The current issue and full text archive of this journal is available on Emerald Insight at:
https://www.emerald.com/insight/2050-7003.htm

Journal of Applied Research in Higher Education

Improving students' academic integrity through academic integrity training (AIT) program in higher education

Zulmi Ramdani
Institute of Social Science, Bursa Uludag University, Bursa, Turkey and Universitas Islam Negeri Sunan Gunung Djati Bandung, Bandung, Indonesia
Yonathan Natanael
Universitas Islam Negeri Sunan Gunung Djati Bandung, Bandung, Indonesia
Andrian Liem
Universitas Sebelas Maret, Surakarta, Indonesia
Anton Abdulbasah Kamil
Istanbul Gelisim University, Istanbul, Turkey
Deni Hadiana
Badan Riset dan Inovasi Nasional Republik Indonesia, Jakarta, Indonesia, and
Jaka Warsihna
Universitas Terbuka, Tangerang Selatan, Indonesia

Received 5 July 2024
Revised 18 August 2024
2 September 2024
Accepted 2 September 2024

Abstract

Purpose – The study examines the effectiveness of an academic integrity training program called Academic Integrity Training (AIT) in improving students' academic integrity among final-year students.
Design/methodology/approach – The research design used was one group pretest and posttest ($n = 40$) students in research proposal courses.
Findings – Analysis with stacking and racking analysis showed a change in the distribution of the Logit Value Person (LVP) and Logit Value Item (LVI) values on the side of the subjects and items used for this study. Testing with a paired sample t-test yielded a value of $t = -3.059$ and a significance (p) = 0.004, indicating that there was a significant increase in LVP at the pre-test (M = 2.52 & SD = 1.56) and post-test (M = 3.33 & SD = 2.09) in the subject of the study.
Practical implications – The study results concluded that this academic integrity training program can improve students' academic integrity and is designed and implemented with the right personal approach to suppress academic dishonesty, especially the problem of plagiarism among graduate students submitting thesis proposals.
Originality/value – Academic dishonesty has been a major problem in higher education over the last two decades. Various strategies have been attempted to address the condition, but no program has been found to directly address the problem on the personal order or individuals who do so.

Keywords Academic writing, Academic dishonesty, Academic integrity, Higher education, Rasch model
Paper type Research paper

Introduction

Academic dishonesty is a common occurrence during the final assignment submission process by students (Gallant, 2017; Macfarlane *et al.*, 2014). Surveys have shown that writing a thesis is particularly susceptible to plagiarism. Simola (2017) discovered that 35%–40% of 80,000 students from 83 different campuses in the United States (US) and Canada copied and pasted text from the internet without proper citation. A survey of graduates from two

Journal of Applied Research in Higher Education
© Emerald Publishing Limited
2050-7003
DOI 10.1108/JARHE-07-2024-0329

universities in Vietnam between 2013 and 2015 found that 91.7% of them were indicated to have committed plagiarism (Tran *et al.*, 2018). Similarly, in Indonesia, 20% of first-year students at a university in Lampung Province were found to have committed fraud in the form of cheating and plagiarism (Oktaria *et al.*, 2021).

The problem of academic cheating that occurs around the world and in various forms shows a great concern about the low academic integrity of a person. The "Plagiarism-focused prevention in Muslim World" method was developed based on long-term research from 2010 to 2021, which focused on academic integrity issues, particularly among Muslim students in Indonesia, to detect and suppress acts of academic cheating (Akbar *et al.*, 2022). This paper outlines a set of conceptual steps that can be taken to reduce academic dishonesty (Akbar *et al.*, 2022). Neuwirth *et al.* (2021) suggests that to prevent academic cheating, students should be encouraged to read and study more actively, and to create a supportive environment by exploring various concepts and methodologies related to their field of study, and by practicing to increase their capacity to support learning.

In psychology, academic integrity is related to various psychological variables. Research has found a strong positive relationship between academic integrity and awareness, self-confidence, religiosity, and academic performance (Anohina-Naumeca *et al.*, 2020; Herdiana *et al.*, 2021; Newton, 2016). Additionally, personality, attachment, and learning motivation have also been found to be closely related to academic integrity among students (Macfarlane *et al.*, 2014). Academic integrity can have positive effects on students, such as improving their psychological well-being, academic performance, prosocial behavior, and respect for self and the environment (Lowe *et al.*, 2018; McCabe and Pavela, 2004).

Previous research has highlighted the importance of upholding academic integrity in university education. This policy strictly prohibits all forms of academic violations. Lecturers are encouraged to take a more active role in developing students during class. Lecture activities should be processed using technology and digitalization to increase organization. Additionally, ongoing socialization is necessary to form an academic culture with integrity (Lowe *et al.*, 2018; McCabe and Pavela, 2004). Sholihah (2019) emphasizes the need for strong collaboration between university parties to establish an environment based on academic integrity. These studies on addressing academic integrity have not been able to have a direct impact on individual awareness of the importance of academic integrity (Asim *et al.*, 2015; Davis, 2022; Tatum and Schwartz, 2017).

Various methods have been developed by researchers to improve academic integrity among students, including training programs. Tatum and Schwartz (2017) implemented writing training that was directly controlled by the campus and lecturers, while Davis (2022) conducting controlled activity training that emphasized the importance of academic integrity. The writing training provided to students aims to reinforce the importance of integrity and enhance their ability to implement it in their learning. Previous research has shown that students who received training in scientific writing ethics scored higher on average than those who did not (Asim *et al.*, 2015).

