policy. This is because every scholar/researcher wishes to publish his/her research findings to be recognized, understood, and gain perspective in his/her academic area.

Peat et al. (2020) added five more motivations for scholars/researchers to publish their findings, which are as follows: have results worth telling; promote science; the aim to reach a wide range of intended audience; provide chances for promotion, and the most basic reason is that it is unethical to conduct research without revealing its findings.

#### **2) Academic Integrity**

Academic integrity has emerged dating back to at least the nineteenth century. However, it is a new term that the researchers try to observe and investigate its values, principles, policies approaches & strategies, and impacts on the educational research field. As well as, the demanding need of embedding academic integrity into higher education has been growing over the years because of the increase in the reported cases of dishonest practices. Scholars and researchers all over the world started to investigate this topic

---

and its related issues to gain experiences from the existing research and adjust it to their specific fields.

The word “integrity” is derived from the Latin word *integritās* which means “soundness of moral principle; the character of uncorrupted virtue, especially about truth and fair dealing; uprightness, honesty, sincerity” (Oxford English Dictionary, 2017, ex. 3b). The International Center for Academic Integrity (2021) described academic integrity thoroughly “as it is a commitment, even in the face of adversity, to six fundamental values: honesty, trust, fairness, respect, responsibility, and courage”. Macfarlane, et al. (2014) explained that the term academic integrity has different semantics in academia; as it represents negative words such as plagiarism (the unacceptable behaviors); and at the same time, it usually refers to positive words such as ethics (the acceptable behaviors).

Bell, Bryman & Harley (2018) suggested ten principles that could help support the research ethics: 1) research samples should not be exposed to any harm in anyways; 2) research samples’ dignity should be respected; 3) research samples’ approval should be collected before applying the research; 4) protect the samples’ privacy during the study; 5) confirm the suitable level of research data confidentiality; 6) affirm the anonymity of samples and institutions participating in the study; 7) avoid any cheating or exaggeration about the aims and objectives of the study; 8) conflict of interest, forms of affiliations, and funding sources should be stated; 9) honesty and transparency should be integrated to any communication part related to study; 10) deceptive research data or biased interoperations of research data results should be avoided.

Many recent studies that are concerned with promoting academic integrity pedagogical approaches varied in their viewpoints on the responsibility of embedding academic integrity and ethics training, teaching methods, and ways of dealing with academic misconduct. Hyttinen & Löfström (2017) collected and developed these various viewpoints of researchers and educators into three primary themes of academics’ pedagogical views of promoting research ethics and integrity, with each theme subdivided into sub-themes as outlined in (table 1).

**Table 1: Research integrity and ethics education themes and sub-categories (Hyytinen & Löfström, 2017)**

| Themes  | Sub-themes   |
|---|--|
| 1. The responsibility of research integrity and ethics training | 1.1 The responsibility of the individual teacher<br>1.2 The shared responsibility of all members of the academic community<br>1.3 The responsibility of the individual student |
| 2. Methods of teaching  | 2.1 Explicit teaching strategies<br>2.2 Implicit teaching strategies   |
| 3. Methods of intervening in the event of misconduct            | 3.1 A proactive approach to fostering integrity and turning misconduct into a learning opportunity<br>3.2 A reactive approach to misconduct, including punishment              |

Table 1 shows that choosing suitable teaching and learning approaches and strategies has an impact on fostering academic integrity in higher education and the effectiveness of appropriate educational methods can be the perfect tool for improving learners' acknowledgment and skills for accepted academic behaviors. Also, the important roles of teachers, professors, academic practitioners, and administrators have shown a great effect in supporting the understanding of academic integrity principles and values. Furthermore, the implementation of interactive practices such as digital resources, modules or tutorials, guidance books, self-directed learning tools, and workshops that could be integrated into students' learning programs will help in raising academic integrity.

David & Resnik (2020) summarized the importance of ethics/integrity into five main reasons as follows: (1) reach the research's desirable goals, such as knowledge, truth, and rejection of committing an error; (2) enhance the principles such as trust, answerableness, mutual respect, and fairness that are important in collaborative work between numerous scholars in different disciplines; (3) increase the federal public support trust research findings and achieving international organizations' fund by sticking to the policies on research misconduct, conflicts of interest, the human subjects' protections, and animal care and use; (4) improve the quality and integrity of research findings; (5) stick to the norms such as social responsibility, human rights, animal welfare, compliance with the law, and public health and safety.

