Journal of Universal Computer Science, vol. 22, no. 1 (2016), 37-54
submitted: 30/6/15, accepted: 20/12/15, appeared: 1/1/16 © J.UCS

Applying Inter-methodological Concepts for Enhancing Media Literacy Competences

Carmen Marta-Lazo
(Universidad de Zaragoza, Zaragoza, Spain
cmarta@unizar.es)

Elisa Hergueta-Covacho
(UNED, Madrid, Spain and IMC FH-Krems, Krems, Austria
elisa.hergueta@fh-krems.ac.at)

José Antonio Gabelas-Barroso
(Universidad de Zaragoza, Zaragoza, Spain
jgabelas@unizar.es)

Abstract: The technological changes that have occurred in communications and information distribution have given rise to new models in communication, literacy and pedagogy that affect both communication and education (Media Literacy), with the result that production is now based on collaboration and participation. We need new discursive paradigms to express ourselves in this area, and to organize and distribute knowledge and information by breaking with analogical linearity. The connectivity between nodes and links, the development of apps and tools and the use of hypermedia platforms all point in the direction of new narrative trajectories and enable the users to participate actively and become co-creators of knowledge.
We consider that the parameters of formal education have been rendered obsolete by eLearning. The challenge for education is to find ways of creating, managing and distributing content that can create a type of learning that is communicative, horizontal, decentralized, multidirectional and interactive.
We analyze the experience developed through teaching the *Education 2.0* subject as part of the Master in Social Networks and Digital Learning offered by the UNED (National University of Distance Learning). The technological setting enabled us to deploy inter-methodological practices to help students self-manage their learning and become interactive producers. We investigated the impact of this methodology on the Media Literacy processes to demonstrate the viability of acquiring media competences and of learning how to operate within the new discursive paradigms of media. We considered those aspects and factors that show how the developed processes enhanced student learning.

Keywords: Education, Communication, Media and Information Literacy, Inter-methodology, Relational Factor, Online Learning
Categories: L.1, L.2, L.3

1 Introduction

The knowledge society poses new challenges in education and communication. Media convergence and technological changes in communications and the distribution of information have meant a profound transformation in the creation, management and distribution of knowledge. New communication, media literacy and pedagogical

models have emerged. The Network has become the space in which students develop processes in which they participate as active agents, as digital society's *EMEREC*s [Cloutier 75], with new necessities determined by the challenge of knowledge acquisition.

The future is communicatively digital and originates transformations in the paradigms that govern this emerging social culture; these changes materialize as an opening supported in the social networks and propel teaching and learning way beyond the walls of educational institutions. Media Literacy is remodeled by open and changing environments and is no longer circumscribed by classroom walls. It drives the way information, which can now be found everywhere, is accessed and processed, and also changes the approaches people will formulate to obtain and produce knowledge.

This article covers various aspects of Media Literacy for the 21st century that consider students to be holistic beings, ecosystems within different social and communication settings, who require new discursive paradigms and structures to express themselves and distribute information and break with analogical linearity. This communication panorama is more than merely technological, and acquires far greater importance in the convergence with education.

Students need Media Literacy to become literate and maintain a dialogue and interact with media. This ecosystem, which is communicative, educational and thus relational, penetrates a fourth setting which has no coordinates in time or place, and asserts its virtual links within a multisensory framework. It is here that we reflect on the new methodological articulations that need to be adopted in order to remodel the technological discourse and take advantage of the new digital media as instruments at the service of Media Education. Our proposal is to influence media literacy via inter-methodological strategies and practices that incorporate a holistic, multidimensional student, who constructs knowledge that is interrelated and connected, and is based on a reflection aimed at enabling the convergence of minds, empathies, senses and sensations, processes and discourses.

Our study aims to analyze and assess the impact of inter-methodological practices developed in the learning and construction of knowledge by a group of students studying the *Education 2.0* subject as part of the Master in Social Networks and Digital Learning offered by the UNED (National University of Distance Learning). We wish to contribute methodological information from the perspective of teaching a holistic student who is learning in virtual settings.

The subject was constructed in order to implement and develop an Education 2.0 curriculum for the 21st century. The philosophy was to make the most of the potential of the new technological setting and to generate a pedagogical methodology and communicative strategies within a higher education environment in which we could bypass the traditional formality inherent within such places.

To promote this model, we created "inter-methodological" practices and dynamics based on complexity. We started with the uncertainty and chaos theory that might advance interconnected learning, with the aim of establishing and developing endogenous and exogenous relationships between students, teachers and media in such a way that the former became protagonists and managers of their own independently developed learning. This meant focusing on the personal production of content by the students as coauthors and co-builders, as well as focusing on the people

responsible for shaping the subject's curriculum in a process whose objective was to develop the students' sense of critical analysis and, consequently, their empowerment. This research helped us understand which aspects of the practices and dynamics had the most influence on the learning and the development of the students' media competences. If the results of the investigation showed that they were relevant, then we aimed to provide the inter-methodological models that could be extrapolated to other learning environments.

