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13TH INTERNATIONAL CONFERENCE ON EDUCATION AND NEW LEARNING TECHNOLOGIES

CONFERENCE PROCEEDINGS

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INTELLECTUAL PROPERTY EDUCATION AS THE ETHICAL DIMENSION OF INFORMATION LITERACY: DISCIPLINARY ISSUES

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Abstract

Knowledge Production, Sharing and Transfer are key processes for Innovation in the Globalised Economy. These processes strongly rely on the efficient Circulation of Scientific Information: to produce new knowledge from existing knowledge, to share and transfer knowledge within and outside the scientific community. Therefore, within the overall context of education in universities, pivotal becomes the goal of educating students and researchers on Scientific Information Access and Use.

In addition to this, the growing influence of economic objectives both in the dissemination of information and in the interdependence between science and industry has led to significant problematic issues, especially due to the coexistence of conflicting interests in the scientific enterprise. And in this context central becomes as well the goal of educating university students and researchers on Intellectual Property issues, thus enhancing the fair use of Scientific Information.

In view of the above, pillars of the paper are both Scientific Information and Intellectual Property, conceived as transversal skills to be taught to university students and researchers. In particular, the paper will deal with Intellectual Property as the ethical dimension of Information Literacy, as well as with the curricular configuration for this educational intervention. The different forms of curricular configuration for Intellectual Property as part of Information Literacy in Higher Education courses is studied on.

The methodology in the paper will be moving from the World Intellectual Property Organization (WIPO) formal definition of Intellectual Property, identifying the main disciplinary areas interested in the study of Intellectual Property Regulation.

Teaching of Intellectual Property regulation traditionally falls within the framework of Legal Education. In this paper, however, a particular perspective of analysis is adopted, that relating to the institutional sources of information in the fields of Industrial Property, Copyright and Intellectual Property at large. This point of view broadens the audience of the recipients of the training, also - and above all - to disciplinary fields outside the legal and information disciplines. This expansion, in turn, requires particular characteristics of the syllabus, which are suitable for disciplinary fields not specialised in legal matters, nor in information science.

Keywords: Information Literacy, Intellectual Property, Education and Research Links, Higher and Further Education, Curriculum Design and Development, Transferring Skills and Disciplines.

1 INTRODUCTION AND BACKGROUND

The reasoning framework of this paper is based on four main concepts, which need to be shortly outlined: Intellectual Property, research and development results, academic disciplines and Information Literacy.

1.1 Intellectual Property

Intellectual property (IP) is a complex, composite and dynamically developing concept, which has economic and legal manifestations, having in mind the institute of property.

According to the provision of art. 2 (viii) under the Convention establishing the World Intellectual Property Organization (WIPO), "intellectual property" includes rights relating to: (1) literary, artistic and scientific works; (2) performances by performers, sound recordings and radio and television broadcasts; (3) inventions in all fields of human activity; (4) scientific discoveries; (5) industrial designs; (6) trademarks, service marks, trade names and designations; (7) protection against unfair competition; (8) as well as all other rights arising from intellectual activity in the industrial, scientific, literary and artistic field.

In other words accordingly WIPO, IP refers to creations of the human mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce. WIPO distinguishes among eight types of Intellectual Property, nevertheless the focus of the paper will be concentrated on the types shown in Table 1.

Table 1- Types of Intellectual property (source: WIPO).

Copyright	Copyright is a legal term used to describe the rights that creators have over their literary and artistic works. Works covered by copyright range from books, music, paintings, sculpture and films, to computer programs, databases, advertisements, maps and technical drawings.
Patents	A patent is an exclusive right granted for an invention. Generally speaking, a patent provides the patent owner with the right to decide how - or whether - the invention can be used by others. In exchange for this right, the patent owner makes technical information about the invention publicly available in the published patent document.
Industrial designs	An industrial design constitutes the ornamental or aesthetic aspect of an article. A design may consist of three-dimensional features, such as the shape or surface of an article, or of two-dimensional features, such as patterns, lines or color.

For the purposes of this paper, it is important to note that the recipients of the training in the field of IP identified by WIPO are: businesses, researchers, lawyers and innovators. Here we will focus our attention on researchers and in particular on those disciplinary sectors whose research output fall into the categories present in table 1.

1.2 Research types and research output

Research & Development (R&D) activities comprise “creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge” [1].

Accordingly to this definition, output of R&D is “to generate new knowledge”, for three main purposes, corresponding to three types of R&D activities:

- Production of new knowledge in itself (basic research);
- Address societal challenges (applied research)
- Generation of economic benefit (experimental development).

The different types of IP in table 1 apply to these different classes of results.

1.3 Academic disciplines

The International Standard Classification of Education (ISCED) provides the description of 10 classes for organizing education programmes by field of education [2]:

00 Generic programmes and qualifications
01 Education
02 Arts and Humanities
03 Social Sciences, Journalism and Information
04 Business, Administration and Law
05 Natural Sciences, Mathematics and Statistics
06 Information and Communication Technologies
07 Engineering, Manufacturing and Construction
08 Agriculture, Forestry, Fisheries and Veterinary
09 Health and Welfare
10 Services

Some subject areas are intuitively oriented to the production of patentable products or products that are useful for innovation; other areas, such as those of the Arts and Humanities, are instead traditionally considered extraneous to the logic of the market.