Over the last decade, the progress of a teaching and learning approach for academic integrity education will result in encouraging and supporting

---

---

learners' academic/scientific writing. Approaches should involve formative and summative assessments for learners, with assistance and feedback from mentors, instructors, colleagues, and academic institutions. The pedagogic strategy of the present research is a wide-reaching due to the wide use of academic integrity and scientific writing courses in universities around the world and the need for educators to discover effective learning and teaching strategies and approaches to assist bio/medical scholars with troubles that they often face when writing their research papers.

### **3) Online Learning**

#### ***Advantages***

Online learning is considered a supportive educational pedagogy that can make teaching and learning procedures more flexible, more advanced, and more self-directed. Chen (2011) mentioned that the use of technology in online learning has noticeable effects on English language learning progression such as facilitating learning processes and raising interest, motivation, and interactions to the mastery of the English language. Nguyen (2015) stated that about 92% of recent studies on online learning are believed to be at least as effective, if not better, than traditional learning.

Morat et al. (2017) in their findings confirmed the usage of online learning increased the students' motivation toward engagement in learning tasks and assessments. They added that the implementation of online authentic materials in the forms of videos or audio played a vital role in promoting the learners' learning experiences and increasing attention among learners toward learning English language skills.

Henderson et al. (2017) explored students' attitudes and perceptions toward online learning and mentioned that there are fewer chances of students missing lessons in online learning. They ended up with some advantages of using online learning which helps in developing social language skills; enhancing the learners' critical thinking; acquiring a higher level of motivation; learning in accord to the learners' learning style; removing any personal barriers that might stop learners from learning; improving learners' productivity; saving time and cost; and accessing to any articles, podcasts, videos, and written documents at any time and from any place.

Bailey and Lee (2020) mentioned some advantages of using online learning in education, as follows: (a) learners can customize their learning environment to fulfill their needs and learn at their own pace; (b) learners can attend the online classroom at any time and at any place; (c) online



---

---

learning classrooms are cheaper when compared to the ones held in a traditional classroom; (d) able to access any needed materials or resources; and (e) multiple ways to communicate with your instructor with instant feedback. The online learning environments, with their wide options and resources, can be provided in many ways which help to create a perfect learning environment suited to the needs of each learner. Moreover, learners will have to acquire time management skills and keep themselves motivated to complete tasks and stay on track so that they can accomplish language learning on time.

Online learning provides learners with a well-balanced combination of self-regulated and self-managed learning material based on their needs and objectives to facilitate the learning of English as a foreign or a second language. The internet also offers learners many opportunities to learn anytime, anywhere they prefer, and at their own pace. In spite of these benefits, success in an online learning environment heavily relies on a learner's ability to autonomously and actively engage in the learning process, as well as the challenges that can obstacle the implementation of online learning in teaching the English language.

### ***Challenges***

Distance learning in higher education has developed over the last years into what is known as online learning, this type of education is transmitted by the internet in the forms of documentation, audio, and video (live or prerecorded) through using a computer, mobile phones, tablets, and other technological devices in any time and at any place (Anderson & Dron, 2011). There are many advantages of embedding online learning into learning and teaching the English language as mentioned above, though, there are on the other side many disadvantages that obstacles the online learning processes.

Those disadvantages could be summarized into problems related to the implementation of the online tools; problems related to technical barriers; problems related to instructors' inabilities; and problems related to learners' inabilities toward using online learning as a method of learning. Researchers argued that different online tools enhanced the learning processes more than enhance the social communication skills of language learners. As a result, the call for more research investigating the combination between blended learning and face-to-face learning and its effectiveness in raising social communication skills as well as acquiring language learning skills (Means et al., 2013; Pavlakou and Sharpe, 2014).