2 Theoretical Framework

2.1 Relational Media Literacy for the 21st century

We foresee a future that is digital, a social culture open to new paradigms which, together with social networks, promises a form of teaching and learning that goes beyond the walls of institutions. This future will remodel Media Literacy and take it out of the classroom in which it was previously restricted. Training and educational processes will be based on acquiring knowledge while confronting the huge quantity of information that envelopes us and therefore require us to

- know how to access this information
- know how to find it
- know how to transform it into knowledge
- know how to disseminate it

with a sense of responsibility and ethics in our role as participating citizens.

This phenomenon is unstoppable and will potentially increase in the next decades. In this sense, UNESCO has determined that it is necessary that this new scenario "*empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion of all nations"* [Wilson et al. 11]. Likewise educational institutions must make their students multi-literate by considering all the different skills dimensions [Ferrés and Piscitelli 12], technological as well as communicative. Skills to broaden their potential to interact in and with the world around them, share information and acquire competences that enable them to continue learning throughout their lives [UNESCO 96]: the knowhow that covers cognitive knowledge, the knowhow or skills to activate knowledge and the knowhow that helps them to appreciate their own social skills, values and attitudes.

The objective of Media Literacy is to provide individuals with self-expression skills that are vital for the normal development of communication and creativity with the help of instruments in order to understand the communicative production of society [García Matilla 02]. Therefore, it is crucial to join the concepts of communication and education in this century in which knowledge is such a priority and which does not permit planning in a fluid society marked by fear of uncertainty [Bauman 07].

It is fundamental to situate eLearning students within this framework and offer them the chance to interact within the concentric circles of learning communities that can lead them away from the individuality of the "I" and their neurological relationships in order to involve them in external connections spread across the virtual world. The traditional educational paradigm seems incapable of providing an

adequate pedagogical framework for the horizontal communication model required of online settings, as well as the new communicative models needed to replace the banking educational model [Freire 70] based on the culture of transmission.

In the beginning, online education based its strategy on digital technology rather than a pedagogical scenario and, as a consequence, it assumed a behavioral perspective in its practices. We believe we cannot restrict ourselves to technological reductionism to promote horizontal communication in virtual settings or construct Media Literacy models based on collaborative construction and collective intelligence without drawing on the phenomenon of communication, and also education, and without considering how Connectivism [Siemens 06] can contribute to learning in Web 2.0 settings. Siemens' proposals are very useful for describing the role of technology and internal and external connections in improving cognition and knowledge construction. He states that learning is the process of creating networks and the establishing of node structures, which are any entity or person that acts as a source of information.

We no longer doubt that to "*connect with sources of information and knowledge allows the creation of networks, not only with people, but also with those sources that mediate our communication and information needs and help us to access and expand our cognitive skills and managing, and in this way, our identity and our knowledge"* [Marta et al. 13]. We adopt the relationship of nodes as the center point of the media literacy experience. ICTs are now known as RICTs (relationship, information, communication, technology). We thus revise, control and demystify the action of education within technology. We cannot avoid the importance of relationships, the Relational Factor[1], as a form of revising the ICT discourse and as the central support of media multi-literacy, based not only on technological competences but also on different competence dimensions in order to "*contribute to the development of citizens' personal autonomy, as well as to their social and cultural commitment"* [Ferrés and Piscitelli 12].

Ferrés and Piscitelli structure the dimensions of media competence (language, technology, interactive processes, production and dissemination processes, ideology and values and aesthetics) around two work settings, production of one's own messages (the expression setting) and reception and interaction with the messages of others (the analysis setting). Marta Lazo and Grandío [Marta and Grandío 13] state that the acquisition of media competences is based on continuous learning and must adapt to the digital era. They also warn of the need to prepare the people against the filtering of content within our contaminated information settings. We center our work on online teaching and learning models based on the culture of active participation, as described by Jenkins [Jenkins 06], and on creative collaboration. Here, interaction means setting down a cornerstone for the construction of virtual learning environments.

Relational Factor models promote Media Education processes that motivate students and facilitate interactive participation in virtual settings so as to empower them and, as a consequence, encourage their learning. Providing resources which boost the human capacity to study, explore autonomously and empower students could be the greatest success of teaching for eLearning.

[2] Retrieved October 2015 from: http://educarencomunicacion.com/triclab/services/historicos-2/

Furthermore, the relationships generated within these processes between the interconnectedness of individuals, the social environment and the various types of media at their disposal, enable students to acquire fundamental competences for media literacy. These relationships and processes are intimately correlated: the creation of nodes and endogenous and exogenous connections, and interaction and participation are also closely linked and allow knowledge to be generated. Literacy and learning go hand-in-hand, support the acquisition of competences and promote learning through empowerment.

2.2 Concentric, accessible and distributed Media Literacy settings

Communication involves the human being holistically, cognitively and emotionally; it also involves us as social beings who establish relationships and interactions with others thanks to a neural system designed to connect us with others, to socialize and establish links [Goleman 06]. This socializing action and its reflections, ours in others and vice versa help us to form our own identity by which we become aware of our Media Education needs.

