REVIEW PAPER

Plagiarism and Academic Misconduct : A Systematic Review

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ABSTRACT

The present study focuses on previous studies conducted on plagiarism and academic misconduct during 2009-2018. This study highlights earlier studies that dealt with the concepts of plagiarism and academic misconduct, factors of plagiarism, types of plagiarism, strategies to avoid plagiarism, anti-plagiarism software/ tools and need for anti-plagiarism software. The study is based on 408 sample records collected from the Scopus database. From the study, it is found that the abundance of literature is available on plagiarism and academic misconduct, which implies that the majority of users are aware of the concept of plagiarism and academic integrity. It is also found that in academics, a vigilant approach is required to tackle the problem related to plagiarism and other forms of academic misconduct and accordingly measures must be implemented to control them. The libraries play a very significant role in creating awareness among the users by organizing training programmes. This study is beneficial for the researchers in comprehending the concept and building up the research keeping in mind the repercussions of different forms of plagiarism and academic misconduct.

Keywords: Plagiarism; Academic misconduct; Academic integrity; Anti-plagiarism software; Turnitin; iThenticate; National policy

1. INTRODUCTION

Plagiarism is the most common problem in the academic world in today's scenario. There are many misconceptions emerging in the publishing spectrum that leads to the development of a perplexed attitude of the researchers/ academicians. The various forms of plagiarism that sometimes are overlooked by the researchers, so to create awareness among them is the 'need of an hour' and are also momentous. There are various strategies to avoid indulging in plagiarism activities. The researchers need to be cautious while preparing and submitting the research for publication, examining the work through anti-plagiarism software would put away the possibilities of landing into trouble. The advent of the internet has made the plagiarism activity easier and frequent in nature. The benefit of this technology can be made to understand the concepts and repercussions of this activity. Nowadays, several plagiarism detection software/tools are available commercially and freely on the web that can make the life of a researcher trouble-free from such activities. Plagiarism is a burning issue in today's internet era. According to Fishman[1], plagiarism is defined as: Plagiarism occurs when someone:
- Uses words, ideas, or work products
- Attributable to another identifiable person or source
- Without attributing the work to the source from which it was obtained
- In a situation in which there is a legitimate expectation of

original authorship
- To obtain some benefit, credit, or gain which need not be monetary.

Louw[2] used a questionnaire method to identify different perceptions of students and staff in defining plagiarism. The results based on both the sections responses revealed that the major cause of plagiarism is lack of cognition and skill at the students ends. According to Fanelli[3] "scientific knowledge is reliable not because scientists are more clever, objective or honest than other people, but because their claims are exposed to criticism and replication." Fanelli published a commentary on academic misconduct in Nature, and argued that misconduct should be referred as "biased reporting" of all sorts: Misconduct is "any omission or misrepresentation of the information necessary and sufficient to evaluate the validity and significance of research, at the level appropriate to the context in which the research is communicated." Gokmenoglu[4]attempted to address the trend of literature published on plagiarism in the Turkish context. The findings of this study revealed that although the legal and ethical concerns are recognised by the Turkish researchers, still there are few studies undertaken by the researchers about plagiarism.

The topics analysed in the literature review are plagiarism, academic misconduct, types of plagiarism, anti-plagiarism software available to control the plagiarism activities. The main objectives of this study are to produce a report on the sources that provide information on plagiarism and academic misconduct, to provide an overview of factors and types of plagiarism. The review identified the strategies and also the

role of the libraries to deal with these activities. This research is expected to assist other researchers in enhancing their knowledge in the field of plagiarism and academic misconduct

2. METHODOLOGY

The present study was designed as a systematic review study that aims to analyse the content and findings of previous studies conducted on plagiarism and academic misconduct during 2009- 2018. Cochrane[5] expressed that "A systematic literature review attempts "to identify, appraise and synthesise all the empirical evidence that meets pre-specified eligibility criteria to answer a given research question. Researchers conducting systematic reviews use explicit methods aimed at minimising bias, to produce more reliable findings that can be used to inform decision making." The sample of the study is collected from the bibliographic database Scopus. Total 2518 record were found by using the keywords 'academic misconduct' and 'Plagiarism.'

Due to the availability of vast literature, the criterion was formulated to determine the relevance of the 2518 record. The inclusion of literature for analysis was based on the criteria that the publication which deals with factors and reasons for plagiarism, types of plagiarism, strategies to avoid plagiarism, anti-plagiarism software tool and academic misconduct was included in the study. The sample of 42 article on academic misconduct and 366 on Plagiarism, i.e., 408 article are considered relevant for the study.

