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Preliminary communication

INTELLECTUAL PROPERTY RIGHTS KNOWLEDGE AND AWARENESS – ACADEMIC LEVEL EMPIRICAL ANALYSIS AND RECOMMENDATIONS

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Abstract

Commitment to Intellectual Property Rights (IPR) is a segment of students' positive or negative behavior in the academic community. We define the negative behavior as students' commitment to plagiarism and copyright violation. The overall objective of this paper is to give a recommendation to the non-IPR institutions that potentially show similar results in the level of awareness of students and their behavior regarding their academic program and teaching activities. This follows an empirical testing and analysis of the relationship between knowledge and the level of IPR awareness, and their influence over students' behavior at a non-IPR committed Faculty. In this regard, the paper tests if students that have higher level of awareness and knowledge tend to demonstrate a positive behavior towards IPR more frequently. We use an online survey to collect data and construct scales to measure the level of awareness, knowledge and the type of behavior. Treating the constructed scales as categorical data, we apply log-linear analysis. Results showed that the higher the awareness level, the more frequent the positive behavior. On the other hand, the analysis of the knowledge of students does not provide clear findings; however, it is associated with the level of awareness. The negative behavior, as concluded from the sample, arises from the high cost of acquiring the basic studying material. Nevertheless, understanding students' knowledge, awareness and behavior towards IPR could assist Faculties to implement policies for decreasing students' negative behavior, promoting academic integrity and improving students' ethics.

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Introduction

Commitment to Intellectual Property Rights (IPR) is a segment of students' positive or negative behavior in the academic community. We define the negative behavior as students' commitment to plagiarism and copyright violation. Student plagiarism is a special problem of higher education, and plagiarism causes and practices are even coming beyond the academy (Park, 2010). Many cases of plagiarism are committed due to the lack of knowledge or lack of consequences for such behavior (Pupovac, et al., 2008). Increased access to Internet raises many reasons for students to violate the IPR and downplay the importance of plagiarism (Park, 2010). A recent study presents no difference between University students group and its awareness of IPR and the possibility of further research of online piracy, as a general tendency of relying of students (Krawczyk, et al., 2014). The Internet has impact on students' attitude to intellectual property and raises the necessity to respect intellectual property among institutions worldwide (Marshall & Garry, 2005).

In general, there is a lack of studies that analyze IPR knowledge, awareness and students' behavior in the university education context. Most of the research concerning the theme of plagiarism is written in the context of North American experience (Park, 2010) (Glendinning, 2014) (Datig & Russell, 2015) or Australia (Glendinning, 2014). Within European countries, many studies are done in Sweden and mostly in UK (Glendinning, 2014), some in Spain, Bulgaria and Croatia (Pupovac, et al., 2008). The fast growing trend of "epidemic cheating" was addressed by Park (Park, 2010), which emphasizes the lack of clear presentation about the nature of the plagiarism problem, the changing through time, the variation between undergraduates and graduate students. However, little information was available on the nature and effectiveness of policies and procedures for dealing with plagiarism or academic dishonesty in the majority of higher educational institutions in EU countries (Glendinning, 2014). Considering the motive and intentions of the UK student to plagiarize, most of the students plagiarize on purpose, but there is no doubt that some plagiarism is accidental or inadvertent (Park, 2010). A study of students endorsement to IPR at University if Warsaw shows that students have a poor understanding of the concept of plagiarism and the many different ways in which they can plagiarize (Krawczyk, et al., 2014). But, analyzing how well students understand this concept leads to the important role played by academic staff and the relevance of particular academic traditions (Park, 2010) and the imperative for a clear communication of plagiarism in terms which are readily comprehensible to students (Ashworth, et al., 1997).

This paper argues that students' commitment to IPR is highly dependable of their knowledge and awareness of IPR and consequently influences their behavior. We focused on students from institutions which have not introduced IPR as part of their academic activities and teaching program (non-IPR committed institutions). The analysis of students' attitudes toward breaches of academic and scientific integrity in different European countries' societies may provide a deeper insight into the level of academic integrity in the emerging multicultural European community, which needs to harmonize its standards of education (Pupovac, et al., 2008).