Echeverría [Echeverría 99] describes three spaces. Our body, with its physical and sensory features; the real, social and cultural urban space which we inhabit; and the one which we access via screens, the virtual space, that has expanded and become more day-to-day and which influences the educational processes. We focus on the settings from the literacy perspective and imagine the first setting to be the "I" of our students who require basic holistic literacy in languages to be able to communicate with their own bodies and direct environment.

The second space would be the real space: interactions with intercultural connotations that we cannot ignore. We need to know how other cultures function to be able to interrelate with others: this means acquiring literacy in order to be aware of the differences of others and also to develop, from "Skills for Health" [World Health Organization 1993], a sensitivity to understand them and the capacity to relate to them. The skill to act appropriately and to be flexible in the face of the actions, attitudes and expectations of others thus becomes vital for coexistence and education.

To be able to communicate within the third space, it is crucial to provide literacy in new communication languages. The use of digital tools in the classroom is not enough if they are merely integrated by superimposing them on a traditional education system [Aparici 13].

Media Literacy for the 21st century means profound changes in the way information is created, managed, interacted with and distributed, and it must center on models based on participation, creative collaboration and interaction in virtual settings. The internet and social networks mean that verbal "day-to-day" literacy remains in the background, since non-verbal literacy gives us codes and channels to help us to innovate in the way we communicate. We situate ourselves in new settings that require new discursive paradigms and structures in order to write, express ourselves, organize and distribute information by breaking with analogical linearity, based on connectivity between nodes and links that enable an infinite number of narrative itineraries.

However, being able to communicate has greater implications. It encompasses sharing life experiences with one's environment beyond the classroom. Media communication is here in order to make conversations among peers, to allow us to

relate to others and the media. In this communicative process, the Relational Factor in social networks is key [Gabelas et al. 13] in interpersonal terms by using different narrative formats (the written or spoken word, images, sounds, videos, gestures…) by which we can transmit our emotions, thoughts and feelings, either in person or virtually, near or far, or in a synchronous or asynchronous form.

Students are already media consumers and must be aware of the keys necessary to communicate as citizens, which requires possessing a media literacy that empowers them and enables them to participate in our digital society. They intuitively understand concepts that are intrinsic to the media ecosystem: ubiquity, digital competences, interactivity, interaction, digital narratives, media codes and languages, oral, verbal and non-verbal language in the media. They use them to transmit their experiences, like a mirror of their own identity, their informational, emotional and social values [Boyd 14], which they share with the nodes in their networks. They unconsciously weave a web of relationships in conversations mediated by different screens.

This communicational and narrative panorama also depends on the level of media literacy we can provide from the education system to allow them to acquire the competences to process, filter and convert the vast amount of data around them into useful information. This can deliver them the criteria necessary to operate in this setting, to avoid difficulties in handling tools and the interactions with other interlocutors, and forming groups for collaboration and participation.

2.3 The fourth space. The hyper-dimensional perspective of communication and education

The fourth setting is characterized by ubiquity without time or space. Communication involves the individual holistically, and submerges them in a communicative and relational ecosystem that embraces the settings of Echevarría and the three traditional physical dimensions in a fourth environment that does not need space, time or geographical coordinates. This fourth setting is a convergence with no coordinates of time or place, and asserts its virtual links within a multisensory framework of supports, formats, genres and content.

This setting measures the convergence of two realities (physical and virtual), two mentalities (analogical and virtual) and is cross-border in nature. It is three-dimensional in its psychosocial structure (emotional, cognitive and social). The mediated techno-setting makes possible Vygotsky's [Vigotsky 88] zone of proximal development as an area of potential development. The context of the mediation process will be a key factor in this evolution. Technology is humanized by means of the relationships created in this dimension. Those who interact are integrated by merging themselves within relationships, producing and disseminating information far and wide so that their learning can be undertaken at any time and in any place [Cope and Kalantzizs 09]. In this setting, they must empower themselves and develop strategies that enable them to be themselves and to circulate in an uncertain social, educational and technological world by adopting a positive, constructive attitude and a methodological, reflective strategy regarding their surroundings.

For this reason, we propose various inter-methodological strategies and practices that include the being of our students and their diversities within their various dimensions, where the two converge to construct common knowledge in relationships

and in connections through processes, based on a reflection towards action that enables the convergence of minds, empathies, senses and sensations, processes and discourses.

Hybrid Media Literacy practices generate a wide range of relationships among the protagonists in the learning process, and students use various techniques to choose between methodological options that can help them acquire all kinds of competences, not just cognitive ones. Methodology and activities form an interrelationship that generates a wide-ranging practice that opens up the individual analysis-synthesis-reflection-action process [Marta and Gabelas 13] whose end is to fix a specific target among the interactive partners who communicate, collaborate and negotiate in order to reach a common goal.

3 Methods

The methodology of this research focused on students' opinions of their own behaviors from an emic perspective in order to understand their viewpoint regarding their conduct as they learn. We opted to record the occurrence of a certain type of behavior or influence without an in-depth analysis of the motives. The field work was based on students' personal responses without examining the tasks or their own perspective of the incidence of the inter-methodological practices in their learning processes.