3. FACTORS OF PLAGIARISM

The research on Plagiarism has identified several factors that contribute to Plagiarism and academic misconduct. Hongwei[6], *et. al.* used structural equation modeling (SEM) to test a conceptual model of five factor using data from a sample of 2,503 college students. The results indicated that there is a significant direct association between students' reported lack of self-control and research misconduct. Bahadori[7], *et. al.* reviewed the scientific concepts connected with plagiarism, its factors, and to create awareness among the instructors and students the methods of detecting plagiarism need to be improved. Factors that have been identified as contributors to plagiarism are many. Salleh[8] suggested that the organisation, facility of internet and individuals attitude are the chief factors that contribute to plagiarism. Jereb[9], *et. al.* conducted the study at the University of Maribor in Slovenia. The results revealed that there are gender differences in the awareness of plagiarism among students; and highlighted that women have a much more negative approach towards plagiarism as compared to men. Starovoytova[10] studied a-cross-sectional-survey, conducted at the school of engineering. The findings revealed that the-majority (60 %) of the-respondents mentioned that they were not made aware of the concept of plagiarism. Harji[11], *et. al.* reported in a study that observed the causes for plagiarism and the approach of students, especially among the Technical and Non-Technical programme students. The study found that the approach of students was negative in both the groups towards plagiarism. The two reason found in the study that compels students in both groups to plagiarise is the lack of writing skills and improper time management. Polona et. al.[12] determined the main causes of plagiarism and also investigated how the various indicators of plagiarism are judged. The results showed that ICT is chiefly responsible for plagiarism and other two reason are easiness of copying and accessibility to the material on the internet.

4. TYPES OF PLAGIARISM

Lutz[13] provided an overview of research misconduct and its manifestations. There are various manifestations of academic misconduct as explained by different authors. Weber-Wulff[14] presented different types of plagiarism in the article that describes the activities involved in plagiarism: Copy and paste, translations, disguised plagiarism, shake and paste collections, clause quilts, structural plagiarism, pawn sacrifice, cut and slide and self-plagiarism. Eassom[15] posted in discover the future of research, ten types of plagiarism in research along with perceived commonness and seriousness and they are as: Secondary source, Invalid source, duplication, paraphrasing, repetitive research, replication, misleading attribution, unethical collaboration, verbatim plagiarism, and complete plagiarism. Roig[16] in the presentation of plagiarism and self-plagiarism in the sciences described research misconduct as fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results. The various forms of plagiarism are also presented as direct plagiarism, truncation, excision, insertions, reordering, substitution, change of tense or person or number, change of voice, grafting and patch writing. Worthington & Ali[17,18] in their paper presented the various type of plagiarism as follows: Word for word plagiarism, paraphrasing, copy and paste plagiarism, word switch plagiarism, style plagiarism, metaphor plagiarism, idea plagiarism, and self-plagiarism. Shankar and Ramasesh[19] discussed the types of plagiarism such as blatant plagiarism, potluck paper, word switch, mosaic (labour of laziness) and self-stealing. Greenberger[20], *et. al.* conducted research that showed three different categories of misunderstanding, which include cultural, generational, and academic enculturation factors.

5. STRATEGIES TO AVOID PLAGIARISM

Kalani and Twinwal[21] presented that the best method to avoid plagiarism is to cite the works used in the text. The works to be cited may vary from printed, electronic sources, data, images or recorded material. The paper suggested that good writing techniques must be supported and promoted at every level of the institution. Sebastian[22], *et. al.* examined the use frequency by German faculty of 10 different methods for preventing and detecting cheating on exams, plagiarism, and falsification and fabrication of data and also investigated the factors influencing their use. The findings revealed that some methods were used seldom while others were applied frequently. Rodriguez[23] in the article highlighted the two key strategies to avoid plagiarism: (i) to put the text within quotation marks that is directly borrowed from a source, and (ii) paraphrasing the original text. MacLennan[24] studied few challenges for the students to avoid plagiarism such as: Understanding when to cite, information synthesis and formatting citations and references. Vehviläinen[25] in the article dealt with the demands

that plagiarism places on academic communities. The result reveals that the demands are categorised into five categories as

• rupture in the personal pedagogical relationship
• challenge on the supervisory "gatekeeping" responsibility
• a breach of the "everyday normality"
• ambivalence in explaining plagiarism and
• the strain of performing the act of accusation.