This dichotomy is now largely outdated. Consider, for example, what the ISCED classification includes in the Arts and Humanities sector:

Audio-visual techniques and media production is the study of techniques and skills to produce books or newspapers, radio or TV production, film or video production, recorded music production and graphic reproduction. It includes programmes and qualifications in methods of colour reproduction, photography and computer graphics. Study of combining pictures, words and decorations in the production of books, magazines, posters, adverts etc. is also included [2].

Fashion, interior and industrial design is the study of creatively combining line, form and fabric in designing and constructing e.g. fashion garments, industrial products and interiors [2].

A similar receptiveness is found in almost all university disciplinary classes, as a consequence of a gradual adhesion of universities to the logic of socio-economic impact of research activities, as we will see in section 2 of this contribution.

1.4 Information Literacy

Information Literacy (IL) is defined as a set of knowledge and skills necessary to detect, analyze, store and use information. Information literate people know how to find, evaluate and use information effectively to solve a problem or to decide whether the information comes from the computer, book, news agency, film or any kind of additional resources [3].

As defined in Alexandria Proclamation, IL is defined as "an opportunity for people of different social status and occupation effectively seek, evaluate, use and create information in order to achieve their personal, social, occupational and educational goals" [4].

Both definitions of IL put the information in the first place, as a means to achieve multiple and fundamental goals, nevertheless the issue of Intellectual Property Rights is not yet included in the IL agenda.

2 THE NEED FOR COPYRIGHT EDUCATION IN UNIVERSITIES

2.1 Post-academic and entrepreneurial science

The distinction between academic research and industrial research constitutes a model that essentially separates basic research from technological application and conceives a linear model of innovation: from university research, scientific results are taken over by industry and transformed into technologies applicable in society to improve living conditions.

Contemporary science, however, inherits both the traits of academic science and those of industrial research, as a result of both the industrial revolution and the logic of the Knowledge Economy.

While the scientific community, in fact, claims its freedom in terms of the subject and timing of the investigation, politics tends to exercise coercive methods - for example through the imposition of specific criteria for the allocation of funding - aimed at exploring fields of investigation with high and rapid application impact.

The emergence of the logic of the Knowledge Economy has gradually led to the overcoming of the traditional boundaries between academic research and industrial research, in favor of the development of forms of academic entrepreneurship as the Third Mission of universities, considered as the factories of the Knowledge Economy [5], [6].

The specialised literature attributes the initiation of this transformation to the Bayh-Dole law passed in December 1980 by the American Congress, which changes academic patent policy by assigning to universities the Intellectual Property rights on the results of publicly funded research - rights that until then were held by the financing institutions - and allows the universities themselves to collect the proceeds from the licensing of such rights to third parties. In this sense, the Bayh-Dole Act (BDA) is considered a milestone in the process of commercializing the results of academic research and in the stimulus to concentrate research on topics with high application potential [13].

2.2 Universities and Intellectual Property teaching

2.2.1 Intellectual Property Education beyond the disciplinary boundaries of Law and Library and Information Science

The subject of Intellectual Property is essentially of a legal nature, as it substantially dictates the rules for the protection of rights relating to different products in different contexts.

For this reason the matter is extensively taught in legal disciplines, for future lawyers, judges and legal professionals in general. The argument, moreover, is part of the study profile of this subject area, especially for the branch of commercial law and, as such, it is a subject of study fully integrated into the core curriculum of the legal disciplines.

Intellectual Property is also included in the curriculum of Library and Information Science (LIS), particularly with respect to Open Access to scientific literature. In fact, large part of the literature about copyright and Open Access originated from LIS authors.

As in the case of legal disciplines, even in the LIS sector the subject of copyright, closely coupled with the access constraints to information, is treated as an integral part of the core LIS curriculum for future information professionals.

Now, given the changed cultural climate of university research, now oriented towards logics of socio-economic utility, it would seem highly desirable to spread forms of Intellectual Property education also to disciplinary sectors outside the narrow specialized fields of Law and LIS, albeit with appropriate precautions. More specifically, what is proposed in the next section is to include Intellectual Property in the syllabus and in the curricular configuration of Information Literacy in academic curricula outside the Law and LIS disciplinary areas.

Althought, the copyright/IP-related issues within the LIS and cultural sector are acknowledged in the literature, the themes such as implementations of copyright education into information literacy programs and integration of copyright and licensing issues into the LIS curriculum are actual and require further attention. This was confirmed by Schmidt and English, who investigated in 2013/2014 the copyright/IP instruction in ALA-accredited LIS programs in the USA against practitioner needs of copyright/IP knowledge by comparing LIS course descriptions with survey data from practitioners. They concluded that although recent graduates of LIS programs in the USA are more likely to have had instruction on copyright/IP issues, this instruction is not widespread enough, nor in depth enough to prepare LIS program graduates for the current demands of the workplace [7], [8], [11], [15].