A quantitative methodology (questionnaire) was used to gather data because it let us interpret the results more generally, and it gave us greater control over the phenomena as well as a perspective of the enumeration and magnitudes of the results. We used the questionnaire [Hergueta-Covacho 2015] to demarcate the students' attitudes and beliefs regarding their own behavior during the course, the particular features of each practice and their incidence in specific aspects of their learning; this enabled us to make a quantitative assessment of the teaching/learning procedures and the process of acquisition of knowledge and competences associated with the endogenous and exogenous relationships (individual, social setting, media) created in these processes.

With this aim we analyzed the influence of these inter-methodological proposals for the following three reasons: to diagnose the potential advantages and disadvantages of Media Education in the mediation of technology, to propose new models for intervention in order to improve the operability of putting Education 2.0 into practice in higher education and to create an instrument capable of assessing the methodologies applied and the interactions and practices used.

This type of analysis was used to help us to reflect on the fact that any proposal to implement Education 2.0 in the university context involves a thorough review of the fundamentals of official pedagogical practice and, inevitably, a study of the function of teachers and students and how the two relate, so that knowledge can emerge and be constructed.

More specifically, it would determine whether these new discursive paradigms broken away from analogical linearity, through which we communicate with each other and express ourselves, organize and distribute information and knowledge in a virtual Education 2.0 setting, were viable. In addition, the Relational Factor-based

inter-methodological practices would lead to the implementation and promotion of this new Media Literacy model.

This project can be defined as empirical with a non-experimental design as it consists of a practical analysis of a reality. For data gathering we used quantitative techniques in the form of a questionnaire from which we drew conclusions that aimed to verify the objectives and hypotheses in this study. The objective of the questionnaire is to use quantitative descriptors to measure the impact of each of the dynamics proposed.

3.1 Research tools

The questionnaire was structured in three parts or thematic sections:
Part 1: general information on the student's own perspective of his/her behaviors. This would allow us to compile information on the extent of student involvement. The questions refer to the following aspects:

- Extent of active participation in searching for data on information networks.
- Extent of interpersonal collaboration.
- Extent of information distribution.
- Extent of critical analysis of shared material.
- Extent of exchange of reflections.
- Extent of contribution to organization of the group.

The questions cover the creation and development of basic relationships (exogenous and endogenous) classified as:

- Synaptic relationships: analysis and reflection.
- Nodal relationships: collaboration and organization.
- Media relationships: network searching and distribution.

The responses to the questions were weighted on a scale of 1 to 10, with 10 being the highest or most positive and 1 the lowest and most negative.

During your participation in this course:
Q1. How actively did you participate in the search for information?
Q2. How actively did you collaborate with your peers?
Q3. How often did you share links and information with your peers?
Q4. How critically did you analyze the materials?
Q5. How actively did you share your reflections with others during the discussions?

Table 1: Questionaries' Part 1.

Part 2: indicators that define an inter-methodological task on the incidence of this task in the students' learning process. To promote an innovative type of education based on the synapses, the inter-methodological practices must constitute a minimum number of characteristics such that each one that is counted covers a particular learning need. It seems impractical to consider that a single dynamic can cover all the needs of the students at a particular point in the learning process since it is developed over a certain period of time. Yet, we do wish to emphasize that the greater the

number of characteristics covered, the more relational in nature the dynamic will be and the more possibilities it will have to achieve a more complete learning. We considered the following indicators:

- Clear
- Collaborative
- Collective
- Creative
- Challenging
- Stimulating
- Facilitating
- Centered on process
- Metacognitive
- Motivating
- Multidirectional
- Multimedia
- Multisensory
- Transvergence

Part 3: the dynamics must also facilitate the development of a wide range of media skills and competences necessary for achieving educational empowerment. We again took as a base a set of aspects that cover the Relational Factor as applied to Media Literacy in the classroom without losing sight of the control of the knowledge, skills and attitudes related to the competences described previously. The students were asked to assess quantitatively whether each dynamic enabled them to acquire various skills directly linked to their participation in and interaction with media, information and ideas, and with other interactive partners in the learning process and emphasized the increase in their aptitude to analyze and express themselves.

The responses to the questions were rated on a scale of 1 to 10, with a score of 10 being the highest or most positive and 1 the lowest and most negative. The responses were anonymous in order to encourage participation and guarantee confidentiality. Also considered in the tally were those questions left unanswered or scored incorrectly or erroneously, as well as the importance of giving an honest response and one based on a personal point of view.

3.2 Limitations

Our research has some limitations. We measured the opinions of students but not their motivations in any great depth. We were aware of the subjective nature of the study but we were more interested in the students themselves as protagonists of their own learning process.

Other limitations:

- This is a very small specific group (17 students) and the results cannot be extrapolated. The cohort varies in age, background and experience in communication and education.
- The questionnaire was designed by us based on a review of the literature and consultation with experts on the subject, but it has not been validated.
- The results have not been compared over consecutive academic seasons. We have not considered possible differences in gender, age or education.

We have not taken into account the positive or negative patterns that the students might generate.