Budiman (2021) developed another training based on integrity and a code of ethics. The training guide includes a series of discussions, reflections, and games. Additionally, paraphrasing training can be conducted by presenting activities for correct citation and placing them in appropriate sections (Hagaman *et al.*, 2016). Regarding systematic models for digitalization, such as reference manager tools and the Turnitin application, separate training guides are provided (Debnath, 2016). Previous research and training have not been able to provide a clear scheme of what aspects are comprehensive to be provided to individuals. In fact, a clear systematic starting from the basic concept, development, to practical application is a sustainable thing. While these trainings have been shown to improve students' academic integrity, there has been no research on systematically

providing training in stages, starting from strengthening personal integrity and code of ethics, to individual training, and finally to media accessibility and digitalization. Previous studies have shown that training can encourage ethical behavior in students. This behavior is linked to other aspects of life, so it is hoped that students who develop a strong sense of integrity will be less likely to engage in cheating or other unethical behavior (Gallant, 2017).

Previous research has primarily focused on government and campus efforts to build an academic culture with integrity. This research aims to address this gap in the literature. Integrity problems typically arise from an individual's awareness, which develops throughout their life. Therefore, strengthening integrity should be addressed directly with the individuals themselves (Keohane, 1999; Macfarlane *et al.*, 2014). Previous research has primarily focused on the role of the campus alone. However, personal training activities for students are rarely implemented. Therefore, this research aims to improve student's academic integrity by providing academic integrity training with a personalized approach. By providing a tailored and sustainable program, the researchers anticipate that this can improve the academic integrity of individuals.

Literature review

The framework of academic integrity

Academic integrity refers to the ethical behavior in academic activities that prioritizes truth and adheres to rules (Macfarlane *et al.*, 2014). In positive psychology, academic integrity is often compared to moral integrity as it involves synchronization between thoughts, feelings, and actions to uphold truth values (Peterson and Seligman, 2004). The concept of academic integrity is studied in an academic context, but the essence of the concept is the manifestation of a person's positive character as part of their personality in the conduct of academic life (Eaton and Christensen Hughes, 2022). The roots of academic integrity, derived from the concept of ethics, reassure individuals about absolute truths that must be the basis of behavior. Rules about truth, goodness, what to follow, and what to avoid reinforce the concept of academic integrity (Macfarlane *et al.*, 2014; Peterson and Seligman, 2004). Studies conducted in recent decades have brought academic integrity to the forefront, as it is a reflection not only of a person's character but also of the environment and people around them (Anohina-Naumeca *et al.*, 2020; Cutri *et al.*, 2021; Davis, 2022).

According to Keohane (1999), academic integrity is a commitment by students to uphold values that promote a positive academic environment, even in challenging situations. Developing academic integrity in students is based on several fundamental principles. These include a commitment to learning, understanding the teacher's role as a mentor, optimizing one's abilities, increasing students' awareness, focusing on learning goals, creating effective learning models, avoiding academic fraud, upholding one's integrity, and responding to academic fraud (McCabe and Pavela, 2004). Apart from that, students who adhere to academic integrity possess the ability to speak truthfully, follow class rules, complete assignments independently, adhere to instructions, provide answers to exam questions based on their abilities, cite written sources accurately, and collaborate fairly in group work (Guerrero-Dib *et al.*, 2020).

Method

Research approach and ethical approval

This study uses a quasi-experimental quantitative research with a one-group pretest-posttest design (Knapp, 2016). This approach involves taking two measurements in a single experimental group at different time intervals to determine the effect of training. The choice of design was based on the urgency analysis, where the researcher hoped that all

participants would benefit directly from their involvement. In contrast, a control group could not receive the same training program as the experimental group. The study has followed scientific research procedures and has been approved by the Indonesian Scientific Psychology Consortium (Konsorsium Psikologi Ilmiah Nusantara/KPIN; 069/2022 Etik/KPIN).

Participants and location

The participants in this study were final-year students in a research proposal course. The subjects were selected using a quota sampling technique, commonly employed in experimental research (Futri *et al.*, 2022). This sampling technique is used when the researcher selects a sample based on a specific population by targeting the minimum number of participants that should be included according to existing standards (Berndt, 2020). The sample of this study was 40 final-year students (class of 2020) of the Psychology Study Program at a state campus in Bandung City, West Java Province, Indonesia who had taken the research proposal course and were willing to participate in a series of activities voluntarily. All subjects provided informed consent. The research was conducted after meeting the quota for subjects, which provided an ideal number of participants for testing in a single experimental group.

Instrument

The Academic Integrity Scale (AIS) (Ramdani, 2018) was used to measure academic integrity. This instrument is an attitudinal scale that measures participants' perceptions of their academic integrity. It consists of 17 items with five response options ranging from Strongly Disagree with a score of 1 to Strongly Agree with a score of 5. The total score is obtained by adding the scores from the 17 items, which describes the academic integrity of the individual completing it (Ramdani, 2018). Previous research has reported a Cronbach-alpha reliability index of 0.866 for the AIS, indicating high consistency. Additionally, the AIS has passed the Aiken validity testing by 25 educational experts, with each item having a factor loading value between 0.378 and 0.691, demonstrating an accurate measurement of the intended variables.

Academic integrity training

The researchers started by selecting two trainers who would be the actors in delivering the intervention to the participants. They are competent individuals who have a background in psychology education, have an adequate publication history, have provided training on topics similar or similar to this experimental study, and teach as psychology lecturers where the participants are studying. Then the process of balancing perceptions and simulating activities was carried out to optimize the experimental process to be carried out.

