Research Inventy: International Journal of Engineering And Science
Vol.13, Issue 8 (August 2023), PP 01-10
Issn (e): 2278-4721, Issn (p):2319-6483, www.researchinventy.com

Awareness among Students and Teachers in Higher Educational Institutes about Intellectual Property Rights (IPRs)

M. Milcah Paul[1], V. Vijaya Lakshmi[2] and K. Kareemulla[3]
[1]*Teaching Associate, Dept. of RMCS, College of Community Science, PJTSAU, Saifabad, Hyderabad.*
[2]*Professor & Head, Dept. of RMCS, College of Community Science, PJTSAU, Saifabad, Hyderabad.*
[3]*Principal Scientist, ICAR - NAARM, Hyderabad.*

Abstract: *Higher Educational Institutes like Universities and Research centres are one of the primary contributors to innovations in the fields of teaching, research and extension. These innovations by the teachers, students and researchers increase the quality of higher educational institutes. How far the teachers, students and researchers are aware about the IPR issues in relation to internet browsing is a big question. Unless there is a proper awareness about these issues, the information used from the internet mainly is not used ethically; and this may lead to many ethical and legal issues. This study tried to analyse the awareness levels of teachers and students about IPR issues in internet browsing, with specific reference to patents, copyrights and trademarks. The study results revealed that the overall awareness about the IPR issues in relation to internet browsing is not up to the mark among the surveyed students and teachers. Among the ones who were aware, did not follow certain ethical browsing practices. These observations highlighted the need for creating more awareness in higher educational institutes about IPRs and related issues.*

Keywords*: IPR, awareness, teachers, students, higher educational institutes*

Date of Submission: 01-08-2023 Date of Acceptance: 12-08-2023

I. INTRODUCTION

Internet usage has been increasing day by day by people all over the world due to various factors like increased access to internet and related facilities, interest towards social media and other related applications, for education and entertainment purposes etc. Teachers and students are of one of the major groups of people who widely use internet and do web browsing for various educational purposes. In this process, they use lot of resources in the form of text, images, research results and reports, articles and many more from the internet for doing assignments, project works, content development, preparation of videos, documents etc. These resources can be copied or duplicated or reproduced or distributed with some restrictions or freely. These restrictions are based on IPRs (patents, trademarks, copyrights etc) possessed by the content or resource developers, or on the permissions given by them in terms of some elements like Creative Commons license etc. Despite having all these provisions and conditions, how many teachers and students are aware of these and follow ethical guidelines while browsing and using the internet resources in their professional works is still a big and unanswered question.

This current study hence was formulated with the following objectives:

1. To explore the internet browsing practices among teachers and students.
2. To study their awareness levels about IPR issues in internet browsing, with specific reference to patents, copyrights and trademarks.
3.

II. RESEARCH DESIGN

An exploratory research method was adopted for the study. A survey was conducted in selected educational institutes to explore the internet browsing practices among teachers and students and their awareness levels about IPR issues, with specific reference to patents, copyrights and trademarks. The study was conducted in randomly selected educational institutes, mainly comprising of State Agricultural Universities and its related institutes. The sample size selected for the current study is 100 individuals, comprising of 50 teachers and 50 students. Simple random sampling technique was used to select the sample. The study was conducted using an interview schedule developed in Google forms and was administered on the sample. The data was analysed by using frequency and percentages. Limitations of the study include: The study was limited to 100 sample, comprising of teachers and students from State Agricultural Universities its related institutes to whoever or whichever the researcher is accessible to.

III. RESULTS AND DISCUSSION

1. Profile of the Respondents

1.1 Location of the Respondents

Respondents belonged to different Colleges and Krishi Vignana Kendra's (KVKs) under State Agricultural Universities in India. Some of the respondents' locations include (1) Punjab Agricultural University, Ludhiana, Punjab; (2) KVK - Kothagudem, College of Community Science, All India Coordinated Research Project - Women in Agriculture Unit, Professor Jayashankar Telangana State Agriculture University, Telangana; (3) KVK - Garikapadu, College of Community Science, Acharya N.G. Ranga Agricultural University, Andhra Pradesh; (4) Maharana Pratap University of Agriculture & Technology, Udaipur, Rajasthan; (5) Institutional Development Plan (IDP) - National Agricultural Higher Education Project (NAHEP) Unit, Govind Ballabh Pant University of Agriculture & Technology Pantnagar, Uttarakhand; and (5) College of Community Science, University of Agricultural Sciences, Bangalore & Dharwad, Karnataka.