---

---

For the problems related to technical barriers, Eltahir (2019) illustrated that the use of online learning in English language classrooms caused some barriers such as accessibility challenges, lack of technological self-capacities, cultural differences, and platform technical problems. Those barriers varied based on the distinction of each society regarding their values, beliefs, location, and individuals' understandings about using technology in their learning. Ghavifekr et al. (2016) also stated that unstable internet connection and the absence of adequate internet infrastructure foundation in some developing countries were the main disadvantages of adopting online learning in language education. The lack of digital devices (e.g. computers, laptops, tablets, etc.) and Internet access prevents the implementation of online learning in some countries to develop their learning system. As well as, Halim & Hashim (2019) concentrated on technical problems that appear while conducting online lessons such as audio and video problems, which also had an impact on hindering online learning.

During the spread of the coronavirus pandemic, recent studies revealed problems related to instructors' inabilities while integrating e-learning in English language education. This pandemic caused instructors and learners to rush to use e-learning. Shahzad et al. (2020) findings indicated that the embedded online environment for language learning failed to achieve learners' needs and instructors' learning objectives. That failure or unsuccessfulness of embedding an online environment into a language classroom is affected by the imperfect preparations of instructors about information communication technology skills. Aliyyah et al. (2020) stated other barriers to online learning related also to the instructors' inabilities to identify and recognize their students' needs to help students achieve language learning as expected. Moreover,

Mohammed et al., (2020) examined the online interactions between students and instructors through web conferences, and their studies indicated the lack of interest by students to listen or watch the online lesson as a result of their instructors' inabilities to manage the online classroom and to catch their attention during the lesson. Another problem of the unpreparedness of instructors for using online learning is that a number of them do not have qualified skills to adapt online learning to their classroom and are unaware of the types and forms of the available platforms as a result there will be delayed in delivering materials and feedback to their students (Kaden, 2020).

---

---

The roles of instructors, teachers, learners, technicians, and online learning tools are factors that could lead to the effective use of online learning in English language education and at the same could be the obstacles that hinder and decrease opportunities during online learning. Despite the different problems related to online learning, instructors and all involved participants should take part in designing and planning effective strategies that provide learners with the required educational needs in that no learner is left behind.

***Statement of the Problem***

The research problem was outlined as follows, based on the researcher's work experience, the findings of the pilot study, and a review of the literature: Bio/medical scholars who try to obtain MA and PhD degrees in medical fields at Mansoura University confront a variety of problems, including limited English proficiency, limited expertise with scientific literary skills, and a low level of academic integrity. They also need to complete the prerequisites for such degrees by publishing their research articles in high-impact peer-reviewed journals in order to stay on track for graduation and avoid the risk of publication retraction.

***Purpose of the research***

The present research aimed at:

1. Providing bio/medical scholars with the needed skills to recognize, manage, and prevent dishonest scientific research behaviors in higher education.
2. Promoting academic integrity values in higher education will lead to avoiding academic dishonesty issues in the future.
3. Supporting academic institutions with the appropriate educational strategies can influence the prevention of academic dishonesty instances.
4. Determining the effectiveness of an online training program in improving academic integrity, and scientific writing skills and preventing academic dishonesty.

***The research questions will be addressed as follow:***

1. What is the effectiveness of a proposed training program in developing medical scholars' academic integrity, and scientific writing knowledge?
2. Is there a relationship between academic integrity, and scientific writing at the beginning and the end of the proposed training program?

- 
3. What is the impact of a proposed training program on self-evaluation rubric scores at the end of the treatment?

## Method

### 1 Research method

The present research adopted the quasi-experimental one-group pretest-posttest design to investigate the impact of using an online training program to develop medical scholars' acquisition of academic integrity, and scientific writing skills. One group of medical scholars working on their research papers to obtain their master's degrees or PhD degrees at Mansoura University was selected as participants. The participants were subjected to the proposed experimental treatment which consists of nine modules with a pretest and posttest for each module. At the end of the treatment, they received a scoring rubric to self-evaluate their first manuscript draft.

### 2 Participants

Participants in the research were 60 bio/medical scholars pursuing MA or PhD degrees in the faculties of (Medicine, Dentistry, Nursing, Veterinary, and Pharmacy) at Mansoura University in Egypt. The demographic details of the research participants are shown in Table 2.