Bahadori[7] discussed few strategies to avoid plagiarism such as: acknowledge sources utilised in work, cite the references precisely, in case of paraphrasing comprehend the material and use own words and use of text must be highlighted within quotation marks.

6. ANTI-PLAGIARISM SOFTWARES

Ali[8], *et. al.* did an overview of effective plagiarism detection tools available to assist the users in their research work. In the study comparative study of software tools used for the detection of plagiarism has been done. The findings revealed that there is no such software that can prove that a document has been 100 per cent plagiarised as each software and tool merits and limitations, according to their features and performance. Patil[26] in the article highlighted different software's that deals with plagiarism, guide researchers and assist students and teachers for validating text. The paper also discusses the characteristics and restrictions of the plagiarism software such as Turnitin, iThenticate, Urkund, Anti-Plagiarism, Dupli Checker, Paper Rater, Viper, Plagium, Plagtracker, Plagscan. Chowdhury and Bhattacharyya[27] presented in survey different forms of plagiarism and discussed them. The paper also focused on a few methods for plagiarism detection based on machine learning techniques. The pros and cons of these methods are analysed, and the issues and challenges are also listed in the paper. Several methods which are available to detect the plagiarism are also highlighted in the paper such as: Character-based methods, vector-based methods, syntax-based methods semantic-based methods, methods for cross-lingual plagiarism detection, grammar semantics hybrid plagiarism detection methods, classification, and cluster-based methods, and citation-based methods.

6.1 Need for Anti-Plagiarism Software

There are various reasons to use the anti-plagiarism software for the detection of the plagiarism activities involved in the research work. Shankar and Ramasesh[19] identified a few reasons such as lack of knowledge, laziness, poor command over language, fear of failure, poor research skills and desire for instantaneous recognition. The paper suggested that the main aim should be to enhance the originality of scholarly output. Vij[28], *et. al.* in the article highlighted the reasons for plagiarism, strategies to avoid it, instructions related to plagiarism and also prevention and consequences for plagiarism. Dharmapurikar[29] focused on the need and usage for anti-plagiarism software in Swami Ramanand Teerth Marathwada University. It provides the percentage of similarity index accordingly things could be improved. The software highlights the text and brings forth the text that is not properly quoted and software provides an

originality report to the researcher or scholars to improvise their work. The findings revealed that students in Swami Ramanand Teerth Marathwada University, even though not aware of the plagiarism software the similarity index of their thesis comes below 30 per cent.

6.2 Turnitin and iThenticate

Kunschak[30] evaluated the use of Turnitin, anti-plagiarism software. The paper provided an overview of the various measures taken by the teachers, student's and tutors to make the optimum use of the different function of the software to analyse writing. The findings revealed that students expressed a desire for continued access to Turnitin for their other classes. Halgamuge[31] investigated the efficiency of the Turnitin software as a tool that assists in writing. For this study, 3,173 sample were collected using 14 subject from university students. The findings provided an insight into avoiding various levels of plagiarism by using Turnitin as a preventive tool. Dodigovic[32] claimed that Turnitin could be used as a learning aid which could assist the students in improving their skills to quote and paraphrase properly with the help of instructions formulated for this purpose. It is supported by an action research case study which tracks the different levels of plagiarism in academic writing. The findings suggest that Turnitin used as a learning tool for effective paraphrasing and make necessary adjustments are the most effective way.

There are several studies undertaken by the authors to evaluate the effectiveness of Turnitin in the academic sphere. Biggam[33] explored in the paper the use of Turnitin as a mechanism for reducing the occurrences of plagiarism. Thompsett and Ahluwalia[34] in the study focused on the qualitative data on the awareness of plagiarism of final year pharmacology students. The results suggested that students did not find it user-friendly neither did they emphasise on its usefulness in academics. Cortes-Vera[35], *et. al.* in the paper explored the issues and perspectives to enable the Mexican universities and research centers to access the Turnitin software, a plan to promote the ethics in academic and scientific conversations. The findings revealed a non-comprehensive list of benefits and challenges that appeared from using the software. Rashid and Rashid[36] investigated the challenges and issues encountered by Pakistani students and their coping strategies. The article also highlighted the status of Turnitin's (mis)use in Pakistan and recommended various methods for the proper utilisation of the tool to support the training of researchers so that they can develop the skill for effective and standard writing. Brabazon[37] investigated in the article how anti-plagiarism software is solving the crisis in universities. Bailey and Challen[38] in the report monitored the use of the software and also invited the students to express their views on Turnitin and its value as a learning tool.