In the Republic of Macedonia (RM), this empirical study is novelty in the field of IPR research. So far, IPRs are mostly researched in their legal aspect or economic aspect of their enforcement at the enterprises' level. Educational programs in the RM technological, natural and scientific, informatics, art, economics and business sciences do not include education on IPR and therefore this topic is still less researched among the academic public (Dabovic-Anastasovska & Zdraveva, 2009). Besides the importance of commitment to IPR at the academic level, most of the students at different faculties do not have an opportunity to choose IPR as part of their teaching program. Thus, it raises the necessity for the student to be acquainted with different forms of breach of scientific and academic integrity including plagiarism (Pupovac, et al., 2008). Their main motives to plagiarize is the high price of textbooks or the phenomenon of cabinet selling editions of textbooks, thus compromising the integrity of teachers and collaborators, while students are brought to a very unenviable position (Dabovic-Anastasovska & Gavrilovic, 2008).

The latest research done on the topic of the relationship between the level of awareness and knowledge of students with the type of behavior that students tend to show was done by (Nacka, et al., 2017). Comparing students' samples from two different educational institutions (the Faculty of Law as IPR committed institution and the Faculty of Agriculture and Food as Non-IPR committed institution) authors present that students coming from a non-IPR committed institution have lower level of awareness than the students coming from an IPR committed institution. Furthermore, the results regarding the existence of association between the level of awareness and type of behavior of students are statistically significant for the sample coming from the non-IPR committed institution, meaning that higher awareness level is associated with a more frequent positive behavior. On the other hand, even if providing evidence for existence of association between the level of awareness and type of behavior students show towards IPR, the students' level of awareness does not seem to rise by each year spent in the educational process. This leads to concluding the necessity of formally introducing an IPR related program, since this should raise the level of awareness.

We decide on conducting further research of the relationship between the level of awareness and level of knowledge that students have with the type of behavior they show with regard to the IPR violation, previously started by Nacka (Nacka, et al., 2017). The overall objective of the research is to give a recommendation to the non-IPR institutions that potentially show similar results of students' awareness and behavior, with regard to their academic program and teaching activities.

This follows an empirical testing and analysis of the relationship between the knowledge and the level of IPR awareness, and their influence over students' behavior. As a part of the experimental research, students are the right sample choice, usually willing to participate and ready to follow written instructions and characterized as youth recognized to consitute the majority of unautorized downloaders and uploaders (Krawczyk, et al., 2014). In this regard, the paper tests the relationship between the awareness and knowledge of IPR in students' positive or negative behavior.

Taking into consideration that in 2011, a System for determination of plagiarism was introduced, which became a mandatory procedure for seminar and graduation papers, the justification of this effort to educate students to avoid plagiarism is in line with the experience in Croatia, which shows that the objective plagiarism detection method and penalty for perpetrators will deter students from plagiarizing (Pupovac, et al., 2008). However, during their studies, University students are obliged to use this system only for their graduation papers. It clearly indicates the problem for students to face the possibility of plagiarism detection at the end of their fourth year of studies, without having a previous opportunity to learn about the importance of the particular use of IPR in academic research. This is why we analyze if the IPR awareness level of students from a non-IPR committed faculty increases with each academic year even if they are not formally introduced with such a program.