Rate the extent to which you developed each of the following skills or competences.
1. Selection of online content
2. Analysis of content
3. Comprehension of the content
4. Classification of content
5. Personalization of content
6. Critical construction of content
7. Development of multimedia products
8. Exploration of cyberspace
9. Construction of your digital identity
10. Implementation of the processes of investigation
11. Creation of ideas
12. Independence
13. Critical thinking
14. Critical reflection
15. Feedback
16. Self-management freedom
17. Decision making
18. Collaboration with the group
19. Construction of external relationships
20. Interaction with your peers
21. Interaction with media

Table 2: Part 3 of Questionnaire.

4 Results

We can state that the 2.0 inter-methodological practices enable students to acquire fundamental media competences and that their learning is enhanced by empowerment. Our analysis is based around the following aspects:

- Dynamics designed on the principle of uncertainty.
- Development of the student's critical thinking.
- Advances in self-learning and autonomy.
- Positive influence of endogenous and exogenous relationships.
- Incidence of creativity in motivation.
- Collaboration as a fundamental aspect of learning.

In general, the results of the questionnaires showed that the students consider the experience as very positive since the average scores in terms of their own activity or the dynamics were high.

4.1 Section 1

The chart (Table 3) shows that the students consider their participation and involvement as highly positive. The median score for these aspects is very high (8.5) and most students consider their participation as very positive (Mode: 9). Collaboration with their colleagues is also highly ranked. Most of those polled positively valued their contributions in the exchange of relevant information among colleagues for the development of the dynamics. In terms of their involvement in the development of the capacity for critical analysis of messages, the students were clearly satisfied, with all scoring this aspect above 7. These data take on more importance in number 5 in which the students consider whether the information analyzed has been exchanged and distributed among the group in a fluid way: more than half scored between 9 and 10 for this aspect, and the median reaches 8.5. Only a single student believed that his/her involvement was insufficient. The students fully appreciated the extent of their involvement in the organization and management of the micro-community, with mode and median marking a score of 9.

	$\bar{x}$	M_e	M_o
Q1. Extent of participation in information searching	8.35	8.5	9
Q2. Extent of interpersonal collaboration	8.76	9	9
Q3. Extent of information distribution	8.47	9	9
Q4. Extent of analysis of shared material	8.52	8	8
Q5. Extent of exchange of reflections	8.29	8.5	9
Q6. Extent of contribution to the organization of the group	8.52	9	9

Table 3: Questions

4.2 Section 2

We described the distribution of the scores and the frequencies of each of the practices according to the impressions given by the students, and these are ordered by category and absolute frequency. This enables us to recognize the value of the mode with greatest frequency and those which are most significant. The format of the questionnaire was a multiple choice response so the student can mark various categories, and we have taken into account the percentages accumulated by number of votes.

We considered categories to be those indicators that define an inter-methodological task, and we proposed these dynamics at different moments of the learning process so that we expected the activities to be classified on the basis of different categories.

We observe in Figure 1 that the first dynamic presented during the course scored in all the categories except *collective* and *facilitating.* The students emphasized three categories above the rest: *stimulating, creative* and *motivating.* Certain values are confirmed since this is an individual dynamic for stimulating student creativity with the aim of enhancing motivation for future practices.

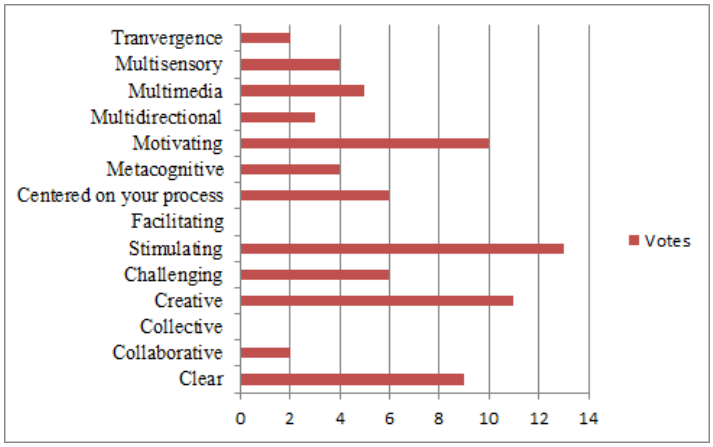

Figure 1: classification of practice 1. My experience as a clone.

Figure 2 shows that collaboration is the main quality the students see in the dynamic for creating a digital magazine, followed by *collective, stimulating* and *multidirectional*. We also highlight the fact that all the categories have scored, which indicates that the practice covers a greater number of features, meaning that it has greater utility for the students.