iThenticate[39] is one of the services designed especially for the researchers, authors, publishers and others. It is provided by iParadigms that have introduced Turnitin in 1996 as a plagiarism detection tool. It is designed to be used by institutions/ universities rather than an individual but they provided a limited service for single plagiarism detection users like master and doctoral students, and this allows them to check a single

document of up to 25,000 word. So this service can be used to check the correct citation and content originality." Patel[40], *et al.* focused on the repercussions of anti-plagiarism services such as Turnitin.com, iThenticate, and PlagiarismDetect.com in detecting the plagiarism activities in scholarly work. Ali[41] investigated and assessed the experiences of the faculty's and evaluated the strength and limitations of the anti-plagiarism software. The article also focused on how academic integrity can be promoted among engineering students.

7. ROLE OF LIBRARIES IN CURBING THE PLAGIARISM AND ITS IMPACT ON DIFFERENT STAKEHOLDERS

The impacts of plagiarism on various stakeholders in higher education are very crucial in nature. The incidences of plagiarism are on rising day by day and to curb down, it is essential to assign the responsibilities to stake holders. The responsibility includes:

- To offer appropriate orientation cum training programmes to every student, which also focuses on the serious repercussions of engaging in plagiarism activities
- To frame the guidelines and make sure to make the students aware of the same
- The plagiarism policy must be implemented
- A course may be introduced for the students which should be mandatory to make the students aware of the research ethics and international publications rules
- There should be a zero tolerance policy for plagiarism, and the stakeholders should be encouraged to report all incidents of plagiarism.

Mammen and Meyiwa[42] mentioned in the paper different responsibilities that need to be assigned to stakeholders to assist students and to avoid plagiarism. These responsibilities include: Departmental plagiarism should be framed and implemented, to make students conscious that involving in plagiarism activities is a crime. A disciplinary course of action should be taken which will act as a deterrent to avoid plagiarism.

Zein ElDin[43] found in a study that interactive lecturing is an effective mechanism that had a positive impact on the learning of students. Lee[44] stressed on focusing on the academic development initiatives including workshops and providing booklets to evaluate the impact on academic integrity development. The implementation of policy which should encourage editors and reviewers to use proactively anti-plagiarism software to detect plagiarism. It is also suggested that stakeholders can provide the anti-plagiarism tools in an open access domain through web links when announcing the call for papers. Gasparyan[45] highlighted in the study that plagiarism is a disease in science and a sign of pseudoscience. Its detection and prevention strategies require a vigilant approach by all stakeholders. Omonijo[46], *et al.* mentioned in the study that stakeholders in academia should try to employ strong preventive measures to tackle the problems related to plagiarism.

Libraries play an important role in detecting and deterring the plagiarism activities by spreading a word about plagiarism. The main activities involved:

- To educate the students about the different referencing styles.
- To familiarise the students about the reference management tools, its use, and benefits.
- To promote the use of anti-plagiarism tools in evaluating the research work before submitting the assignments or projects
- To inform students that research work or assignments should be accompanied with the originality report generated by anti-plagiarism software
- Frequent workshops need to be organised for the students to create awareness on plagiarism.

Eldin and Ela[47] focused that library should organise training programmes for the faculty to update their knowledge as soon as they are appointed, a plagiarism detection software must be used to avoid the plagiarism, further studies need to be conducted that includes detection of reasons of plagiarism and also strategies to deal with it. iThenticate[48] emphasised that the library should inform the research scholars that repercussions of plagiarism are on personal, professional, ethical and legal levels. A well-written guide on library website can act as an effective tool. It should provide a clear definition of plagiarism, the institution's policy on plagiarism and academic misconduct, and elaborate with examples what is and is not plagiarism.

