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## **Techniques Used by Post Graduate Students to reduce the rate of Similarity: a study**

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***Abstract:** extent of similarity in Post Graduate dissertations found pre and post correction/revision was presented in this paper by explaining practical experiences of researchers with regard to the unethical techniques and tools opted by students to qualify the plagiarism/similarity check. Also, attempt has been made to provide some recommendations for the instructor of plagiarism prevention tool to get the precise result which is free from text manipulation.*

**Keywords:** Academic misconduct, Plagiarism, Similarity Index and plagiarism prevention tools

### **Similarity index**

Similarity index is the amount of text in the submitted document which matches text in the database like iThenticate, Turnitin, Urkund and Viper. This is not a grade to indicate an occurrence of plagiarism. There is a clear cut difference between a plagiarism and similarity index. Plagiarism is copying an original data and ideas and to publish them by one's own name, while similarity index is based on the similarity of words, sentences, phrases etc.

### **Objectives**

1. To know the difference of similarity index between the pre and post revision dissertations
2. To know the unethical methods used by students to reduce the rate of similarity

**Methodology:** 181 dissertations of MTech, MCA and MBA submitted for the year 2018-19 at PES College of Engineering, Mandya were scanned against Turnitin software after applying the following filters.

1. Exclusion of small sources by 10 words.
2. Exclusion of bibliography/references.

3. Exclusion of similar content from researcher's own publication.  
25% similarity was fixed and only the chapters from introduction to bibliography/references were considered for the similarity check.

### Data analysis and interpretation

**Table 1: Department wise dissertations scanned against Turnitin**

Sl. No.	Department	No of Records	Percentage
1.	Master of Computer Applications	57	31.49
2.	Master of Business Administrations	56	30.94
3.	Computer Science Engineering	23	12.70
4.	Civil Engineering	18	9.95
5.	Mechanical Engineering	15	8.29
6.	Electronics and Communication Engineering	12	6.63
<b>Total</b>		<b>181</b>	<b>100</b>

Above table represents the department wise number of records submitted for similarity check against Turnitin for the award of post graduate degree. It is seen from the table that dissertations of 181 post graduate students from various engineering and management streams were scanned for the same.

**Tale 2: Qualified dissertation with times scanned**

Sl. No.	Department	Times of Scan				Total
		First	Second	Third	Fourth	
1.	Master of Business Administrations	16	21	15	4	56
2.	Master of Computer Applications	13	29	14	1	57
3.	Computer Science Engineering	11	6	5	1	23
4.	Civil Engineering	10	4	3	1	18
5.	Electronics and Communication Engineering	4	6	2	--	12
6	Mechanical Engineering	3	10	2	--	15
<b>Total</b>		57 (31.50%)	124 (68.50%)			<b>181 (10%)</b>

Table 2 explains the number of times the dissertations had undergone for similarity check to be qualified for the award of degree. It is observed from the table that only 57

dissertations representing 31.50% were qualified at first scan as the threshold of similarity index for post graduate dissertations was fixed at 25%. Remaining 124 dissertations representing 68.50% were qualified in the subsequent scans. Therefore, it can be inferred that repeated scanning of dissertations will help reducing the already published content and enhances the originality of work.

**Table 3: Similarity index of dissertations pre correction/revision**

Sl. No.	Department	Extent of Similarity Index					Total
		1-10	11-20	21-30	31-40	>40	
1.	Master of Business Administrations	3	7	16	21	9	56
2.	Master of Computer Applications	1	9	7	18	22	57
3.	Computer Science Engineering	1	6	9	2	5	23
4.	Civil Engineering	2	4	4	7	1	18
5.	Electronics and Communication Engineering	--	3	2	5	2	12
6	Mechanical Engineering	1	1	4	8	1	15
<b>Total</b>		8 (4.42%)	30 (16.58%)	42 (23.20%)	61 (33.70%)	40 (22.10%)	<b>181</b>

Table 3 illustrates the range of similarity index depicted before the revisions/corrections which means the results obtained at first scan were presented in this table. As seen in the table a small segment of dissertations fall in the range of 1-10% of similarity followed by 16.58% of dissertations in the range of 11-20%, 23.20% of dissertations in the range of 21-30%, 33.70% of dissertations in the range of 31-40% and 22.10% dissertations in the range of above 40 percent similarity. This shows a large number of dissertations were identified with more than allowed percentage of similar contents in their first scans. Therefore, it is suggested to adopt any plagiarism prevention tool to facilitate the students to improve the originality in dissertations.