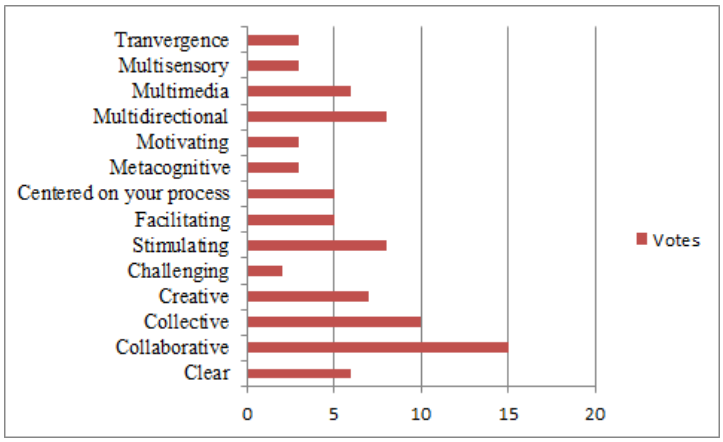

Figure 2: Classification of practice 2. Create a digital magazine.

The categories referred to in practice 3, which consisted of the group creating a contents guide based on problem-solving, show the highest values with a very low difference margin. The *collaborative, collective* and *challenging* categories are those that score highest. What stands out is that all the categories are valued and the small difference between the first six categories, whose frequency ranges between 4 points.

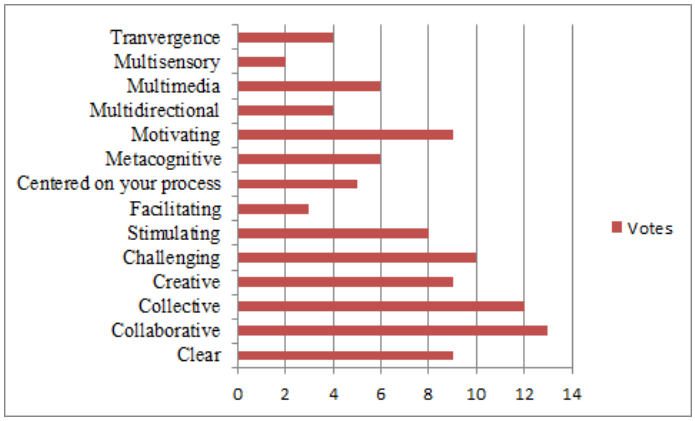

Figure 3: Classification of practice 3. Create a contents guide.

We observe in practice 4 that although 11 students deem it to be *challenging,* and this is the mode with greater frequency, the next five categories are voted for equally (9 votes). This practice was also considered to be quite complete and all the categories scored. After *challenging,* the most significant categories were *collaborative, creative, stimulating, metacognitive* and *motivating*. This practice dealt with the production of an online multimedia product and it is surprising that the *multimedia* category did not score higher. We deduce that other aspects seemed more relevant to the students.

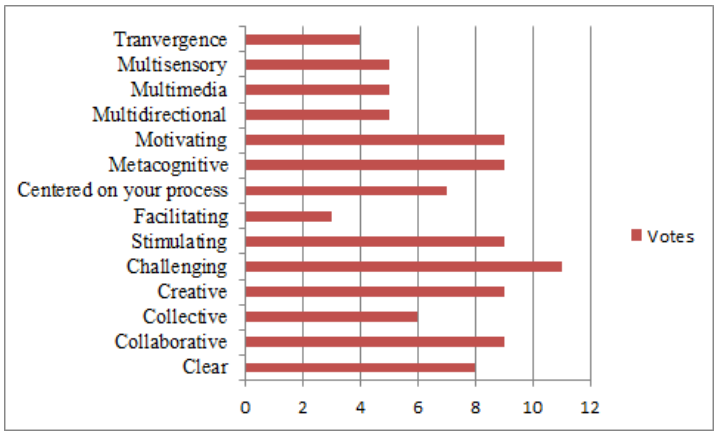

Figure 4: Classification of practice 4. Final practice.

4.3 Section 3

As in the second part of the questionnaire, we consider that the dynamics must also facilitate the development of a wide range of media skills and competences to reach a

state of educational empowerment. We again take as a base a set of aspects that cover the Relational Factor as applied to Media Literacy in the classroom.

We used a table format to put the data in order, organized in such a way that the arithmetic averages and mode obtained in the four dynamics were classified by the competence or skill acquired, so that we observe the extent to which the practices influenced or facilitated the acquisition of each of the skills. We also present the total average and mode of the four activities to show more clearly whether the students considered they are more competent in that skill throughout the course regardless of the time span or moment in which it might have contributed more to the process.

The students generally considered this influence to be very positive. The averages, regardless of the dynamic or skill, ranged between a minimum of 7.53 and a maximum of 9.50. We have not taken into account a score of 5.64 and two of 6.88 as they refer to competences of collaboration and interaction with a group in a dynamic (Practice 1) of individual reflection.

In Table 4 (the average and mode of competences per practice), the scores refer to the various skills directly linked to student participation in and interaction with media, information and ideas as well as with other interactive partners in the learning process, emphasizing the increase in their expressive and analytical aptitude. Analyzing student perceptions, we see a notable improvement in their skills (1, 2, 3, 4, 8, 13 and 14) as persons who confront, relate to and interact with messages and content in a digital setting.

Although the total average is high, numbers 13 and 14 stand out in that their mean rises during the course to 9.08 and 9.12, respectively. We can therefore state that skills such as identifying, interpreting, evaluating, analyzing, understanding, synthesizing, interacting, managing, thinking or discovering information in the media in a critical way have all enabled students to establish individual synaptic relationships and contributed to their media literacy.