**Table 2 Demographic characteristics of the study sample (N = 60)**

| Gender   | Female   |      | Male       |      |          |      |          |      |           |     |
|----------|----------|------|------------|------|----------|------|----------|------|-----------|-----|
|          | N        | %    | N          | %    |          |      |          |      |           |     |
|          | 26       | 43.3 | 34         | 56.7 |          |      |          |      |           |     |
| Degree   | MA       |      | PhD        |      | MD       |      |          |      |           |     |
|          | N        | %    | N          | %    | N        | %    |          |      |           |     |
|          | 32       | 53.3 | 14         | 23.3 | 14       | 23.3 |          |      |           |     |
| Position | Scholar  |      | Assistant  |      | Lecturer |      | Resident |      |           |     |
|          | N        | %    | N          | %    | N        | %    | N        | %    |           |     |
|          | 18       | 30.0 | 16         | 26.7 | 7        | 11.7 | 19       | 31.7 |           |     |
| Faculty  | Medicine |      | Veterinary |      | Pharmacy |      | Nursing  |      | Dentistry |     |
|          | N        | %    | N          | %    | N        | %    | N        | %    | N         | %   |
|          | 27       | 45.0 | 12         | 20.0 | 10       | 16.7 | 7        | 11.7 | 4         | 6.7 |

### 3 Instruments

The present research made use of the following instruments, which were developed by the researcher and validated by the jury members in the bio/medical fields:

- 1) Academic Integrity & Scientific Writing" Online Training Program.
- 2) Pre and post-test program (for each module).

3) Academic integrity & scientific writing, self-evaluation scoring rubric.

#### 4 Data collection procedures

Participants are subjected to the “Academic Integrity and Scientific writing” online training program. A pretest and posttest for each program module and a pre-post questionnaire were administered to the participants at the beginning and the end of the program. At the end of the implementation, participants completed the self-evaluation scoring rubric of their manuscript draft. After the participants completed the proposed treatment, the data were collected by the researcher.

### Results and Discussion

#### 1 The relationship between academic integrity, and scientific writing at the beginning and the end of the program

The results of correlation analysis involving academic integrity, scientific writing, and self-regulation measures at the beginning of the treatment are shown in Table 4. There was a strong correlation between academic integrity and scientific writing ( $r= 0. 780, p < .01$ ).

**Table 4: The correlations of pre-administration of the (AI, SW) questionnaire**

|                            | 1       | 2 |
|----------------------------|---------|---|
| 1. Academic integrity (AI) | 1       |   |
| 2. Scientific writing (SW) | 0.780** | 1 |

Note. \*\* =  $p < .01$

Looking at the Pearson’s correlation results for the treatment post-administration (Table 5), the measure of academic integrity and scientific writing ( $r= 0. 929, p < 0.01$ ), is correlated significantly the same as the Pearson’s correlation of the pre-administration of treatment.

**Table 5: The correlations of post-administration of the (AI, SW) questionnaire**

|                            | 1       | 2 |
|----------------------------|---------|---|
| 1. Academic integrity (AI) | 1       |   |
| 2. Scientific writing (SW) | 0.929** | 1 |
| Note. ** = $p < .01$       |         |   |

The significance of the correlations changes for academic integrity and scientific writing skills are estimated with Fisher-z transformation. The correlations between academic integrity and scientific writing ( $z = -3.233, p$

<0.001) increased significantly between pre and post-questionnaire administration over the 10-week-program.

## 2 Changes in academic integrity, scientific writing knowledge

The participants' academic integrity and scientific writing knowledge scores between pre and post-implementation are viewed in Table 6. The results reveal that overall mean scores improved greatly over the online program with a large effect size ( $t = 30.12$ ,  $p = < 0.001$ ,  $d = 3.89$ ). Furthermore, the mean scores for all the nine module measures increased from pre to post with statistical significance and large effect sizes.