The Academic Integrity Training (AIT) used in this research was adapted from a previous model based on five dimensions of academic integrity (Keohane, 1999): trust, honesty, fairness, responsibility, and respect. The AIT consists of three sessions aimed at strengthening participants' attitudes and behavior towards academic integrity. In the first session, the authors provided material on the code of ethics for writing scientific papers. During the second session, the authors provided a tutorial on how to paraphrase a quoted sentence for a research proposal. This included guidance on how to use citation tools such as Mendeley and Zotero to create a bibliography. The final session covered the stages involved in detecting plagiarism using the Turnitin application. Each session was held once a week and lasted approximately two hours. In some previous experimental studies, the use of the number of training sessions in the experiment was not too much of an issue

(Baroroh *et al.*, 2024; Rafida and Astuti, 2024). It was noted, however, that the most crucial elements to be considered are the relevance of the experimental material to the participant's needs and the manner of its implementation in the experiment. Based on the findings of the expert evaluation, this experimental study is deemed sufficient if conducted in three sessions and measured by appropriate pre-and post-tests. Previous studies have also indicated that academic integrity training can be effectively presented in the form of training, sharing sessions, or mentoring (Lavine and Roussin, 2012; Tatum and Schwartz, 2017).

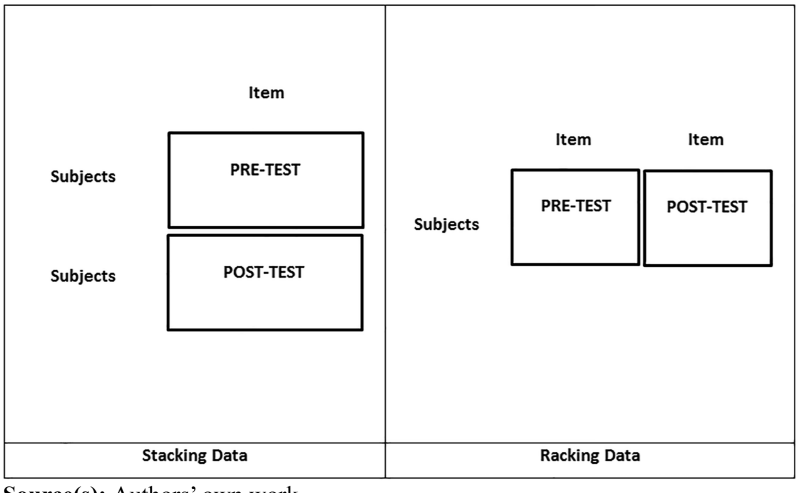
Research hypothesis

It was hypothesized that the academic integrity training program can enhance students' academic integrity in their learning at university.

Statistical analysis

The data obtained from the experiment was subjected to analysis using the Rasch model, specifically the techniques of stacking and racking analysis. The stacking and racking analysis Rasch model (Laliyo *et al.*, 2022; Sunjaya *et al.*, 2021) was used to determine changes in the two measurement processes in one group and changes in the difficulty level of the items used. Stacking analysis and racking analysis are two types of interventions that are performed on research participants and items/instruments respectively, at two different times. Stacking analysis involves interventions on research participants while racking analysis involves interventions on items/instruments (Laliyo *et al.*, 2022; Sunjaya *et al.*, 2021). The process of describing or analogizing the two analyses is shown in Figure 1.

The Rasch analysis of the logit equation yields two values: the Logit Value Person (LVP) and the Logit Value Item (LVI). The LVP value represents the individual's ability to fill in the stimulus given (Holster and Lake, 2016). In this case, the participant can express an attitude towards the statements in the given instrument. Meanwhile, the LVI describes the level of difficulty of an item in an attitude scale (Laliyo *et al.*, 2022). This LVI also indicates which items are difficult and which are easy for participants to answer.



Source(s): Authors' own work

Figure 1.
Logical stacking and racking analysis

Results

Preliminary study

Analysis of the database of lecturers teaching the Research Proposal course revealed that over 50% of the 210 enrolled students had committed academic violations. This was evidenced by a high similarity index of research proposals submitted in 2022, with a value exceeding 30%. Consequently, the necessity for this research is reinforced by the findings of the preliminary investigation. The research participants comprised 40 students aged between 19 and 22 years (M_{age} = 20.47, SD = 0.71), with a higher proportion of female participants (80%) than male (20%).

Quality psychometrics properties academic integrity scale (AIS) pretest and posttest

The research demonstrates that the AIS instrument used is unidimensional, measuring only academic integrity. Additionally, during both the pretest and posttest, no item had a residual correlation value greater than 0.30, indicating independence between all items in the AIS. These results confirm that both assumptions for testing with the Rasch model have been met, allowing for further analysis. The AIS instrument has been categorized as having a good level of consistency in terms of reliability, as indicated by Cronbach alpha values of 0.86 (pretest) and 0.90 (posttest). This high-reliability value suggests that the AIS is a reliable tool for measuring academic integrity.

Stacking analysis

Figure 2 shows the results of the Wright Map, which provides a holistic depiction of the positions of the subjects during both the pretest and posttest.