1.2 Occupation of the Respondents

Among the 100 respondents, 50 respondents were III and IV students from B.Sc., M.Sc. and Ph.D. scholars; and the remaining 50 respondents were Assistant Professors, Teaching Associates, Subject Matter Specialists, Senior Research Fellows, Post - Doctoral Fellows and Young Professionals.

2. Information Browsing Practices of the Respondents for Educational purposes

2.1 Sources used by the respondents for collecting information

Table 1 - Distribution of respondents based on sources used for collecting information

Sl. No.	Sources used	F	%
1.	Only internet	3	3
2.	Book and Internet	22	22
3.	Books, internet, newspapers, magazines, media/ institutional reports, journals etc.	75	75

Majority of the respondents (75%) used multiple sources like Books, internet, newspapers, magazines, media or institutional reports, journals etc. for collecting information required for educational purposes (Table 1). Results also showed that all the respondents were depending on the internet as a source of collecting information. Only books were not used by any respondent. This highlighted that Internet has become the major source for information collection for majority of people who belonged to educational sector. This can be attributed to easy availability of vast information on the internet at any time and from any place.

2.2 Literature collected or downloaded from the internet

Table 2 - Distribution of respondents based on literature collected or downloaded from internet

Sl. No.	Literature collected or downloaded from the internet	F	%
1.	Research/ Review articles	86	86
2.	Images	73	73
3.	PowerPoint presentations	63	63
4.	Videos	62	62
5.	Newspaper articles	54	54
6.	Census data/ Other statistical information	49	49
7.	Web articles	49	49
8.	Templates for presentations/ Visual displays	44	44
9.	Technical reports/ Bulletins	41	41
10.	Government department articles	39	39
11.	Company/ Institution related activities	26	26
12.	Others	7	7

** Multiple responses were given for this question; hence the total number of participants and percentage exceeds 100

From the results gathered, it can be noticed that majority of the respondents (86%) collected or downloaded Research/ Review articles from the Internet, followed by images (73%), PowerPoint presentations (63%) and

Videos (62%), as seen in the Table 2. As majority of the respondents were teachers or students who were working on some research or teaching activity, and hence majorly downloaded Research/ Review articles, images, videos and presentations.

2.3 Study materials prepared through the information collected from the internet

Table 3 - Distribution of respondents based on study materials prepared with information collected from internet

Sl. No.	Study materials prepared with information collected from internet	F	%
1.	PowerPoint Presentations	90	90
2.	Curriculum/ Lesson notes	58	58
3.	Review/ Research articles	51	51
4.	Research/ Project proposals	49	49
5.	Thesis writing	35	35
6.	Any other	15	15

** Multiple responses were given for this question; hence the total number of participants and percentage exceeds 100

Table 3 results highlighted that it based on the information collected from internet, majority respondents (90%) prepared PowerPoint Presentations, followed by Curriculum/ Lesson notes (58%), Review/ Research articles (51%), Research/ Project proposals (49%) and Thesis writing (35%). PowerPoint Presentations were prepared by all the respondent groups (teachers/ students/ scientists etc) in their daily schedules; hence these were the most prepared study materials by majority of the respondents.

2.4 Frequency of internet usage by the respondents for collecting information

Table 4 - Distribution of the respondents based on the frequency of internet usage

Sl. No.	Frequency of internet usage	F	%
1.	Daily	67	67
2.	Twice or thrice a week	18	18
3.	Once in a week	1	1
4.	Once in a month	-	-
5.	Only whenever required	14	14

In the Table 4, results depicted that majority of the respondents (67%) used internet daily for collecting information regarding educational purposes and none used once in a month. This showed the importance and usage frequency of internet for educational purposes is very high, as this has become a crucial and beneficial resource for the people in the field of education.