**Table 4: Similarity index of dissertations post correction/revision**

Sl. No.	Department	Extent of Similarity Index				Total
		1-10	11-15	16-20	20-25	
1.	Master of Business Administrations	10	22	14	10	56
2.	Master of Computer Applications	7	29	7	14	57

3.	Computer Science Engineering	5	8	3	7	23
4.	Civil Engineering	4	1	4	9	18
5.	Electronics and Communication Engineering	3	2	2	5	12
6.	Mechanical Engineering	2	4	6	3	15
<b>Total</b>		31 (17.12%)	66 (36.46%)	36 (17.89%)	48 (26.52%)	<b>181</b>

Table 4 demonstrates the range of similarity index depicted after the revisions/corrections i. e the similarity index of qualified dissertations. As seen in the table a small segment of dissertations representing 17.12 % fall in the range of 1-10% of similarity followed by 36.46% of dissertations in the range of 11-15%, 17.89% of dissertations in the range of 16-20% and 26.52% of dissertations in the range of 21-25%. Therefore, it can be inferred that multiple revisions will enhance the originality of dissertations.

### **Unethical methods approached by students to reduce the percent of similarity**

During the examination of similarity it is observed that few students approached unethical way of decreasing the rate of similarity in their dissertations. Few of such techniques are mentioned below

1. Space replacement: In this technique space would be replaced with any alphabetical letter or number or special character colored with white which is invisible. Therefore, it is decided to collect the copy of work in word file to check such manipulations.
2. Use of articles: Adding articles like A, AN and THE in between the words to make the sentences different from the original ones.
3. Synonyms replacement: In order to reduce the similarity from copied text, few students used the method of replacing synonyms either manually or with the help of online tools.

**Table: 5 Unethical methods used by students to get the less percentage of similarity**

Sl. No.	Department	Unethical methods opted by students to reduce the similar content			
		Space Replacement	Use of articles	Synonyms replacement	Overall Dissertation
1.	Master of Computer Applications	6	4	14	56
2.	Master of Business Administrations	00	00	18	57
3.	Computer Science Engineering	2	00	4	23

4.	Civil Engineering	00	00	2	18
5.	Mechanical Engineering	00	00	3	12
6.	Electronics and Communication Engineering	00	00	3	15
<b>Total</b>		<b>8</b> <b>(4.41%)</b>	<b>4</b> <b>(2.21%)</b>	<b>44</b> <b>(24.30%)</b>	<b>181</b>

Table 5 represents the various unethical methods used by students to trick the software to get lesser percentage of similarity. It can be observed in a table that majority of students representing 24.30% have used the synonyms replacement to get the lesser similarity followed by space replacement and use of articles. It is also noted that 4.41% of students from computer science background used the technique space replacement. Therefore, researchers feel that instructor of any plagiarism prevention tool should be aware of the use of such unethical techniques by students and prefer to get the file in word format because in PDF text manipulation can't be known.

### **Findings**

Following are the major findings of the study

1. 57 dissertations representing 31.50% were qualified at first scan
2. 124 dissertations representing 68.50% were qualified in the subsequent scans
3. Majority of 61 representing 33.70% of dissertations fell in the range of 31-40 percent of similarity and they were assumed to be carried a large portion of already published content at first scan.
4. Number of dissertations with less than 10% of similarity were increased from 8 to 31 after revisions/corrections. Therefore, it is stated that Turnitin will play a significant role in increasing the originality of work by reducing the extent of copied/already published content.
5. 36.30% of overall dissertations were text manipulated for qualifying in the similarity check.
6. A large numbers of dissertations were said to have reduced the similarity by repetitive corrections and revisions unlike text manipulations (this was the researcher observation during scanning)

### **Recommendations**

Based on the critical observations during plagiarism/similarity check researchers have come up with the following recommendations to avoid the manipulation being done by students.

1. File received for plagiarism/similarity should be in word format and the font of text in the file should be colored to black.
2. Thorough reading of file should be done to check the pointless and excessive use of articles and synonyms replacements.
3. More number of scan should be facilitated for enhancing the originality of works.

## **Conclusion**

Of late, UGC guideline that all the UG and PG dissertations to be scanned against plagiarism prevention software and qualify the similarity/plagiarism check at concerned Universities or Institutions. Researchers feel that mere acceptance of dissertations with allowed percentage of similarity will not justify the originality check of any work as students have the tendency of tricking the software with some unethical techniques. Hence, similarity index depicted by the software should be ensured by the instructor for manipulations identified in the study.

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