The empirical analysis was conducted at the Faculty of Agricultural Sciences and Food – Skopje (FASF) as a non-IPR committed institution at the biggest State University in the Republic of Macedonia. The probability sample included a number of students enrolled in each academic year of studies in 2015/2016. A structured questionnaire gives insights in two issues: 1. General students' information and knowledge (structured questionnaire) and 2. Students' awareness (scenario survey) and behavior (analysis of the influencing factors). Log-linear analysis and Chi-square method of hypothesis testing are used to determinate the association of knowledge, awareness and students' behavior.
The overall scenario was tested through three hypotheses:

Hypothesis 1: Level of awareness affects students' behavior. Students with a high level of awareness, tend to behave positively in regard of respecting IPR more frequently.
Hypothesis 2: Level of knowledge affects students' behavior. Students with a high level of knowledge, tend to behave positively in regard of respecting IPR more frequently.
Hypothesis 3: Students enrolled in higher academic years have a higher level of awareness and higher knowledge level and therefore tend to show positive behaviors towards respecting IPR more frequently.

The research results and conclusions have implications regarding: a) the ground for further discussions on the level of students' knowledge, awareness and behavior towards IPR, as an empirical research done at a non-IPR committed educational institution (Faculty); b) providing insights in the scarcity and factors that influence students' behavior, which enables taking further steps in providing recommendations

related to the general policy of the non-IPR committed faculties which possibly show similar results to the studied sample and c) addressing the importance of promotion of academic integrity and possible adoption of formal codes in order to improve students' ethics, especially when the average ethical judgment is less strict (Krawczyk, et al., 2014), and enhance social responsibility and institutional quality.

The paper is structured as follows. The second part presents the data used and methodology implemented for analyzing students' awareness, knowledge and type of behavior towards IPR. In the third part, the results are presented and discussed. Finally, by emphasizing the importance of raising students' IPR awareness through the role of the Faculty policy and academic staff, the main conclusions and recommendations are drawn.

Data description and methodology

This paper's data was gathered using a semi-structured questionnaire distributed to students enrolled in each academic year of studies (both graduate and post-graduate). Students covered with the research are enrolled in the academic year of 2015/2016 in an educational institution at the biggest State University in the Republic of Macedonia. The sample includes 117 students from the Faculty of Agricultural Sciences and Food – Skopje (FASF) as a non-IPR committed Institution. The students consisting the sample in the study are randomly chosen, since the study was conducted near the end of the term, so participants completed the questionnaires online, outside their regular class time. The questionnaires were delivered by the Survey Monkey platform. We issued survey invitations via the social media, Faculty service and student organizations. All respondents were informed that the survey was anonymous and that the data provided would be used for research purposes.

The total sample of 117 respondents represents 17.6% of the total number of students enrolled in the FASF (663). By academic years of studies, the sample consisted of 18.5% from the students enrolled in the first year, 19% of students enrolled in the second year, 11.5% of students enrolled in the third year and 21% of students enrolled in the fourth year and post-graduate studies.
In the overall sample, there were 51.3% female participants. Thirty-three percent of the sample consisted of students enrolled in the first year, 20.5% from students enrolled in the second year, 15% from students enrolled in the third year, 28% from students enrolled in the fourth year of studies and 2.5% from students enrolled in post-graduate studies. Students from the sample said they spent 3.5 hours per day studying.

Fifty-six percent of the students included in the sample said they used original printed books and authorized lectures, while the rest said they used scripts and other copied materials. A high 64% of the students stated that professors do not mind if students bring copied materials to their lectures. Moreover, 61.5% stated that they are instructed by their professors to copy the book when it comes to textbooks that are no

longer reissued, while 38.5% said that professors refrain from suggestions in which way to provide the studying material.

When further assessing the sample in more details, we can say that students in general are aware of the existence of the punishment system for plagiarism (42%), but a high percentage (58%) of them are not introduced with the system implemented for detection of plagiarism at the University level. Moreover, students express their familiarity with IPR, however, only a small percentage of them were informed about IPR during their studies (28%). In a really high percentage (72%), the source of information on IPR is not related to the studies.

Students' awareness in this research was measured by a scenario survey, where two general scenarios and 2 sub-scenarios determine the index of students' awareness. In general, the majority does not agree with the student's behavior of copying the material without the permission of the author and are highly aware that they inflict material damage to the author by unauthorized reproduced copies. However, they provided confirmation that they print copies of the books (77%) because of the high price of their textbooks (71%) and 85% of the students expressed their willingness to copy the book again even though it is available in the original version.