3. Respondents rating for the usefulness of the internet resources for educational purposes

Around 11 statements were framed related to the usefulness of internet resources for educational purposes and respondents were asked to give a rating between 1 to 3 for each statement. The 'Highly sufficient' rating was given a score of 3, 'Sufficient' as 2 and 'Highly insufficient' as 1. The total number of responses for each rating option were multiplied with their rating score i.e., 3 or 2 or 1 and a score was obtained. The scores of all the three ratings were added to get a total score and ranks were given based on the total score. Higher the score, higher the rank.

Results in the Table 5 showed that the first three ranks were gained by the following statements related to the usefulness of internet resources for educational purposes i.e., Rank I - To download pictures or photos from the Internet for projects or lessons; Rank II - To share any kind of data with friends/ colleagues and Rank III - To use search engines like Google, Yahoo etc. for collecting information with total scores of 219, 207 and 201 respectively. Lease ranks were gained by: To use e - dictionary and To establish a connection with friends/ subject specialists via MSN, Yahoo Messenger, Facebook etc. to talk about subjects and projects.

Table 5 - Rating for the usefulness of the internet resources for educational purposes

Sl. No.	Statement	Highly insufficient F (%)	Sufficient F (%)	Highly Sufficient F (%)	Score	Rank
1.	To use search engines like Google, Yahoo etc. for collecting information	3 (3)	30 (30)	67 (67)	201	III
2.	To use e - dictionary	3 (3)	48 (48)	49 (49)	147	IX
3.	To establish a connection with friends/ subject specialists via MSN, Yahoo Messenger, Facebook etc. to talk about subjects and projects	9 (9)	42 (42)	49 (49)	147	IX
4.	To learn recent (up-do-date) information and latest developments (innovations)	2 (2)	33 (33)	65 (65)	195	IV
5.	To share any kind of data with friends/ colleagues	-	31 (31)	69 (69)	207	II
6.	To download pictures or photos from the Internet for projects or lessons	1 (1)	26 (26)	73 (73)	219	I
7.	To download or watch videos related to projects or lessons	2 (2)	33 (33)	65 (65)	195	IV
8.	To do research on projects or lessons or prepare presentations	1 (1)	35 (35)	64 (64)	192	V
9.	To read notes and other writings related to lessons from different websites	1 (1)	43 (43)	56 (56)	168	VII
10.	To do in - depth research on topics that were/ are to be explained in class or something which attracts them	3 (3)	43 (43)	54 (54)	162	VIII
11.	To follow up recent news and events (occasions, incidents) about education and current affairs	2 (2)	38 (38)	60 (60)	180	VI

4. Respondents awareness about Intellectual Property Rights (IPR)

This section highlights results related to the awareness of the respondents regarding various IPRs.

Table 6 - Distribution of the respondents based on their awareness about IPRs

Sl. No.	Awareness about the IPRs	F	%
(a)	**In general**		
1.	Yes	91	91
2.	No	9	9
(b)	**In specific**		
1.	Copyrights	85	85
2.	Patents	76	76
3.	Trademarks	74	74
4.	Geographical indications	52	52
5.	Industrial design rights	28	28
6.	Plant variety rights	24	24
7.	Trade secrets	21	21
8.	Trade dress	12	12

** Multiple responses were given for this question; hence the total number of participants and percentage exceeds 100

Results in the Table 6 depicted that majority (91%) of the respondents were aware of the IPRs in general and the remaining (9%) were not aware. Out of them (91%), majority were aware about Copyrights (85%), Patents (76%) and Trademarks (74%). Minimum number of respondents (21 and 12%) were aware about Trade secrets and Trade dress respectively.