**Table 6: Comparison of the effect size of the pre and post-administration of program tests of the experimental group**

| Test Modules   | Test | M      | SD     | t     | Cohens'd | Effect size             |
|--|------|--------|--------|-------|----------|-------------------------|
| <b>Module 1</b><br>Scientific Writing and<br>Publication Process                                     | Pre  | 25.77  | 7.39   | 24.23 | 3.13     | <b>Large<br/>Effect</b> |
|  | Post | 49.35  | 0.97   |       |          |                         |
| <b>Module 2</b><br>Basic Writing Principles<br>& Research Concepts                                   | Pre  | 25.73  | 7.64   | 23.70 | 3.06     | <b>Large<br/>Effect</b> |
|  | Post | 49.45  | 0.89   |       |          |                         |
| <b>Module 3</b><br>Research Integrity &<br>Ethical Issues  | Pre  | 29.48  | 8.84   | 16.89 | 2.18     | <b>Large<br/>Effect</b> |
|  | Post | 49.33  | 0.91   |       |          |                         |
| <b>Module 4</b><br>Abstract section  | Pre  | 15.90  | 5.45   | 18.83 | 2.43     | <b>Large<br/>Effect</b> |
|  | Post | 28.87  | 0.98   |       |          |                         |
| <b>Module 5</b><br>Introduction Section  | Pre  | 27.83  | 8.24   | 20.03 | 2.59     | <b>Large<br/>Effect</b> |
|  | Post | 49.38  | 0.87   |       |          |                         |
| <b>Module 6</b><br>Methods Section   | Pre  | 27.92  | 7.39   | 22.40 | 2.89     | <b>Large<br/>Effect</b> |
|  | Post | 49.50  | 0.62   |       |          |                         |
| <b>Module 7</b><br>Results Section   | Pre  | 26.72  | 7.21   | 24.73 | 3.19     | <b>Large<br/>Effect</b> |
|  | Post | 49.28  | 0.99   |       |          |                         |
| <b>Module 8</b><br>Discussion Section  | Pre  | 17.28  | 5.36   | 16.84 | 2.17     | <b>Large<br/>Effect</b> |
|  | Post | 28.93  | 0.95   |       |          |                         |
| <b>Module 9</b><br>Wrapping Up: Title,<br>Supporting Materials,<br>and Submitting Your<br>Manuscript | Pre  | 16.05  | 5.13   | 20.77 | 2.68     | <b>Large<br/>Effect</b> |
|  | Post | 29.43  | 0.87   |       |          |                         |
| <b>Overall</b>   | Pre  | 212.68 | 43.248 | 30.12 | 3.89     | <b>Large<br/>Effect</b> |
|  | Post | 383.53 | 4.102  |       |          |                         |

---

---

### 3 Comparing the academic integrity & scientific writing self-evaluation rubric scores with the test value score

A one-sample t-test was then used to test the significance of the scoring measurement of academic integrity, scientific writing, and self-regulation compared to the expected test value (285) as a result of the program implementation. Table 7 indicates there is a significant difference where the ( $t= 10.88$ ,  $p = < 0.001$ ).

**Table 7: Comparing the AI & SW self-evaluation rubric scores with the test value score**

|                     | Test Value | Mean | SD   | t     | Sig. | df | N  |
|---------------------|------------|------|------|-------|------|----|----|
| AI & SW & SR Rubric | 285        | 295  | 7.12 | 10.88 | 0.00 | 59 | 60 |

The experimental group of medical scholars' post-test results exceeded their pretest results in all the nine module tests of the "AI & SW online training program". Moreover, the effect size of the online program was significantly large. It was also noticed that the overall t-test value of the proposed program was 30.12 which is significant at the 0.01 level. That is awarded to the different practices and examples of acceptable and unacceptable behaviors provided in the content of the program.

Furthermore, the program provides the bio/medical scholars with an overall scientific writing and publication process for scientific papers, the components of a scientific paper, the steps of starting a paper, and choosing the appropriate bio/medical journal for submitting a manuscript. Then continue with a Comprehensive overview of how scholars can meet their research responsibilities, setting out the key principles and practices of good research conduct, providing an introduction to more specialized subjects, including conflicts of interest, research involving humans and animals, and intellectual property. At last, the program gives some instructions on how to deal with the submission and review processes for the scientific paper.