The questionnaire, consisted of "yes or no", Likert scale and multiple answers questions. The aim of the questionnaire was to provide insights into two issues – the general students' information and knowledge on the subject, as well as students' awareness and type of behavior.
To be able to use the respondents' qualitative judgements in order to measure the level of knowledge and awareness, as well as if their behavior is positive or negative, indexes in the form of summarized scores were constructed. This way, the qualitative data can be described and manipulated numerically (Spector, 1992). The score of each index resulted from standardizing and adding up the answers to the questions that addressed the three different issues. We provided the summated rating scales to be both reliable and valid by conducting the Cronbach alpha reliability test (Lee & Forthofer, 2005), (Cronbach, 1951). Cronbach's alpha measures the internal consistency, or how closely related a set of items are as a group and is calculated as:

$$\alpha = \frac{N^2\overline{Cov}}{\sum S^2_{item} + \sum Cov_{item}}$$

Where, the number of items *N* squared is multiplied by the average covariance between items in the top half of the equation, while the sum of all the item variances and item covariances is the bottom half of the equitation. In our case, the Cronbach's alpha for the knowledge index is 0.679 (5 items), for the awareness index is 0.748 (4 items) and for the behavior index it is 0.726 (7 items).

Kline (Kline, 1999) notes that although the general accepted value of 0.8 is appropriate for cognitive tests such as intelligence tests, dealing with psychological constructs values even below 0.7 can realistically be expected because of the diversity of constructs being measured. Having this in mind, the resulted alphas are acceptable.

Although sociologists were the first to be presented with the log-linear techniques, thanks to the work of Goodman (Goodman, 1972), (Goodman, 1972) (Goodman, 1972) (Gillespie, 1977), the techniques found used to be applied in studies in other fields as well. The log-linear techniques became popular to be used when the dependent variable is either a dichotomous or polytomous "qualitative" variable. These techniques on statistical grounds are superior to the commonly used alternative-treating the dependent variable(s) as a dummy variable (or set of dummy variables) and using standard multiple regression techniques to analyze the data (Gillespie, 1977).

Treating the constructed scales as categorical data, log-linear analysis was applied analyzing the data's frequencies, as suggested by Field (Field, 2009). The log-linear analysis, as an extension of the chi-square test method when considered more than two categorical variables, provides the basis for solid analysis of this data type when assessing their association (Trochim, 2005).

Results and discussion

The research focused on testing the following three hypotheses regarding the Intellectual Property Rights at the Faculty of Agricultural Science and Food, as a non-IPR committed institution at the biggest state University in the country:

Hypothesis1:

Level of awareness affects students' behavior. Students with high level of awareness tend to behave positively with regard to respecting the IPR more frequently.

Hypothesis2:

Level of knowledge affects students' behavior. Students with high level of knowledge tend to behave positively with regard to respecting the IPR more frequently.

Hypothesis3:

Students enrolled in higher academic years have a higher level of awareness and therefore tend to show positive behaviors towards respecting the IPR more frequently.

In order to test the hypothesis, we addressed three categorical variables, each consisted of two opposite categories: (1) awareness level (higher if the summated scale score is above 55%; otherwise lower), (2) knowledge level (higher if the summated scale score is above 55%; otherwise lower) and (3) if students show

positive or negative behaviors (positive considered if the summated scale score is above 55%; otherwise negative).
To confirm if the criteria for conducting a log-linear analysis are met, the data is put into a contingency table. Every case, or in other words every student, falls into only one cross-classification field.