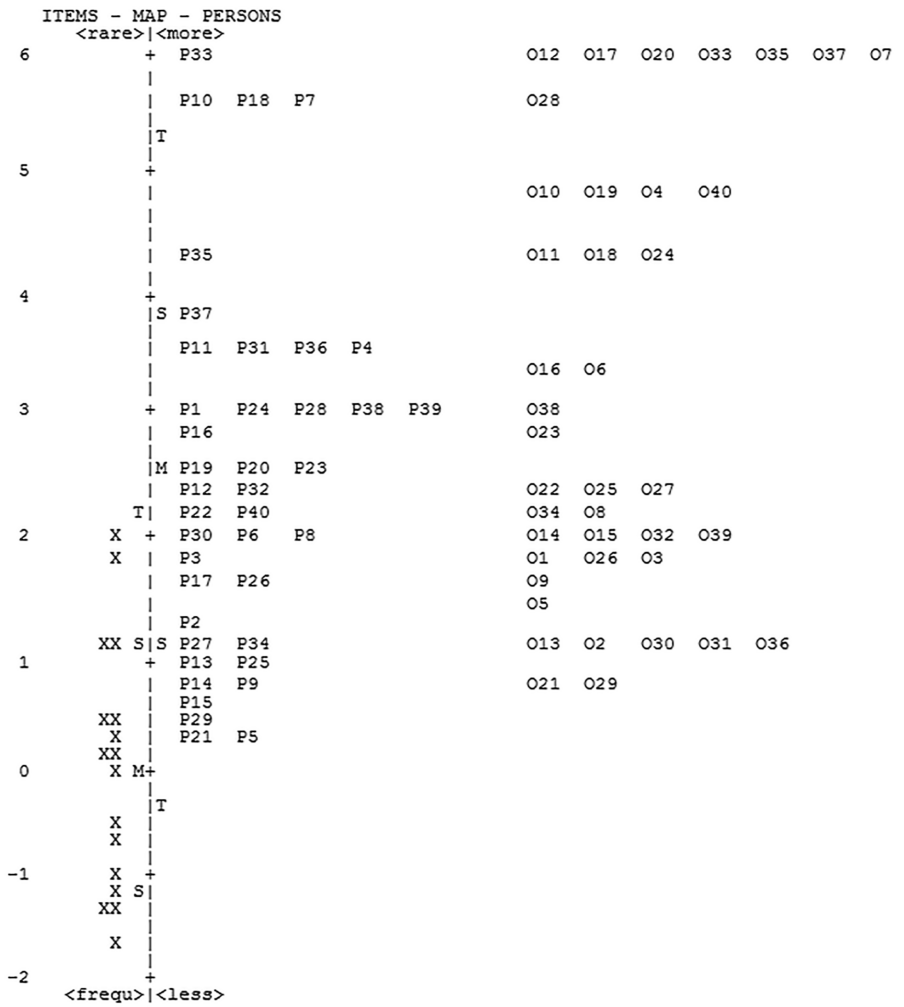
For instance, in Figure 2, the first subject is labeled as P1 during the pretest and O1 during the posttest, with a decreasing LVP value in the Wright Map picture. In contrast, the 40th subject (P40 & O40) experienced an increase in LVP. The left position or group P represents the academic integrity condition during the pretest, while the right position or group O represents the condition during the posttest.

Similarity index (SI) and Logit Value Person (LVP) on pretest and posttest scores

To evaluate the effectiveness of AIT, the authors analyzed the differences in similarity index and Logit Value Person (LVP) values before and after the intervention for each subject (refer to Table 1).

A high Similarity Index value in the Research Proposal course can be interpreted as academic fraud using the results of other people's work. The high Similarity Index, especially in this study, is a form of lack of integrity committed by students during their studies at university. In the final year students who are preparing a thesis proposal, at least they have more or less passed the previous three years to paraphrase each of their assignments for all previous courses that have been contracted. This is a mandatory written requirement in all courses. Paired sample t-test analysis was used to test the data from Table 1 above for differences in similarity index between the pretest and post-test. The obtained value of $t = 7.804$ ($p < 0.001$) indicates a significant difference in the similarity index value during the pretest (M = 43.20, SD = 14.30) and posttest (M = 24.12, SD = 4.07). The similarity index value decreased in subjects who received AIT training, as evidenced by the lower mean similarity index value during the posttest compared to the pretest. This suggests a reduction in plagiarism levels among the subjects.

Table 1 summarizes the stacking analysis results, including the LVP value for each of the 40 subjects. For instance, Subject 30 had an LVP value of 1.97 logit during the pretest, which decreased to 1.13 logit during the posttest. Similarly, Subject 17 had an academic integrity score



Source(s): Winsteps output

Figure 2.
Stacking analysis rasch model

of 1.61 logits during the pretest, which increased to 6.91 logits during the posttest. A paired sample *t*-test was conducted to examine the difference in academic integrity of subjects before and after AIT. The results showed a significant difference in the LVP value of academic integrity between the pretest and posttest ($t = -3.059$, $p = 0.004$), with a mean difference of −0.81 logits.

Racking analysis

Table 2 shows a holistic picture of the distribution of Logit Value Items (LVI) for all items, including their difficulty levels during the pretest and posttest. For instance, during the pretest, item 1 had an LVI value of −1.04 logit, which decreased to −1.49 logit during the posttest. Another item is number 9, which had an LVI value of 2.11 logit at the pretest and 1.57 logit at the posttest. Table 2 shows the distribution of LVI values for the 17 AIS items.