Table 7 - Distribution of respondents based on their awareness about the use of Trademarks

Sl. No.	Use of Trademarks	F	%
1.	Identification of a particular good or service	37	37
2.	Distinguishes a brand/ company from its competitors	41	41
3.	Copying the design for various educational purposes	3	3
4.	Identification of a particular Good or services & Distinguishes a brand/ company from its competitors	14	14
5.	Identification of a particular Good or services & Copying the design for various educational purposes	4	4
6.	All the options given	1	1

From the Table 7, it can be noticed that very few respondents (14%) know about the correct use of Trademarks, i.e., both the Options 1 and 2 are correct in this case, but only 14 per cent have selected the two options correctly. Awareness must be created among the respondents regarding the benefits of a trademark as it provides identification to the source of a good or service, provides legal protection for a brand and helps to guard against frauds and counterfeiting.

Table 8 - Distribution of respondents based on their awareness about the items which receive Copyright Protection

Sl. No.	Items which receive Copyright Protection	F	%
1.	Books/ Information/ Text	18	18
2.	Music	13	13
3.	Paintings and Sculpture	6	6
4.	Films	12	12
5.	Computer programs and databases	5	5
6.	Advertisements	7	7
7.	Maps and technical drawings	2	2
8.	All the above	77	77

** Multiple responses were given for this question; hence the total number of participants and percentage exceeds 100

From the results displayed in Table 8, it can be noticed that majority of the respondents (77%) were aware about the usage of Copyrights for various things like music, books, films, advertisements etc. This may be due to the widespread of use of copyrights for general products or services like music, videos, text, images, unique products etc., used in daily life.

Table 9 - Distribution of respondents based on their awareness about the Patents

Sl. No.	Patent issuing aspects	F	%
1.	Process used to make/ design a product	8	8
2.	Product used to make/ design a product	9	9
3.	Both	83	83

From the results in Table 9, it can be noticed that majority of the respondents (83%) were correctly aware that patents are used for both product and process used to make/ design a product. A research study results conducted by Starkey *et al.* (2009) found that when asked to define a patent, only 22 per cent teacher respondents involved in the study gave a correct answer. The findings of this study reflected that there was awareness of relevant concepts, but there was a confusion between key terms such as patent, copyright and registered design.

The findings reflect an awareness of relevant concepts but confusion between key terms such as patent, copyright and registered design. The findings reflect an awareness of relevant concepts but confusion between key terms such as patent, copyright and registered design. The findings reflect an awareness of relevant concepts but confusion between key terms such as patent, copyright and registered design.

5. Internet browsing practices of the respondents and Awareness about the use of information which has IPR protection

Table 10 - Distribution of respondents based on their internet browsing practices and awareness about the use of information which has IPR protection

Sl. No.	Awareness/ Browsing practice	F	%
A.	**Awareness about not using IPR protected information**		
1.	Yes	93	93
2.	No	7	7
B.	**Check for the copyright protection before using any information**		
1.	Yes	75	75
2.	No	25	25
C.	**Check for the patent(s) granted for a design/ process planned to develop in a thesis/ research/ project**		
1.	Yes	79	79
2.	No	21	21
D.	**Check for trademark protection when a logo/ brand design etc., is to be developed or designed for thesis/ research/ project work**		
1.	Yes	81	81
2.	No	19	19
E.	**Check for plagiarism while preparing/ submitting a document to a teacher/ student/ other authority**		
1.	Yes	80	80
2.	No	20	20

F.	**Educational materials which are checked for plagiarism** ** Multiple responses were given for this question; hence the total number of participants and percentage exceeds 100		
1.	Research/ Review articles	59	59
2.	Assignments	45	45
3.	Project proposals	35	35
4.	Lesson presentations	29	29
5.	Lesson notes	20	20
6.	Others like popular articles, study materials etc.	11	11
G.	**Frequency of changing plagiarised content or reducing plagiarism percentage**		
1.	Always	42	42
2.	Never	11	11
3.	Sometimes, based on need	47	47

Results in the Table 10 highlight that majority of the respondents (93%) are aware that one should not use IPR protected information in their educational documents or work. Majority of the respondents had good internet browsing practices like checking for copyrights (75%), patents (79%) and trademarks (81%) while using different types of information for their educational work.