In terms of the expression and production of messages and information, other skills are deployed (skills 5, 6, 7, 9, 15, 18, 19, 20 and 21).

The trend, in terms of the possibilities that the subject has given them to interrelate and express themselves via different media and screen simultaneously, is the same. The scores are very high and we emphasize the competences that refer to the construction of relationships with media and especially with course colleagues, which score an average of 8.98 and 9.08, respectively. We interpret that the creation of links between different nodes inside and outside the community in the various virtual spaces has been very high. This has generated a degree of socialization which is crucial for creating ideas and content online.

It can be deduced that the students have not only understood how to use media and interact with it to extend their own mental capacities, they have also assimilated how to handle these communication tools, how to select and transform messages and how to use these relationships that they construct between different ecosystems in order to enrich their own learning.

Skills	Practice 1	Practice 2	Practice 3	Practice 4	Average	Mode
1. Selection of content on the Net	7.56	9.41	9.12	8.89	8.74	10
2. Content analysis	7.65	8.59	9	8.94	8.54	10
3. Understanding of content	8.12	8.88	9	9	8.75	9
4. Classification of concepts	8.06	8.76	8.71	8.94	8.62	9
5. Personalization of content	9.18	8.41	9	9.18	8.94	10
6. Critical construction of content	8.82	8.47	8.70	9	8.75	9
7. Development of multimedia products	8.37	7.53	8.53	8.69	8.28	9
8. Exploration of cyberspace	8.06	9.05	9.29	9.17	8.89	10
9. Construction of your digital identity	8.64	8.76	8.64	9.05	8.77	10
10. Implementation of research procedures	8.05	8.47	8.76	9	8.57	9
11. Creation of ideas	9.29	8.11	9.23	9.05	8.92	9
12. Autonomy	9.35	8.82	9.23	9.11	9.13	10
13. Critical thinking	9.43	8.88	9.11	9.05	9.12	10
14. Critical reflection	9.5	8.70	9.11	9	9.08	9
15. Feedback	8.05	8.35	8.70	8.94	8.51	9
16. Freedom of management	9.17	9	8.76	8.88	8.95	9
17. Taking decisions	9.05	9	8.76	8.88	8.92	9
18. Collaboration with the group	5.64	8.70	9.05	8.82	8.86	10
19. Construction of external relationships	6.88	8.93	8.88	8.70	8.35	10
20. Interaction with course colleagues	6.88	9.31	9	8.94	9.08	10
21. Interaction with media	8.68	9.29	8.88	9.05	8.98	9

Table 4: Averages and mode of the competences per practice.

5 Conclusions

The aim of this study was to assess the impact of inter-methodological practices in the teaching and learning processes in a course subject, and to demonstrate the viability of acquiring media competences in order to learn how to move within the new discursive paradigms of the new media through the mediation of relational Media Education dynamics. The conclusions of this study draw on those aspects and factors which show that, from the students' viewpoints, processes have occurred that benefited their learning.

We can confirm that the inter-methodology used in this course helped them to enhance the fundamental media competences needed to construct collective intelligence and participate in creating knowledge. We also observed that the horizontal social processes, collaboration and interaction, boosted their contact with media to the point where they were able to create their own new multimedia products.

In terms of communication, we can conclude that the students were able to consume a great deal of the course content and messages through group collaboration, searching, selecting and disseminating information. These interactions with media and their colleagues enabled them to develop their own media competences. We can verify that strengthening the participative dimension of communication positively influenced the relationships created with media and their peers, which also mediated favorably in their learning. This participation promoted endogenous and exogenous relationships among the various actors in the process, and the students' evaluations show that the creation and maintenance of synaptic relationships (analysis and reflection), nodal relationships (collaboration and organization) and media relationships (information searches in the Net and distribution) played an important role in their acquisition of media competences and, consequently, in their active empowerment and transformation into critical and creative subjects.

The analysis done based on the students' responses to the questionnaire, corroborate the hypotheses posed at the start of this investigation:

- The student has been able to overcome the uncertainty inherent in interacting with media and has sought strategies to develop his/her critical thinking and to solve problems.
- The practices have stimulated autonomy and self-learning to the point where students can produce their own content and be coauthors and creators of information.
- Knowledge has been generated indebted to a high degree of interaction of all types.
- Creativity, socialization, emotions and the general development of social skills through group work has had a positive influence on learning.
- These relational and collaborative aspects have converged to facilitate the construction of knowledge in an active and critical way, based on common interests and the creation of multimedia products.

We believe that the union of all these factors has led to the creation of an inter-methodological relational Media Literacy model for an education that is horizontal, decentralized and multidirectional which could be implemented in the 21st century.

Acknowledgements

This research has been carried out by the Communication and Information Research Group (GICID) of the Government of Aragon (Reference S-115) with funding from the European Social Fund. The authors would like to acknowledge that the GICID has provided financial support for the research.

The authors wish to thank Dr. Roberto Aparici and all the students who were involved in the project for their invaluable sharing of their reflections and experience.