Table 1.
Similarity index and logit value person values for individuals

	Similarity index							Logit value person (LVP)						
S	Pre	Post	C	S	Pre	Post	C	S	Pre	Post	C	S	Pre	Post	C
1	68	22	−46	21	29	23	−6	1	3.02	1.79	−1.23	21	0.39	0.82	0.43
2	48	24	−24	22	33	26	−7	2	1.28	1.13	−0.15	22	2.15	2.35	0.2
3	43	26	−17	23	34	24	−10	3	1.79	1.79	0	23	2.56	2.78	0.22
4	33	29	−4	24	58	24	−34	4	3.57	4.82	1.25	24	3.02	4.30	1.28
5	38	16	−22	25	52	32	−20	5	0.39	1.45	1.06	25	0.97	2.35	1.38
6	47	23	−24	26	34	24	−10	6	1.97	3.28	1.31	26	1.61	1.79	0.18
7	31	16	−15	27	46	21	−25	7	5.63	6.91	1.28	27	1.13	2.35	1.22
8	55	25	−30	28	52	22	−30	8	1.97	2.15	0.18	28	3.02	5.63	2.61
9	44	22	−22	29	28	25	−3	9	0.82	1.61	0.85	29	0.53	0.82	0.27
10	50	29	−21	30	56	27	−29	10	5.63	4.82	−0.81	30	1.97	1.13	−0.84
11	79	23	−56	31	36	28	−8	11	3.57	4.30	0.73	31	3.57	1.13	−2.44
12	55	26	−29	32	41	24	−17	12	2.35	6.91	4.56	32	2.35	1.97	−0.38
13	11	28	17	33	76	24	−52	13	0.97	1.13	0.16	33	6.91	6.91	0
14	48	29	−19	34	37	33	−4	14	0.82	1.97	3.12	34	1.13	2.15	1.02
15	53	27	−26	35	28	20	−8	15	0.67	1.97	1.3	35	4.30	6.91	2.61
16	58	16	−42	36	37	22	−15	16	2.78	3.28	0.5	36	3.57	1.13	−2.44
17	49	19	−30	37	29	28	−1	17	1.61	6.91	5.3	37	3.90	6.91	3.01
18	43	19	−24	38	27	5	−22	18	5.63	4.30	−1.33	38	3.02	3.02	0
19	57	17	−40	39	31	27	−4	19	2.56	4.82	2.26	39	3.02	1.97	−1.05
20	29	24	−5	40	25	26	1	20	2.56	6.91	4.35	40	2.15	4.82	2.67

Note(s): S (Subject), Pre (Pretest score), Post (Posttest score), C (Change). The subject serial number is represented by 1–40. The Similarity Index value is expressed as a percentage (%), while the LVP value is presented in logit form. Changes in the Similarity Index that are negative indicate a decrease in plagiarism, while positive changes indicate an increase in plagiarism in written work. Positive changes in LVP indicate an increase in academic integrity scores, while negative changes indicate a decrease in academic integrity scores

Source(s): Authors' own work

Item	Pretest LVI	Posttest LVI
Item 1	−1.04	−1.49
Item 2	−0.67	−1.18
Item 3	−1.66	−1.49
Item 4	0.03	−0.91
Item 5	−0.79	−1.33
Item 6	1.57	0.61
Item 7	0.29	0.53
Item 8	1.94	1.25
Item 9	2.11	1.57
Item 10	1.44	0.53
Item 11	0.53	0.45
Item 12	0.53	−0.06
Item 13	−1.49	−0.91
Item 14	0.61	−0.56
Item 15	0.61	−0.35
Item 16	0.29	0.29
Item 17	−0.56	−0.67

Note(s): LVI = Logit Value Item
Source(s): Authors' own work

Table 2.
Logit value item (LVI) pretest and posttest using racking analysis

Based on the results of the racking analysis, the authors conducted a paired sample *t*-test to compare the difficulty level of items in the form of LVI between the pretest and posttest. The obtained *t*-value of 3.636 ($p = 0.002$) indicates a significant difference in the level of difficulty of the items between the two measurements. During the pretest, the mean LVI value was 0.22 logit, while during the posttest, it was −0.21 logit, with standard deviation values of 1.14 and 0.95, respectively. The difference in the mean LVI value for the AIS instrument used was 0.43 logit. The decrease in the level of difficulty on AIS items is indicated by the change from a mean LVI value of 0.22 logit to −0.21 logit. In other words, the higher level of academic integrity of the subjects was found during stacking analysis, producing appropriate and accurate measurements by utilizing the AIS instrument with the racking analysis method.

Figure 3 illustrates the results of the racking analysis for the tested items. This figure also illustrates the results of the racking analysis for the tested items, showing clear changes in the 17 AIS items. Items above the line are considered difficult, while those below are considered easy.

According to Figure 3, subjects found three items from the AIS difficult to carry out after receiving AIT: item 3, item 7, and item 13. These items measure honesty, fairness, and respect, while trust and responsibility were not perceived as difficult. This suggests that the AIT program has a particular impact on trust and responsibility in enhancing academic integrity.

Discussion

This study developed the academic integrity training (AIT) program, which employed a personal approach to guide students through a series of training activities. According to findings by Tatum and Schwartz (2017), writing training directly controlled by the campus and lecturers is more effective in promoting academic integrity than training carried out by academics and lecturers simultaneously but not personally. Furthermore, a personal approach is highly suitable for promoting academic integrity as it encourages individuals to improve their specific experiences (Lavine and Roussin, 2012). With appropriate teaching and encouragement provided during training, the student experience can be improved.