2.2.2 Curricular configurations for Intellectual Property in Information Literacy

The importance of intellectual property in the modern world goes beyond the protection of works of the mind, as it affects all aspects of economic and cultural life. Today the advantage is on that who creates, stores, and uses information and that advantage is much greater than the holder of the property rights - even of the property right of real estate. As a result, education in the field of intellectual property at the university level is increasingly used in educational programs.

Intellectual property is directly related to the information they contain in its sites, or in other words, intellectual property is the ownership of information that products contain and their creators have exclusive right over them.

Intellectual property rights by bringing in a system body of law regulates public relations in connection with the creation, recognition, issuance, distribution, inheritance and legal protection of intellectual property, including - of objects of copyright and related rights.

In the knowledge based economy, an important place take experts who can interpret issues related to intellectual property, such as librarians and information specialists. It is they who bear the responsibility for creating a policy of promoting the understanding and resolution of legal disputes and conflicts that are unique to this aspect of the information society. One way to achieve this is through the educational impact of information literacy programs, which include issues related to intellectual property as part of the curriculum [9].

IP can be considered as an element of IL in university environment, because in order to develop successfully students in the university and in life, they must learn how to efficient and effective use a wide variety of information and communication technologies for search finding, organizing, analyzing and evaluating the information they need. In addition, they must understand the ethics of the use of information, including the violation of individual rights to intellectual property as plagiarism use without permission of the author of works of literature, art, science, and also of patented inventions, industrial design, indications (trademarks, geographical indications, domain names, companies). Finally, they should be able to systematize all this knowledge together to create effective final product. This requires them to assemble the entire package of basic skills for research, technological skills, critical thinking and evaluation.

In January 2000 a group of standards related to information literacy in higher education, updated in 2016. These standards are five in number and developed by the Association of college and research libraries (Association of College and Research Libraries, ACRL). These standards are specifically designed for higher education and are adopted by a number of colleges and universities around the world and include performance measurement indicators that show the extent to which the relevant standard has been met. Directly related to intellectual property as part of information literacy in university environments is standard number five [10].

This standard defines an information literate human as a person who is economically, legally and socially literate, aware of these aspects to the product, which wants to create and use information ethically and legally. Fifth standard for information literacy contains three indicators as follows:

1 The information literate person understands most of the ethical, legal and socio-economic aspects of information, such as whether the information is free or a fee required, and demonstrates competence in intellectual property, copyright, and fair use of materials.

2 The information literate person shall comply with the laws, regulations, institutional policies and ethics relating to the access to and use of information by using, storing and disseminating text, data, images or sound units legally and by understanding the nature of plagiarism.

3 The information literate person evaluates the use of means of information in communicating the product or presenting it, citing the sources of information.

Adhering to the three indicators of the Standard five information literacy in higher education is necessary to highlight that intellectual property is an essential element of the information literacy of students, particularly in library and information professionals. As to be as precise in their practice, they must be more extensive, specialist knowledge of the theory and practice of the law of intellectual property [11].

Joint distinguishes between proactive and reactive Information Literacy:

Proactive IL work consists of training students or inexperienced information users to be information literate before they encounter information literacy problems. Reactive IL work manifests itself in a variety of ways, but most commonly the activity of ‘reference librarianship’ can be viewed as synonymous with ‘reactive IL work [9]’.

This paper concentrates on proactive Information Literacy, implemented through *ad hoc* curricular configurations.

The European Observatory on Information Literacy Policies and Research distinguishes between two main forms: library delivered courses and institution delivered courses. The former refers to academic library systems, central academic libraries, and individual academic libraries, while the latter refer to universities, faculties, academic departments, academic institutes, and centralized academic organizations [12], [13], [14], [15].

A further configuration element is the characteristic of being or not being credit-bearing.

A range of disciplinary configurations of Information Literacy with respect to the academic curriculum is illustrated in table 2 [16].

Table. 2 - disciplinary configurations of IL - Source: Basili (2011a).

Generic	Extra curricular, not credit-bearing
Parallel	Extra curricular discipline, credit-bearing, optional
Integrated	A discipline inserted into the curriculum, credit-bearing, mandatory
Embedded	Part of subject disciplines

3 CONCLUDING REMARKS

In universities and research institutions, the need to produce new knowledge that proves to have a socio-economic impact has been progressively affirming: from pure knowledge, academic-driven and discipline-centered, scientific research has progressively been oriented towards the production of applied and problem-oriented knowledge, non academic-driven and entrepreneurial [16].

This logic has led to the multiplication of research products oriented to industrial application and economic benefit, also in disciplinary sectors traditionally oriented to retrospective and interpretative research, or to basic research, such as Genetics, Molecular Biology or Bioinformatics. [17].

This mode of knowledge production extends the boundaries of the application of intellectual property - traditionally centered on copyright for literature and patents - to virtually all disciplinary fields.

Hence the need to include forms of IP Education in every academic subject area. Moreover, since the topic of IP is closely connected to the process of circulation of scientific information, the natural location for teaching this subject could be that of Information Literacy, a cross-cutting competence that can take on different forms of curricular configuration [14].

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