Table 1. Contingency table of the sample data

AWARENESS * KNOWLEDGE * BEHAVIOR Cross tabulation

BEHAVIOR				KNOWLEDGE		Total
				LOWER	HIGHER	
NEGATIVE	AWARENESS	LOWER	Count	19	8	27
			Expected Count	15.8	11.2	27.0
			% within AWARENESS	70.4%	29.6%	100.0%
			% within KNOWLEDGE	43.2%	25.8%	36.0%
			% of Total	25.3%	10.7%	36.0%
			Std. Residual	.8	(.9)	
		HIGHER	Count	25	23	48
			Expected Count	28.2	19.8	48.0
			% within AWARENESS	52.1%	47.9%	100.0%
			% within KNOWLEDGE	56.8%	74.2%	64.0%
			% of Total	33.3%	30.7%	64.0%
			Std. Residual	(.6)	.7	
	Total		Count	44	31	75
			Expected Count	44.0	31.0	75.0
			% within AWARENESS	58.7%	41.3%	100.0%
			% within KNOWLEDGE	100.0%	100.0%	100.0%
			% of Total	58.7%	41.3%	100.0%
POSITIVE	AWARENESS	LOWER	Count	8	0	8
			Expected Count	5.0	3.0	8.0
			% within AWARENESS	100.0%	0.0%	100.0%
			% within KNOWLEDGE	30.8%	0.0%	19.0%
			% of Total	19.0%	0.0%	19.0%
			Std. Residual	1.4	(1.7)	
		HIGHER	Count	18	16	34
			Expected Count	21.0	13.0	34.0
			% within AWARENESS	52.9%	47.1%	100.0%
			% within KNOWLEDGE	69.2%	100.0%	81.0%
			% of Total	42.9%	38.1%	81.0%
			Std. Residual	(.7)	.8	
	Total		Count	26	16	42
			Expected Count	26.0	16.0	42.0
			% within AWARENESS	61.9%	38.1%	100.0%
			% within KNOWLEDGE	100.0%	100.0%	100.0%
			% of Total	61.9%	38.1%	100.0%
Total	AWARENESS	LOWER	Count	27	8	35
			Expected Count	20.9	14.1	35.0
			% within AWARENESS	77.1%	22.9%	100.0%

		% within KNOWLEDGE	38.6%	17.0%	29.9%
		% of Total	23.1%	6.8%	29.9%
		Std. Residual	1.3	(1.6)	
		Count	43	39	82
		Expected Count	49.1	32.9	82.0
	HIGHER	% within AWARENESS	52.4%	47.6%	100.0%
		% within KNOWLEDGE	61.4%	83.0%	70.1%
		% of Total	36.8%	33.3%	70.1%
		Std. Residual	(.9)	1.1	
		Count	70	47	117
		Expected Count	70.0	47.0	117.0
Total		% within AWARENESS	59.8%	40.2%	100.0%
		% within KNOWLEDGE	100.0%	100.0%	100.0%
		% of Total	59.8%	40.2%	100.0%

The sample where the assumptions of the log-linear analysis which asks for big samples not to have more than 20% of the cells with expected frequencies with less than 5, and not even one with 1, could not be met having four variables (Table 1).

The log-linear analysis is based on the fact that the logarithm of a product is the sum of individual logarithms of individual terms in the product, log (p × q) = log (p) + log (q). This means that the logarithm of the cell frequencies is a linear function of the logarithms of components.
In a log-linear analysis, tables are formed to contain one-way, two-way, and higher order associations. The log-linear model so developed starts with all the one-way, two-way, and higher order associations in order to construct a model such that the cell frequencies in a contingency table are accounted for by the minimum number of terms. This is done by a process of backward elimination. Since we have three categorical variables each with two categories, we can find three-level interactions (main effects, second-way and third-way interactions) to be statistically significant.

The results from running a model selection log-linear analysis in SPSS (K-Way and Higher-Order Effects) indicated that even the three-way interactions are statistically significant. We do not reject the null hypothesis (α=0.05), following the Likelihood Ratio, meaning that even the three-way interactions affect the fit of the model. This, by definition applies, and the two-way interactions, as well as the main effects are significant leaving us with the saturated model. However, we can note that the three-way interactions seem to be statistically significant after (α=0.1).