This indicates that "the AI & SW online program" was remarkably effective in improving the scholar's knowledge of academic integrity, scientific writing, and self-regulation skills. The results of this research were congruent with the results of some other studies that concluded the implementation of ethics and improving paraphrasing and citation courses will improve the AI and SW in different. As the studies by (Azakir, et al., 2020; Click, 2016) were aimed at only improving the awareness of ethics. As well as, (Henderson and Whitelaw, 2013; Setter, 2013; McCauley, 2015;

---

Bing et al., 2016) are interested in developing academic integrity by improving paraphrasing and citation.

However, this research was different in dealing with AI, and SW, in a more comprehensible strategy. Because it did not depend only on ethics or improving paraphrasing and citation. But it choose more inclusive scientific writing skills based on the studies of (Day & Gastel, 2016 & Hanganu-Bresch, 2020), and for academic integrity, the researcher depended on the studies of (McCabe and Pavela, 2004 & Bell, Bryman & Harley, 2018) as they mentioned the academic integrity principles that could help in avoiding the research misconduct. The intervention treatment resulted in an overall rise in mean scores for academic integrity and scientific writing learning skills, according to the study's findings.

The current research revealed that there was a considerable association between academic integrity and scientific writing both before and after the implementation of the interventional program, with the relationship remaining steady and significant throughout the time of implementation. These findings are consistent with those of (El-Dessouky et al., 2011; Kandeel et al., 2011; Stretton et al., 2012; Ahmadi, 2014; Felaefel, M. T., 2015; Abou-Zeid, 2016; Rohwer et al., 2017; Felaefel, et al., 2018) who have shown a connection between academic integrity and scientific writing.

### **Conclusions**

This research is considered a pioneer in the field of English for academic purposes (EAP) methodology as it provides a tool for enhancing and improving academic integrity and raising the quality of scientific papers. Therefore, the current research findings highlight the need for ongoing studies regarding the effectiveness of online training programs in improving academic integrity and scientific writing achievement. Such studies, without a doubt, could provide additional research to better determine which methods of instruction are most appropriate for enhancing academic integrity and avoiding research misconduct.

### **References**

- Abou-Zeid, M. N. (2016). Academic integrity: a perspective from Egypt. *Handbook of academic integrity*, 135-45.
- Ahmadi, A. (2014). Plagiarism in the academic context: A study of Iranian EFL learners. *Research Ethics*, 10 (3), 151–168.



- 
- Ali, M. F. (2021). Attitudes towards plagiarism among faculty members in Egypt: a cross-sectional study. *Scientometrics*, 126(4), 3535-3547.
- Aliyyah, R. R., Rachmadtullah, R., Samsudin, A., Syaodih, E., Nurtanto, M., & Tambunan, A. R. S. (2020). The perceptions of primary school teachers of online learning during the COVID-19 pandemic period: A case study in Indonesia. *Journal of Ethnic and Cultural Studies*, 7(2), 90-109.
- Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *International Review of Research in Open and Distributed Learning*, 12(3), 80-97.
- Azakir, B., Mobarak, H., Al Najjar, S., El Naga, A. A., & Mashaal, N. (2020). Knowledge and attitudes of physicians toward research ethics and scientific misconduct in Lebanon. *BMC medical ethics*, 21, 1-10.
- Bailey, D. R., & Lee, A. R. (2020). Learning from experience in the midst of covid-19: Benefits, challenges, and strategies in online teaching. *Computer-Assisted Language Learning Electronic Journal*, 21(2), 178-198.
- Bell, E., Bryman, A., & Harley, B. (2018). *Business research methods*. Oxford university press.
- Bettaieb, J., Cherif, I., Kharroubi, G., & Mrabet, A. (2020). Attitudes towards plagiarism among academics of the Faculty of Medicine of Tunis. *Accountability in Research*, 27(8), 521-537.
- Bing, T., Reid, S., & Ivanovic, V. (2016). Paint me a picture: Translating academic integrity policies and regulations into visual content for an online course. *International Journal for Educational Integrity*, 12(2), 1-13.
- Chen, C. L. A. (2011). Extended implications of technology in second language teaching and learning. *Studies in Applied Linguistics and TESOL*, 11(2).
- Click, A. B. (2016). *Adapting to higher education in a new culture: International students' perspectives on research, writing, and academic integrity* (Doctoral dissertation, The University of North Carolina at Chapel Hill).
- David, B., & Resnik, J. D. (2020). What is ethics in research & why is it important. *National Institute of Environmental Health Science Retrieved from*
-