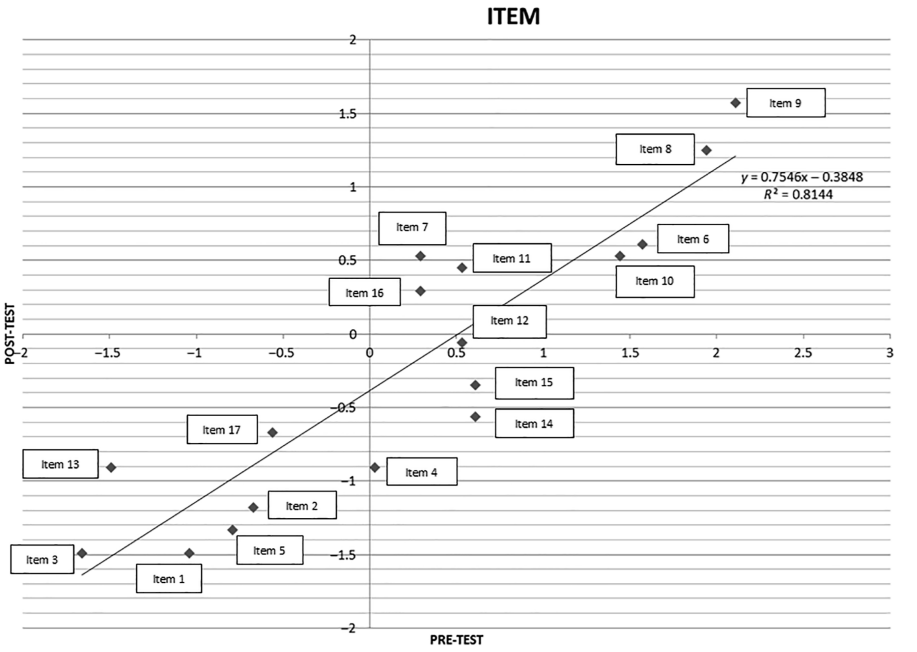


Figure 3.
Pre-post LVI perception of the item difficulty level of AIS

Source(s): Winsteps output

The majority of subjects showed changes as expected, marked by 30 participants who increased their LVP (Logit Value Person) academic integrity score and 1 person was consistent (did not experience an increase or decrease in their LVP academic integrity score). However, nine out of the 40 subjects experienced a decrease in academic integrity, which was likely caused by a misunderstanding of the AIT program provided during their participation. According to the nine subjects, the AIT program's structure of activities appears to be challenging for them.

The significant changes observed in the majority of subjects were caused by various factors, including internal ones. As previously demonstrated in experimental studies, the success of training is greatly influenced by the participants' motivation (Asim *et al.*, 2015; Gallant, 2017). If individuals view training as an opportunity for personal growth, they are more likely to approach it with sincerity and a willingness to learn. This was the case for the majority of respondents in this training. The study found that the presence of a research team who also acted as training implementers had a positive impact on the increase in respondents (Azizah *et al.*, 2023; Kaloeti and Desiningrum, 2023). This effect is predicted to be strengthened by several factors, including positive relationships built by training implementers, a pleasant training climate, adequate training conditions and locations, and consistent feedback given to respondents (Hikmawati *et al.*, 2023; Wigati *et al.*, 2023).

The study also showed that the difficulty of the items changed before and after the AIT was administered. The mean LVI produced during the pretest was positive (0.22), while the mean LVI posttest was negative (−0.21), indicating a shift from difficult to easy difficulty levels after the AIT program was implemented. The test and retest reliability results indicated high consistency of the AIS instrument whether tested once or twice.

Out of the 17 AIS items, 8 were rated as difficult to apply, particularly items 3, 7, and 17. The remaining 9 items were rated as easier to apply. It is important to note that the language used in the AIS items should be reviewed to ensure clarity and comprehensibility.

The difficulty level of the items indicates that honesty, fairness, and respect are perceived as challenging to change in a short time frame (as the training process lasts only one day). On the other hand, trust and responsibility can be immediately applied after completing the AIT program. Regarding this matter, aligning personal views with improving academic integrity is important. Participants must trust researchers who provide AIT training. Additionally, responsibility is obtained through writing exercises that reduce the level of plagiarism.

Practical implications and future recommendations

This experimental study has provided insights for improving educational practices, particularly at the university level. Academic integrity issues, which significantly challenge educational quality, must be identified and addressed early. The utilization of this academic integrity training program proffers an alternative strategy that can be employed by interested parties to reinforce individuals so that they may fully understand the nature of ethical learning. In practice, the program can be undertaken with ease and applied in various scientific fields. Furthermore, on a broader scale, the AIT program can serve as a flagship opportunity to counteract all forms of academic fraud in the learning process in higher education.

While this study provides valuable insights, there are several areas for future research to explore. To obtain a more comprehensive assessment, future research could examine the consistency and sustainability of the training program in question. Although the present study was conducted for a limited duration, future research should consider a more effective time frame to suit participants who will receive future training. Previous studies have also demonstrated that the effectiveness of an experiment is consistent and that sustainable implementation is achievable (Hamilton *et al.*, 2021; Lerman, 2020). In addition, future research should consider several factors that can facilitate the implementation process, with the most important factor being cooperation and communication between the relevant parties.

Conclusion

It can be concluded that the intervention program, in the form of systematic training on academic integrity, has a significant impact on academic integrity and reduces the similarity index, thereby reducing the level of plagiarism in students who are preparing their thesis proposals. The success of the Academic Integrity Training (AIT) program indicates that academic dishonesty can be minimized even in the current era of technological openness. The final findings of this experimental study have served to reinforce the conceptualization of integrity as a dimension of positive human character that can be optimized. One such method is the implementation of a training program based on the concept of academic integrity itself. Furthermore, this study has the potential to enhance the knowledge of many individuals regarding alternative programs based on academic integrity, which can improve the quality of learning and prevent the utilization of negative strategies when there is an opportunity or lack of awareness of the importance of academic integrity. This research highlights the importance of providing academic integrity training to students early in their academic careers, preparing them for ethical research and academic writing throughout their studies.