Table 2. K-Way and Higher-Order Effects from log-linear analysis model selection

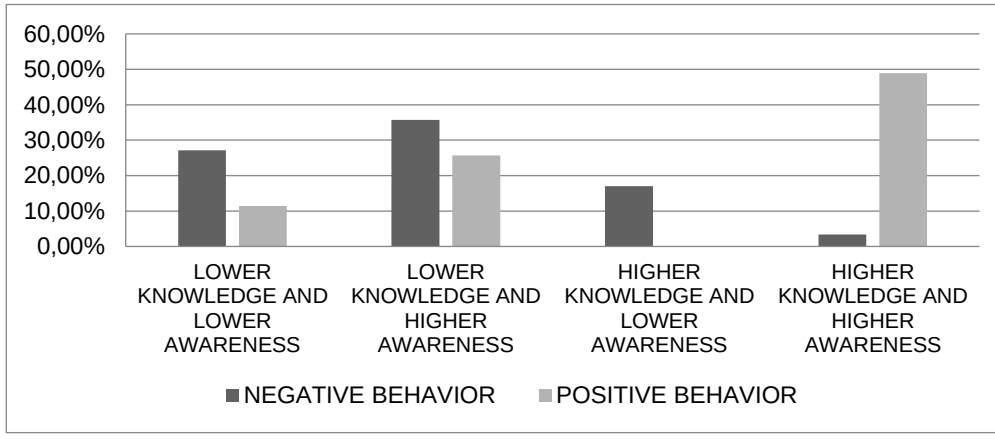
	K	df	Likelihood Ratio		Pearson		Number of Iterations
			Chi-Square	Sig.	Chi-Square	Sig.	
K-way and Higher Order Effects[a]	1	7	48.624	/000	35/000	.000	0
	2	4	15.214	.004	10.482	.033	2
	3	1	4.153	.042	2.710	.100	3
K-way Effects[b]	1	3	33.410	.000	24.518	.000	0
	2	3	11.061	.011	7.772	.051	0
	3	1	4.153	.042	2.710	.100	0

a. Tests that k-way and higher order effects are zero.

b. Tests that k-way effects are zero.

The partial chi-association shows that from each of the single effects, only the second-way interaction between the knowledge level and type of behavior is not statistically significant (Chi-Square=0.666, p=0.415); all of the other interactions and the main effects are statistically significant (α=0.05).

Figure 1. Plot of frequencies across the different categories



When plotting the frequencies of students with different level of awareness and knowledge that tend to show positive or negative behavior, we can see that students with both lower level of knowledge and awareness tend to show negative behavior more frequently. It can be noted that when students have higher level of awareness, they tend to show positive behavior more frequently.

To confirm the relationship between the level of awareness and type of behavior students demonstrate, we further assess separately the association of the level of awareness and level of knowledge using the chi-square testing method. The test presents if the variables are independent or are associated in some way.

Further assessing the relationship between the level of awareness and the type of behavior, the results indicate that there is association between them (Chi-square=3.690 (1); p=0.027). However, the association is medium strong measured by the Crawer's V coefficient which is ranged between 0 and 1 (Crawer's V = 0.178). On the other hand, the level of knowledge and type of behavior that students show seem to be independent (Chi-square=0.117 (1), p=0.147).

Although the level of knowledge does not seem to have significant association with the type of behavior students demonstrate, it does have association with the level of awareness (Chi-square=6.229 (1), p=0.07), Crawer's V =0.231). Their association is even stronger than the one that exists between the level of awareness and type of behavior when consulting the Crawer's V score.