8. NATIONAL POLICY ON PLAGIARISM

The Indian Government has formulated some regulations to curb the plagiarism in academics. UGC[49] has announced the Indian draft policy on plagiarism for the academician and researchers at different levels. 10 per cent of similarity in articles, theses, projects, etc. would carry no penalty. In level 1, similarities above 10 per cent to 40 per cent, level 2 contains similarities above 40 per cent to 60 per cent and in level 3 similarities above 60 per cent. The above mechanism will be beneficial to control the plagiarism and academic misconduct in research. UGC declared that zero-tolerance policy should be adopted in core areas of research. The core areas of research should not contain plagiarised work, if found then plagiarism disciplinary authority (PDA) of the HEI shall impose the maximum penalty. UGC also stated in the draft policy that academic misconduct panel (AMP) should be constituted by higher educational institutions (HEI) to investigate the cases on plagiarism and submit the report to PDA.

9. RECOMMENDATIONS

Based on the previous studies the following recommendations are presented:

- The concept of plagiarism and other related notions must be clear to the researchers/academicians
- The organisation of seminar/workshops must be supported frequently for sharing the ideas on plagiarism by the eminent fellows
- Make sure to quote every thought included in the article.
- Citations must be treated with utmost care, and a role of a reference manager is significant in rendering the correct citations
- The use of anti-plagiarism software in examining the article resolves several issues.

Few recommendations are suggested by Jereb[9], *et al.*

a plagiarism policy need to be implemented in academic institutions, strict actions need to be taken against defaulters on plagiarism, making the students aware of the methods to avoid plagiarism and, finally, a programme need to be organised at the national level to promote academic integrity. Starovoytova[10] mentioned a few recommendations in the article as:

- A policy on plagiarism should be established at the university level, and awareness must be created among the students, scholars, and staff
- Researchers should-be-sensitised on the proper citing of resources and intellectual property law
- At an international level, a-database need to be created of all the cases of plagiarism and should be launched with the disclosure of all the names of blacklisted-plagiarists, and affiliated-institutions, and journals
- At a national-level, all scientific-institutions and all-universities (public and private) should have established a Center for surveillance, security, promotion, and development of ethical research and publication.

Leung and Cheng[50] suggested an educational approach focusing on the evaluation to improve the problem of plagiarism. The paper suggested educational approach on the formative assessment to reduce the problems of plagiarism. Powell[51] in his theoretical work discussed the definition of plagiarism and recommended to organise the specifically tailored programs by the university to address the issues of student plagiarism.

10. CONCLUSIONS

Macfarlane[52], *et al.* mentioned in the paper that despite the challenges associated with plagiarism and academic misconduct, the interest is clearly visible among the students and teachers on this topic, and this can be substantiated by the number of articles published since 2000 and the emergence of journal especially dealing on this topic such as the Journal of Academic Ethics in 2003. According to Fishman[1] the true harm in plagiarism "is that no benefit from doing the work has been gained, yet the student is asking for recognition of having received those benefits that have not, in fact, been earned." The elements of plagiarism and academic misconduct that are mostly dealt with in the studies are types and factors of plagiarism. In a few studies, the mechanism to avoid such activities is explained and also to cite properly. The expansion of literature is very rich in India and also in foreign countries dealing different aspects of plagiarism and academic integrity. From the previous studies, it is inferred that plagiarism is a complex issue with many challenges and serious repercussions are connected with it.

The study reveals that researchers investigating and examining these areas adopted different methods like surveys/questionnaires and documentary analysis. There has been profuse growth in the literature on the concept of plagiarism; there is no lack of awareness only a need is felt to sensitise the researchers to identify the 'ethical' and 'unethical' practices. More future research might be conducted on plagiarism and academic integrity focusing on the role of libraries to control it and also highlight the technical strategies and best practices that can be adopted in institutions.

This study reveals from the reviewed articles that the main factors contributed for plagiarism are lack of awareness and writing skills among the students. It is also found that there are gender differences in the awareness of plagiarism and academic misconduct. The vital factor which is contributing for the plagiarism is the advancement of ICT, due to which the material is available and accessible on the internet. The studies mentioned various types of plagiarism; the most common are Copy and paste plagiarism and self-plagiarism. The study also identified the strategies to avoid plagiarism which are to acknowledge the sources used to build up research, the text or thought used in work must be highlighted in quotation marks. There is a need to utilise the anti-plagiarism software that can provide the originality report which further provides an opportunity to improvise the work. It is found that Turnitin is the widely used anti-plagiarism software in the universities to control the plagiarism activities. There are open source softwares available online which can prevent the occurrence of academic misconduct. From the studies, it is found that the impact is vital to the stakeholders and a zero-tolerance policy should be adopted against such kind of activities.

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