Plagiarism is another important concept that needs to be considered in relation to IPR issues. This is gaining importance in the recent times as journal/ book publishers, universities etc are trying their best to not publish or accept highly plagiarised content. Results were found that majority of the respondents (80%) check for plagiarism before submitting any kind of document to a teacher/ student/ other authority like journal/ book publishers etc. Majority (59%) expressed doing plagiarism checks for Research/ Review articles as most of the journal publishers are not accepting plagiarized content now - a - days. Last but one least percentage was given to lesson notes (20%). This may be due to the reason that as lesson notes prepared by teachers or students are not checked by higher authorities in terms of plagiarism and hence, they did not do plagiarism checks. Another important thing to notice is most of the respondents (47%) did plagiarism check only sometimes, based on need and not always.

Table 11 - Distribution of respondents based on their awareness about the legal issues involved when IPR protected information is misused

Sl. No.	Awareness/ Reason	F	%
A.	**Awareness about legal issues that can happen if IPR protected information is copied/ misused**		
1.	Yes	73	73
2.	No	27	27
B.	**If yes, reasons for continuing the usage of IPR protected information**		
1.	No one is going to check for IPRs given to the information used	32	32
2.	Neither the teacher/ student is aware of the IPRs given to the information used	25	25
3.	Other reasons: • Only gist of the information collected is given and a credit is given to the author, hence the content can be copied. • Information with IPR will not be misused, hence the information can be copied.	48	48

From the Table 11, it can be noticed that most of the respondents (73%) were aware that there can be legal issues if IPR protected information is copied or misused. In spite on this, most of the respondents continue using the information which has IPRs for various reasons.

6. Respondents awareness about different aspects of Creative Common (CC) License

Table 12 - Distribution of respondents based on their awareness about different aspects of CC licence

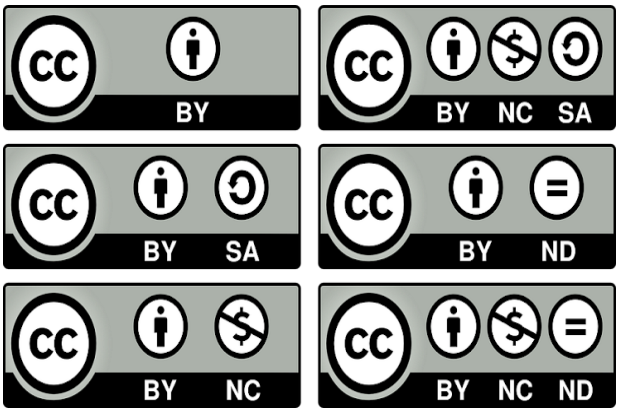
Sl. No.	Awareness/ Browsing practice	F	%
A.	**Awareness about advanced search options in search engine**		
1.	Yes	63	63
2.	No	37	37
B.	**Awareness about the CC license**		
1.	Yes	31	31
2.	No	69	69
C.	**Change usage rights related to CC License before searching information/ images**		
1.	Yes	30	30
2.	No	70	70
D.	**Frequency of changing CC License settings**		
1.	Only when required for some specific presentations/ projects/ lessons	17	17
2.	Always when information is browsed	13	13
3.	Never	70	70
E.	**Observations regarding the CC License permission symbols**		
1.	Yes	29	29

2.	No	71	71
F.	**If yes, permissions observed from the above - mentioned options**		
1.	Option 1	9	9
2.	Option 2	5	5
3.	Option 3	3	3
4.	Option 4	6	6
5.	Option 5	3	3
6.	Option 6	3	3
7.	Not observed answer	71	71
G.	**Awareness about their meaning and use**		
1.	Yes	15	15
2.	No	85	85

Majority of the respondents (63%) were aware about the advanced search option available in search engines like Google, as seen in the Table 12. It can be observed from the later results that though they are aware about the advanced search option, they mostly did not change the settings or made themselves become aware about the CC license options in it.

CC license is a public copyright license used commonly by teachers or students that enable free distribution of an otherwise copyrighted "work" specially for Images. Surprisingly, majority of the respondents (69%) were not aware about the CC License available for browsing information and images. They also did not change the usage rights related to CC License before searching for information/ images. Out of the respondents who changed the usage rights related to CC License (30%), around 17 per cent changed usage rights only when required and the remaining 13 per cent changed always.