Calculating the odds for the students having a higher level of awareness and show positive behavior, versus the students having a lower level of awareness, will provide insight for the size of the effect that this has over students' behavior. We do this by implementing the following relation:

$$\text{ODDS} = \frac{\text{POSITIVE BEHAVIOR WHEN HIGHER AWARENESS}}{\text{POSITIVE BEHAVIOR WHEN LOWER AWARENESS}}$$

and

$$\text{ODDS} = \frac{\text{POSITIVE BEHAVIOR WHEN HIGHER KNOWLEDGE}}{\text{POSITIVE BEHAVIOR WHEN LOWER KNOWLEDGE}}$$

The odds that students who have a higher level of awareness shall show positive behavior are 2.39 times higher than those of the students with a lower level of awareness. The odds that students with a higher level of knowledge shall show positive behavior are only 0.88 times higher than those of the students with a lower level of knowledge. This leads us to conclude that the higher the awareness level, the more frequent the positive behavior regarding the IPR.

We believe the proof and the effect size of the association between the awareness index and students' behavior should be further analyzed. In order to at least partially do so, we asses the circumstances and answer what affects students' behavior by looking at the answers of the questions contained in the questionnaire.

In order to address the question if every following academic year students from non-IPR committed institutions increase their level of awareness even if they are not formally introduced with such a program, we test for uniform distribution of the level of awareness for each academic year. The chi-square statistics (p=0.05) indicates that there are no statistically significant differences between the empirical and uniform theoretical data, put in other words, students from FASF did not show to increase their level of awareness by engaging longer in higher education. But, if IPR is part of the educational or teaching activities at Faculties, the further the students' progress, the more likely they are to see plagiarism negatively and to expect their own rights as authors to be respected (Datig & Russell, 2015). In this case, the role of professors is

of great importance. Results showed that professors indirectly influence students' negative behavior, allowing them to copy the books that are not reissued. However, Datig and Russell (Datig & Russell, 2015) discussed that students who are aware of IPR importance, think it is fair for their professors to ask them to cite their sources, thus increasing the positive behavior. This clearly emphasizes the role of professors in raising students' awareness of plagiarism and copyright violation. When IPR is not part of the teaching and academic activities, for some students, professors' attitude might be the main source of information regarding IPR knowledge and awareness.

Concussions and recommendations

The research results and conclusions have implications in three directions. Firstly, they follow the novelty of the previous research on the topic and present a ground for further discussions of the level of students' knowledge, awareness and behavior towards the IPR, as an empirical research done at a non-IPR committed educational institution (Faculty). The results of the students from the non-IPR committed Faculty do not show an increasing trend of their IPR awareness in each following year in their studies. This presents the need for introducing a strict policy against plagiarism, as well as a model that will raise students' awareness level of IPR importance. Understanding students' attitudes to plagiarism and copyrights could help the non-IPR committed faculties to implement a proper IPR strategy, to build and keep the academic integrity and develop a good academic environment.

Secondly, the empirical analysis provides insights in the scarcity and factors that influence students' behavior, which enables taking further steps in providing recommendations for the general policy of non-IPR committed faculties, which possibly show similar results to the studied sample. Any implemented activity for raising the IPR awareness could influence decreasing students' negative behavior. At a non-IPR committed Faculty, the formal procedure for plagiarism detection should be more clearly introduced to students, illustrating more closely to the activities that are not permitted, as well as how a possible misbehavior can be avoided.

Thirdly, the research addresses the importance of promotion of academic integrity and possible adoption of formal codes in order to improve students' ethics. The role of academic staff and their ethical behavior is very important in the process of raising students' awareness of plagiarism and copyrights thus providing a solid ground for ethical culture of students. In this regard, professors should constantly educate students to prevent plagiarism, as well as to understand the importance of honesty in the academic world and professional work in general.

Further research recommendations

Further steps for enhancing the research should include a bigger sample form different Faculties and different field of sciences that would allow for a more detailed assessment of these categories. By including more Faculties from the University, or more Universities, a comparative analysis could be performed between students' awareness, knowledge and behavior from different non-IPR committed institutions

and different instructions that have formally introduced IPR in their teaching programs. In addition, more detailed questionnaires should be conducted and followed by interviews or focus group meetings that shall provide more helpful insights in understanding students' negative behavior.

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