References

Akbar, A., Carter, C., Sit, H. and Picard, M. (2022), "Framing scholars' perspectives of practices to address breaches of academic integrity in the Muslim world", *Journal of Higher Education Policy and Management*, Vol. 44 No. 4, pp. 363-376, doi: 10.1080/1360080X.2022.2072256.

Anohina-Naumeca, A., Birzniece, I. and Odiņeca, T. (2020), "Students' awareness of the academic integrity policy at a Latvian university", *International Journal for Educational Integrity*, Vol. 16 No. 12, pp. 1-17, doi: 10.1007/s40979-020-00064-4.

Asim, M., Chambers, C., González, R.-O., Morote, E.-S. and Walter, R.J. (2015), "A study about the academic integrity of second-year aviation students in U.S. higher education", *Journal of College and Character*, Vol. 16 No. 3, pp. 169-179, doi: 10.1080/2194587X.2015.1057153.

Azizah, N., Dowrick, P. and Lestari, T. (2023), "Effectiveness of video self-modeling on hope and daily activities of Indonesian youth", *Psympathic: Jurnal Ilmiah Psikologi*, Vol. 10 No. 1, pp. 101-112, doi: 10.15575/psy.v10i1.21328.

Baroroh, E.Z., Utimadini, N.J., Alhumairah, N.D. and Fatiah, R.A. (2024), "Enhancing self Eeteem of orphan teenagers through self discovery training", *Psympathic: Jurnal Ilmiah Psikologi*, Vol. 11 No. 1, pp. 79-90, doi: 10.15575/psy.v11i1.30970.

Berndt, A.E. (2020), "Sampling methods", *Journal of Human Lactation*, Vol. 36 No. 2, pp. 224-226, doi: 10.1177/0890334420906850.

Budiman, A. (2021), "Penguatan sikap intergritas melalui pelatihan dasar calon pegawai negeri sipil", *Tunjuk Ajar: Jurnal Penelitian Ilmu Pendidikan*, Vol. 3 No. 2, pp. 275-282, doi: 10.31258/jta.v3i2.275-282.

Cutri, J., Freya, A., Karlina, Y., Patel, S.V., Moharami, M., Zeng, S., Manzari, E. and Pretorius, L. (2021), "Academic integrity at doctoral level: the influence of the imposter phenomenon and cultural differences on academic writing", *International Journal for Educational Integrity*, Vol. 17 No. 1, p. 8, doi: 10.1007/s40979-021-00074-w.

Davis, M. (2022), "Examining and improving inclusive practice in institutional academic integrity policies, procedures, teaching and support", *International Journal for Educational Integrity*, Vol. 18 No. 1, p. 14, doi: 10.1007/s40979-022-00108-x.

Debnath, J. (2016), "Plagiarism: a silent epidemic in scientific writing – reasons, recognition and remedies", *Medical Journal Armed Forces India*, Vol. 72 No. 2, pp. 164-167, doi: 10.1016/j.mjafi.2016.03.010.

Eaton, S.E. and Christensen Hughes, J. (2022), *Academic Integrity in Canada: an Enduring and Essential Challenge*, (Eds), Springer International Publishing, Vol. 1, doi: 10.1007/978-3-030-83255-1.

Futri, I.N., Risfandy, T. and Ibrahim, M.H. (2022), "Quota sampling method in online household surveys", *MethodsX*, Vol. 9, 101877, doi: 10.1016/j.mex.2022.101877.

Gallant, T.B. (2017), "Academic integrity as a teaching & learning issue: from theory to practice", *Theory Into Practice*, Vol. 56 No. 2, pp. 88-94, doi: 10.1080/00405841.2017.1308173.

Guerrero-Dib, J.G., Portales, L. and Heredia-Escorza, Y. (2020), "Impact of academic integrity on workplace ethical behaviour", *International Journal for Educational Integrity*, Vol. 16 No. 1, pp. 2-18, doi: 10.1007/s40979-020-0051-3.

Hagaman, J.L., Casey, K.J. and Reid, R. (2016), "Paraphrasing strategy instruction for struggling readers", *Preventing School Failure: Alternative Education for Children and Youth*, Vol. 60 No. 1, pp. 43-52, doi: 10.1080/1045988X.2014.966802.

Hamilton, D., McKechnie, J., Edgerton, E. and Wilson, C. (2021), "Immersive virtual reality as a pedagogical tool in education: a systematic literature review of quantitative learning outcomes and experimental design", *Journal of Computers in Education*, Vol. 8 No. 1, pp. 1-32, doi: 10.1007/s40692-020-00169-2.

Herdiana, D., Rudiana, R. and Supriatna, S. (2021), "Student boredom in participating in online lectures and its counter strategies", *Edunesia: Jurnal Ilmiah Pendidikan*, Vol. 2 No. 1, pp. 293-307, doi: 10.51276/edu.v2i1.128.

Hikmawati, F., Azizah, N., Basyai, A. and Ramdani, Z. (2023), "Improving self-acceptance of body shaming using Gratitude Journal Method", *International Journal of Psychology and Psychological Therapy*, Vol. 23 No. 2, pp. 221-229.

Holster, T.A. and Lake, J. (2016), "Guessing and the Rasch model", *Language Assessment Quarterly*, Vol. 13 No. 2, pp. 124-141, doi: 10.1080/15434303.2016.1160096.

Kaloeti, D.V.S. and Desiningrum, D.R. (2023), "SMART-C intervention to reduce anxiety in elementary school students experiencing cyberbullying", *Psympathic: Jurnal Ilmiah Psikologi*, Vol. 10 No. 1, pp. 77-84, doi: 10.15575/psy.v10i1.20181.