References

[Aparici 13] Aparici, R.: "Educomunicación digital". In Aranda, D., Creus, A. and Sánchez Navarro, J., editors, *Educación, Medios y Cultura de la Participación*, pages 103-118. Editorial UOC.

[Bauman 07] Bauman, Z.: "Liquid Times. Living in an age of uncertainty"; Polity Press, Cambridge.

[Boyd 14] Boyd, D.: "It's complicated. The social lives of networked teens"; Yale University Press.

[Cloutier 75] Cloutier, J.: "L´ère d´EMEREC ou la comunication audio-scripto-visuelle à l´heure des self-media"; Les Presses de L´Université de Montreal.

[Cope and Kalantzizs 09] Cope, B. and Kalantzizs, M.: Ubiquitous Learning. An agenda for educational Transformation. In Cope, B. and Kalantzizs M., editors, *Ubiquitous Learning*, pages 3-14. University of Illinois Press. Retrieved November 2015 from: http://www.networkedlearningconference.org.uk/past/nlc2008/abstracts/PDFs/Cope_576-582.pdf

[UNESCO 96] UNESCO: "Learning: the treasure within. Report to UNESCO of the International Commission on Education for the Twenty-first Century". Retrieved February 2016 from: http://unesdoc.unesco.org/images/0010/001095/109590eo.pdf

[Echeverría 99] Echeverría, J.: "Los señores del aire: Telépolis y el tercer entorno"; Destino.

[Ferrés and Piscitelli 12] Ferrés, J. & Piscitelli, A.: "Media competence. Articulated Proposal of Dimensions and Indicators", *Comunicar*, 38 (2012), 75-82. Doi: http:77dx.doi.org/ 10.3916/C38-2012-02-08

[Freire 70] Freire, P.: "Pedagogy of the oppressed": Bloomsbury.

[Gabelas et al. 13] Gabelas-Barroso, J.A., Marta-Lazo, C. and Hergueta-Covacho, E.: "El Factor R-elacional como epicentro de las prácticas culturales digitales". In Aranda, D., Creus, A. and Sánchez Navarro, J., editors, *Educación, Medios y Cultura de la Participación*, pages 351-374. Editorial UOC.

[García Matilla 02] García Matilla, A.: "Educomunicación en el siglo XXI", Retrieved May 2015 from: http://www.uned.es/ntedu/asignatu/7_Agutin_G_MatillaI1.html

[Goleman 06] Goleman, D.: "Social intelligence. The new science of human relationships"; Bantam Dell.

[Hergueta 2015] Hergueta-Covacho, E.: "¿Cómo medir la intermetodología? Creación del cuestionario de Impacto Intermetodológico". In Peinado Miguel, F., editor, *Formación, perfil profesional y consumo de medios de alumnos en Comunicación*, pages 147-160. Cuadernos Artesanos de Comunicación, 77. Sociedad Latina de Comunicación Social.

[Jenkins 06] Jenkins, H.: "Convergence Culture: where old and new media collide". New York University Press.

[Marta and Gabelas 13] Marta Lazo, C. and Gabelas Barroso, J.A.: "Intermetodología educomunicativa y aprendizaje para la vida", *Comein. Revista de los estudios de Ciencias de la Información y Comunicación*, 22 (2013), Retrieved April 2015 from: http://comein.uoc.edu/divulgacio/comein/es/numero22/articles/Article-Gabelas-Marta-Lazo.html

[Marta et al. 13] Marta-Lazo, C., Gabelas-Barroso, J.A., and Hergueta-Covacho, E.: "Phenomenological features of digital communication: interactivity, immersion and ubiquity", *Sociedad de la Información*, 44 (2013), 169-193. Retrieved April 2014 from: http://www.sociedadelainformacion.com/cost_2013/specialissue_44.pdf

[Marta and Grandío 13] Marta Lazo, C. and Grandío, M.M.: "Análisis de la competencia audiovisual de la ciudadanía española en la dimensión de recepción y audiencia",

Communication & Society, XXVI, 2 (2013), 114-130. Retrieved November 2015 from: http://www.unav.es/fcom/communication-society/es/articulo.php?art_id=450

[Siemens 06] Siemens, G.: "Knowing Knowledge": Retrieved January 2015 from: http://www.elearnspace.org/KnowingKnowledge_LowRes.pdf

[Vigotsky 88] Vigotsky, L.: "El desarrollo de los procesos psicológicos superiores", Editorial Crítica.

[Wilson et al. 11] Wilson, C., Grizzle, A., Tuazon, R., Akyempong, K. and Cheung, C.: "Media and Information Literacy. Curriculum for teachers", UNESCO, Paris, France (2011). Retrieved December 2015 from: http://unesdoc.unesco.org/images/0019/001929/192971e.pdf

[World Health Organization 93] World Health Organization: "Life skills education for children and adolescents in schools. Introduction and guidelines to facilitate the development and implementation of life skills programmes". Retrieved Nov. 2014 from: http://whqlibdoc.who.int/hq/1993/MNH_PSF_93.7A.pdf