There are around six protection symbols representing CC License permissions. They are:



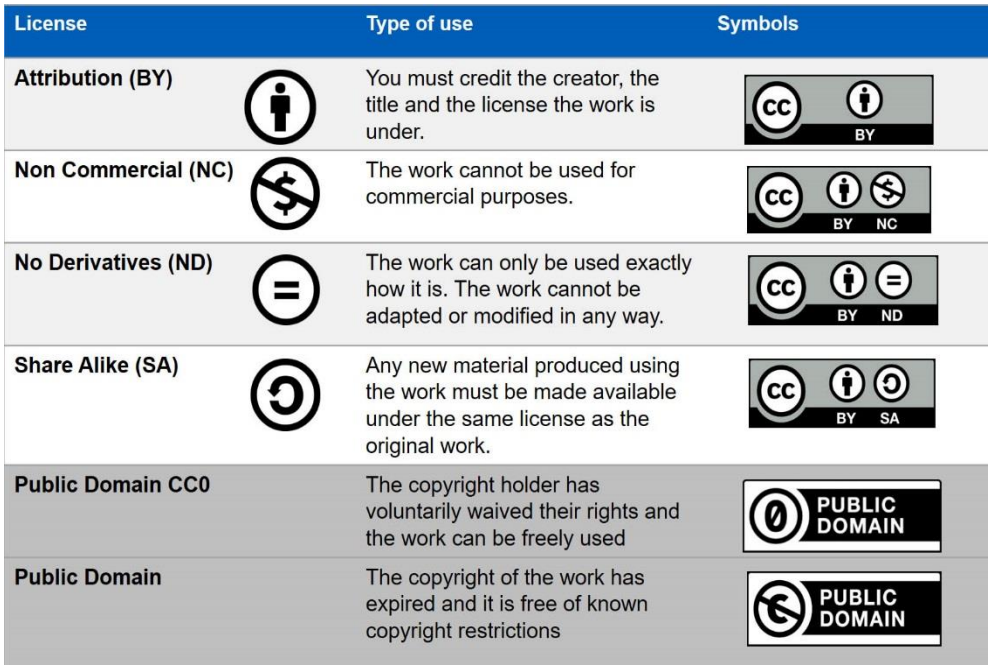


Figure 1 – Type of use of the symbols available in CC license

Only 29 per cent of the respondents expressed seeing some of the symbols earlier when they browsed information. Option 1 one was the symbol observed by the respondents (only 9%), which is related to "Crediting the author, title and the license which the work is under". This indicated an observation from the researchers' side that may be most of the information useful for the educational purposes which is put on the internet can be used easily by crediting the authors, benefitting the students, teachers, researchers etc. Out of the 29 per cent who saw any one of the symbols, only 15 per cent know their use and meaning.

7. Awareness Creation and Impact created on the Respondents

Some basic awareness was given through Google forms to the respondents regarding the Advanced Settings and Usage rights available in a CC License while searching/ copying some information or images required for educational purposes.

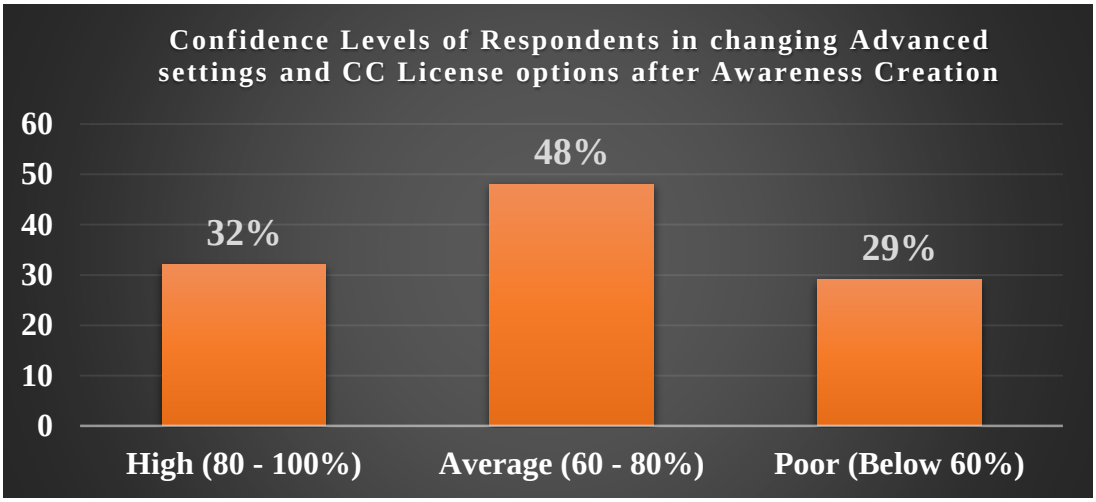
Table 13 - Distribution of respondents based on their attitudinal changes regarding Advanced Settings and CC License options