---

<https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm>

- Day, R. A., & Gastel, B. (2016). *How to write and publish a scientific paper*. 8th edition. Greenwood. Santa Barbara, Ca, USA
- Day, R. A., Sakaduski, N. D. (2011). *Scientific English: A Guide for Scientists and Other Professionals*. (3rd ed) Greenwood.
- Day, R., & Gastel, B. (2012). *How to write and publish a scientific paper* ([international ed.]).
- Donev, D. (2013). Principles and ethics in scientific communication in biomedicine. *Acta Informatica Medica*, 21(4), 228.
- El-Dessouky, H. F., Abdel-Aziz, A. M., Ibrahim, C., Moni, M., Abul Fadl, R., & Silverman, H. (2011). Knowledge, awareness, and attitudes about research ethics among dental faculty in the Middle East: A pilot study. *International journal of dentistry*, 2011.
- Eltahir, M. E. (2019). E-learning in developing countries: Is it a panacea? A case study of Sudan. *IEEE Access*, 7, 97784-97792.
- Felaefel, M. T. (2015). A cross-sectional survey study to assess attitudes towards research misconduct among the community of the American University in Cairo.
- Felaefel, M., Salem, M., Jaafar, R., Jassim, G., Edwards, H., Rashid-Doubell, F., ... & Silverman, H. (2018). A cross-sectional survey study to assess prevalence and attitudes regarding research misconduct among investigators in the Middle East. *Journal of academic ethics*, 16(1), 71-87.
- Ghavifekr, S., Kunjappan, T., Ramasamy, L., & Anthony, A. (2016). Teaching and Learning with ICT Tools: Issues and Challenges from Teachers' Perceptions. *Malaysian Online Journal of Educational Technology*, 4(2), 38-57.
- Giba, J. (2014). *Developing skills in scientific writing*. Esteve Foundation.
- Godecharle, S., Fieuws, S., Nemery, B., & Dierickx, K. (2018). Scientists still behaving badly? A survey within industry and universities. *Science and engineering ethics*, 24(6), 1697-1717.
- Halim, M. S. A. A., & Hashim, H. (2019). Integrating web 2.0 technology in ESL classroom: A review on the benefits and barriers. *Journal of Counseling and Educational Technology*, 2(2), 1-8.

- 
- Hanganu-Bresch, C., & Flaherty, K. (2020). *Effective Scientific Communication: The Other Half of Science*. Oxford University Press.
- Hanganu-Bresch, C., & Flaherty, K. (2020). *Effective Scientific Communication: The Other Half of Science*. Oxford University Press.
- Harmon, J. E., & Gross, A. G. (Eds.). (2007). *The scientific literature: A guided tour*. University of Chicago Press.
- Henderson PhD, F., & Whitelaw PhD, P. A. (2013). Intercultural awareness and the global economy: Chinese students and academic literacy—a lesson larger than just paraphrasing. *Development and Learning in Organizations: An International Journal*, 27(5), 7-10.
- Henderson, M., Selwyn, N., & Aston, R. (2017). What works and why? Student perceptions of ‘useful’ digital technology in university teaching and learning. *Studies in Higher Education*, 42(8), 1567-1579.
- Hyytinen, H., & Löfström, E. (2017). Reactively, proactively, implicitly, explicitly? Academics’ pedagogical conceptions of how to promote research ethics and integrity. *Journal of Academic Ethics*, 15(1), 23-41.
- International Center for Academic Integrity (ICAI). (2021). *The fundamental values of academic integrity* (3<sup>rd</sup> ed.). Retrieved from [https://www.academicintegrity.org/wpcontent/uploads/2021/02/20019\\_ICAI-Fundamental-Values\\_R11.pdf](https://www.academicintegrity.org/wpcontent/uploads/2021/02/20019_ICAI-Fundamental-Values_R11.pdf)
- Kaden, U. (2020). COVID-19 school closure-related changes to the professional life of a K–12 teacher. *Education Sciences*, 10(6), 165.
- Kandeel, N., El-Nemer, A., Ali, N. M., Kassem, H., El-Setouhy, M., Elgharieb, M. E., ... & Silverman, H. J. (2011). A multicenter study of the awareness and attitudes of Egyptian faculty towards research ethics: A pilot study. *Journal of Empirical Research on Human Research Ethics*, 6(4), 99-108.
- Lintern, M., & Greenfield, S. (2007). *Laboratory skills for science and medicine: an introduction*. Radcliffe Publishing.
- Lolas, F., & Outomuro, D. (2006). Ética de la Publicación Médica. En: F. Lolas, A. Quezada, & E. Rodríguez (Eds.), *Investigación en Salud. Dimensión Ética* (pp. 259-272). Santiago de Chile: Centro Interdisciplinario de Estudios en Bioética, Universidad de Chile.
-