Keohane, N.O. (1999), *The Fundamental Values of Academic Integrity*, The Center for Academic Integrity, Duke University, North of Carolina.

Knapp, T.R. (2016), "Why is the one-group pretest–posttest design still used?", *Clinical Nursing Research*, Vol. 25 No. 5, pp. 467-472, doi: 10.1177/1054773816666280.

Laliyo, L.A.R., Sumintono, B. and Panigoro, C. (2022), "Measuring changes in hydrolysis concept of students taught by inquiry model: stacking and racking analysis techniques in Rasch model", *Heliyon*, Vol. 8 No. 3, e09126, doi: 10.1016/j.heliyon.2022.e09126.

Lavine, M.H. and Roussin, C.J. (2012), "Education through a semester-long academic integrity learning project", *Journal of Management Education*, Vol. 36 No. 3, pp. 428-455, doi: 10.1177/1052562911428602.

Lerman, S. (2020), *Encyclopedia of Mathematics Education*, (Ed.), Springer International Publishing, doi: 10.1007/978-3-030-15789-0.

Lowe, M.S., Londino-Smolar, G., Wendeln, K.E.A. and Sturek, D.L. (2018), "Promoting academic integrity through a stand-alone course in the learning management system", *International Journal for Educational Integrity*, Vol. 14 No. 1, p. 13, doi: 10.1007/s40979-018-0035-8.

Macfarlane, B., Zhang, J. and Pun, A. (2014), "Academic integrity: a review of the literature", *Studies in Higher Education*, Vol. 39 No. 2, pp. 339-358, doi: 10.1080/03075079.2012.709495.

McCabe, D.L. and Pavela, G. (2004), "Ten principles of academic integrity: how faculty can foster student honesty", *Change: The Magazine of Higher Learning*, Vol. 36 No. 3, pp. 10-15, doi: 10.1080/00091380409605574.

Neuwirth, L.S., Jović, S. and Mukherji, B.R. (2021), "Reimagining higher education during and post-COVID-19: challenges and opportunities", *Journal of Adult and Continuing Education*, Vol. 27 No. 2, pp. 141-156, doi: 10.1177/1477971420947738.

Newton, P. (2016), "Academic integrity: a quantitative study of confidence and understanding in students at the start of their higher education", *Assessment and Evaluation in Higher Education*, Vol. 41 No. 3, pp. 482-497, doi: 10.1080/02602938.2015.1024199.

Oktaria, D., Azzahra, S.S. and Angraini, D.I. (2021), "The relationship of academic procrastination and academic dishonesty in undergraduate medical students", *Jurnal Pendidikan Kedokteran Indonesia: The Indonesian Journal of Medical Education*, Vol. 10 No. 3, pp. 207-214, doi: 10.22146/jpki.63137.

Peterson, C. and Seligman, M.E.P. (2004), *Character Strengths and Virtues: A Handbook and Classification*, Oxford University Press, New York.

Rafida, R. and Astuti, B. (2024), "The effectiveness of social skills training in improving students' interpersonal communication", *Psympathic: Jurnal Ilmiah Psikologi*, Vol. 11 No. 1, pp. 33-44, doi: 10.15575/psy.v11i1.30357.

Ramdani, Z. (2018), "Construction of academic integrity scale", *International Journal of Research Studies in Psychology*, Vol. 7 No. 1, pp. 87-97, doi: 10.5861/ijrsp.2018.3003.

Sholihah, K. (2019), "Upaya perpustakaan perguruan tinggi dalam mewujudkan integritas akademik", *Pustabiblia: Journal of Library and Information Science*, Vol. 3 No. 2, pp. 189-203, doi: 10.18326/pustabiblia.v3i2.189-203.

Simola, S. (2017), "Managing for academic integrity in higher education: insights from behavioral ethics", *Scholarship of Teaching and Learning in Psychology*, Vol. 3 No. 1, pp. 43-57, doi: 10.1037/stl0000076.

Sunjaya, D.K., Herawati, D.M.D., Indraswari, N., Megawati, G. and Sumintono, B. (2021), "Training and assessing model for the ability of community health volunteers in anthropometric measurement using the Rasch stacking and racking analyses", *Journal of Environmental and Public Health*, Vol. 2021, pp. 1-11, doi: 10.1155/2021/5515712.

Tatum, H. and Schwartz, B.M. (2017), "Honor codes: evidence based strategies for improving academic integrity", *Theory Into Practice*, Vol. 56 No. 2, pp. 129-135, doi: 10.1080/00405841.2017.1308175.

Tran, U.T., Huynh, T. and Nguyen, H.T.T. (2018), "Academic integrity in higher education: the case of plagiarism of graduation reports by undergraduate seniors in Vietnam", *Journal of Academic Ethics*, Vol. 16 No. 1, pp. 61-69, doi: 10.1007/s10805-017-9279-9.

Wigati, I., Mardeli, M., Astuti, M., Yuniar, Y. and Ramdani, Z. (2023), "Perception of religious lecturers of higher order thinking skills and students' academic performance in online learning", *International Journal of Learning, Teaching and Educational Research*, Vol. 22 No. 4, pp. 124-140, doi: 10.26803/ijlter.22.4.8.

Corresponding author
Zulmi Ramdani can be contacted at: 712345006@ogr.uludag.edu.tr

For instructions on how to order reprints of this article, please visit our website:
www.emeraldgrouppublishing.com/licensing/reprints.htm
Or contact us for further details: **permissions@emeraldinsight.com**