Sl. No.	Aspect/ Reason	F	%
A.	**Willingness to change CC license and Advanced settings options**		
1.	Yes	87	87
2.	No	13	13
B.	**Reasons for not changing the settings**		
1.	Teacher/ student is not bothered when IPR protected information is used in projects/ research/ presentations/ lesson notes etc.	1	1
2.	Not concerned about the CC License	4	4
3.	Feel that changing the settings will waste the time	4	4
4.	Feel that changing the settings will limit information displayed	4	4

Results in the Table 13 highlighted the results related to attitudinal changes and willingness of the respondents to change CC license and Advanced settings options after the awareness creation on their use and importance. Results showed that majority (87%) of the respondents were willing to willing to change the settings.

Out of the 13 per cent who were not willing to do so mentioned that they were not concerned about the CC License, feel that the changed settings will waste time and limit the information displayed (4% each) and neither the teachers/ student is bothered with the use of IPR protected information when presented to them, as expressed by 1 per cent of the respondents.

Figure 2 - Confidence Levels of respondents in changing Advanced setting and CC License options after Awareness Creation



Majority respondents expressed average confidence levels (60 - 80%) when they were asked about changing advanced settings and CC license options after awareness creation about certain IPR issues (Figure 2).

IV. SUMMARY AND CONCLUSIONS

Today, Internet plays a vital role in the teaching, research and learning process. Literature review reveals that teachers and students are the most frequent users of the Internet, and they use Internet mainly for educational purposes, rather than for entertainment (Kumar and Kaur, 2006). Majority of the teachers (68%) involved in a study use Internet to find resources for preparing their lessons (Becker, 1998). This kind of dependency on the internet is increasing day by day by students and teachers for educational purposes. Internet is becoming a part and parcel of educational systems. Though the use of Internet resources by students and teachers is making them get latest information, how much awareness they have about information which is IPR protected, and its usage rights is a big question. Hence, this study tried to analyse the basic internet browsing practices among teachers and students and their awareness levels about IPR issues in internet browsing.

The study results highlighted that there is a need for creating more awareness among the people in educational field about the need for and importance of the Advanced settings and settings related to CC License, which can be considered as safer options while browsing information or text copied or used for educational purposes.

Recommendations on future course of research

- Academic research and IPR Issues
- Intellectual Property Rights: Issues and Challenges in Indian Educational system
- Impact of IPRs on the Education Sector in India
- Trends in IPRs in relation to Education
- IPRs and Higher Education in India: Issues and Challenges

Action points: The study results can be used a resource to add in the research repository related to the topic of the current study and other IPR issues. Publication of research papers and preparation of educational materials in the form of brochures, pamphlets etc., can be developed for the benefit of public based on the insights gained from the study results.

Way Forward: The results gained from this study can be a motivating factor to people, with a special focus on teachers and students to do ethical internet browsing and usage of educational resources.

Conflict of interest

There is no conflict to disclose.

ACKNOWLEDGEMENT

The authors are grateful to the Professor Jayashankar Telangana State Agricultural University and National Academy of Agricultural Research Management, Hyderabad, and the respondents of the study.

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M. Milcah Paul, et. al. "Awareness among Students and Teachers in Higher Educational Institutes about Intellectual Property Rights (IPRs)." *International Journal of Engineering and Science*, vol. 13, no. 8, 2023, pp. 01-10.