- 
- Macfarlane, B., Zhang, J., & Pun, A. (2014). Academic integrity: a review of the literature. *Studies in higher education*, 39(2), 339-358.
- McCabe, D. L., & Pavela, G. (2004). Ten (updated) principles of academic integrity: How faculty can foster student honesty. *Change: The Magazine of Higher Learning*, 36(3), 10-15.
- McCauley, A. M. K. (2015). *Academic Cheating Management for Nursing Faculty*. AT Still University of Health Sciences.
- Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers college record*, 115(3), 1-47.
- Mohammed, A. O., Khidhir, B. A., Nazeer, A., & Vijayan, V. J. (2020). Emergency remote teaching during Coronavirus pandemic: the current trend and future directive at Middle East College Oman. *Innovative Infrastructure Solutions*, 5(3), 1-11.
- Morat, B. N., Shaari, A., Abidin, M. J. Z., & Abdullah, A. (2017). Youtube Within Esl Classroom: Exploring an Instructor's and her Learners' Experiences Concerning the Authenticity of Language and Technology Use. *Malaysian Journal of Learning and Instruction*, 173-196.
- Nguyen, T. (2015). The effectiveness of online learning: Beyond no significant difference and future horizons. *MERLOT Journal of Online Learning and Teaching*, 11(2), 309-319.
- Pavlakou, M., & Sharpe, R. (2014). Learners' expectations and experiences of the digital environment in the Further Education and Skills sector: A review of the literature conducted for the Jisc FE Digital Student Project.
- Peat, J. K., Mellis, C., Williams, K., & Xuan, W. (2020). *Health science research: A handbook of quantitative methods*. Routledge.
- Rohwer, A., Young, T., Wager, E., & Garner, P. (2017). Authorship, plagiarism and conflict of interest: views and practices from low/middle-income country health researchers. *BMJ open*, 7(11), e018467.
- Salager-Meyer, F. (2011). Scientific discourse and contrastive linguistics: hedging. *European Science Editing*, 37(2), 35-37.
- Shahzad, S. K., Hussain, J., Sadaf, N., Sarwat, S., Ghani, U., & Saleem, R. (2020). Impact of Virtual Teaching on ESL Learners' Attitudes
-

- 
- under COVID-19 Circumstances at Post Graduate Level in Pakistan. *English Language Teaching*, 13(9), 1-9.
- Sholapurkar, A. A. (2011). *Publish and flourish: A practical guide for effective scientific writing*. JP Medical Ltd.
- Stetter, M. E. (2013). Teaching students about plagiarism using a web-based module. *Journal of Further and Higher Education*, 37(5), 675-693.
- Stretton, S., Bramich, N. J., Keys, J. R., Monk, J. A., Ely, J. A., Haley, C., ... & Woolley, K. L. (2012). Publication misconduct and plagiarism retractions: a systematic, retrospective study. *Current medical research and opinion*, 28(10), 1575-1583.
- Taavitsainen, I., & Pahta, P. (2004). Vernacularisation of scientific and medical writing in its socio-historical context. In *Medical and scientific writing in Late Medieval English* (pp. 1-18). Cambridge University Press.
- Trevitt, J. (2020). *A brief guide to APA Style 7*.