

Inequality in ICT Access and its Influence on Media Competency

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Abstract: Modern societies no longer focus their efforts only on the use and access to ICT, now they study the dimensions and criteria needed for a person to be considered media competent, yet a difference can be seen in the degree of competence depending on the technological access of said person. This research aimed to identify whether inequality in the use and access to ICT as to the variables: institutional funding and age influence the degree of media competence of students and faculty. Surveys were applied to high school students and teachers in Southern Ecuador, and by measuring the level of media competence through six dimensions, it was possible to observe that the level of students and their teachers competence did not vary significantly according to the type of school funding, be it private, public or co-financed even though private and co-financed schools have greater access to ICT. The results on the student's degree of media competence according to their type of school funding, leads us to assume that students in private schools are not taking advantage of the ease of access to ICT as they should, much work needs to be done not only in the field of education, or in the efforts to implement technological tools, it also entails working hard at motivation for effective use of ICT, create dialogue spaces so that together teachers, parents and teens know the proper use of ICT and how this can enhance their social participation in a world increasingly digitized.

Keywords: Media Literacy, Information and Communication Technologies (ICT), Media Competence, Digital Divide, Inequality.

Introduction

While some Western or European countries, as in the case of Spain, make proposals to include digital literacy as a subject in the school curricula from elementary to higher education, or tend to incorporate tablets in the classroom and introduce the BYOD model (Bring Your own device) in which teachers and students bring their own device to the classroom in order to access educational resources (Area et al. 2014, 31-32); the governments of other countries, including many in Latin America make efforts to provide the majority of their population with access to information and communications technology (ICT) and reduce the digital divide. The Community of Latin American and Caribbean States, CELAC, plans "to promote cooperation to enhance the use of ICT for education, science, technology and innovation" (Community of Latin American and Caribbean States 2015, 5).

Ecuador within its Plan Nacional para el Buen Vivir 2013-2017 (National Strategic Plan for Good Living 2013-2017), proposes "Strengthening the capacities and potential of citizens". Among its strategic guidelines is to improve the quality of education at all levels and modalities for the generation of knowledge and the integral formation of creative, supportive, responsible, critical, participative and productive individuals (Secretaría Nacional de Planificación y Desarrollo - Senplades 2013, 159-162). The Ley Orgánica de Educación Intercultural (Organic Law of Intercultural Education), LOEI, in Ecuador commands "Ensuring digital literacy and the use of information technology and communication in the educational process, and promote the education link with productive or social activities" (Ley Orgánica de Educación Intercultural 2011, 12). The Ministry of Telecommunications and Information Society, through its strategic plan for ICTs research, development and innovation aims to increase the use of ICT and the number of citizens digitally included (Ministerio de Telecomunicaciones y de la Sociedad de la Información del Ecuador 2014).

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However, the challenge of integrating ICT is not only to furnish schools or students, which is important to reduce the digital divide considering only access. What currently arises is the existence of at least three digital divide: the access gap, the quality use and the differences between what the school offers and the students' expectations. These gaps occur both among countries and within them and in their education systems (Lugo et al. 2014, 33).

This research aims to determine whether the inequality in access and use of ICT at high school influences the degree of media competence in teachers and students. For the analysis we considered the type of support of educational institutions, which are classified according to their primary source of funding, be it public, private or co-financed (Asamblea Nacional del Ecuador 2008, 160; Ley Orgánica de Educación Intercultural 2011, 25-26), being understood: public, which are divided into state and city funded schools. Co-financed are those schools whose promoters are congregations or any other religious or secular organization these Educational Institutions (EI) have full or partial state funding. Private institutions are established and managed by individuals or corporations of private law. Education in these EI can be religious or secular (Ministerio de Educación del Ecuador 2013, 8).

Theoretical Framework

From ICT use to media competence

Internet has allowed to integrate the media communication that comes from large corporations, with individuals and small groups' communication. As a result, when students and teachers incorporate ICT into their educational practices, they "are also learning about performance and media structure, and so they move forward in their communication skills "(Pérez 2012, 11). The ICT incorporation to education in Latin America and the Caribbean has been conceived as a priority to reduce the digital divide in turn to encourage students to acquire competences and cognitive skills (Sunkel, Trucco and Espejo 2013, 11).

Lazo, Grandío and Gabelas (2014) conceptualize Media Education as "the discipline that addresses the common ground where communication and education come together in a hybrid and convergent fashion, in order to work education for media and media for education" (64); as a result one has media literacy, defined by Buckingham (2003, 4) as the set of knowledge and skills acquired by the students product of media education, it revolves around the development of critical and creative abilities of young people. Moreover García Gozávez and Aguaded (2014, 17) conceive digital media literacy as the most rigorous and accurate means to address the challenges posed to education in the digital age.

Further research on this topic shows a broad, conceptual and terminological discussion about media literacy, Dornaletche, Buitrago and Moreno (2015) confirm that it "covers a range of literacies beyond the long-awaited acquisition of digital competence" (178). They choose to understand education as a process, literacy as a result and competence as a set of skills that should be developed to achieve said result. Thus they decided to add two labels to each of the three terms, the digital label when something is only in this field, and media if it relates to the realm of media education. So in order to achieve media literacy, first we need to possess media competence.

If media competence is focused on communication and education as a goal to be achieved, in it would converge several lines of study. For Perez and Delgado (2012) "the development of media competence would open the way to a school based on critical thinking, cooperation and dialogue, management and production of new knowledge, the functionality of learning, tolerance and diversity" (26).

The Digital Divide and Inequality in Education

Berrio and Rojas (2014, 133) termed "digital divide" to the situation that arises from the division between the communities that actually appropriated the growth and integration of communication technologies and those that do not. Alva de la Selva (2015, 277) after a historical and conceptual

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analysis of the digital divide as a "new inequality" treats it as a multidimensional phenomenon, comprised of six areas: economic, political, cultural, cognitive, technological and social. On the later appears the digital age gap, emerged between digital "natives" and digital "migrants", among others. She also conceived the concept of digital divide as changing and for constant review, to be understood from a holistic view (278).

Braig, Costa and Göbel (2015, 212) define inequality as the distance between the positions of individuals and groups in the hierarchy of access to socially important goods. On education inequality in the Americas, Blackwell and Duarte (2014, 127) point out that with the expansion of access to electronics and ICT, runs the risk of deepening exclusion, because acquisition is a means of social integration, while the opposite is interpreted as a form of exclusion. Quiroz (2014, 67) goes even further and claims that children and teenagers from families in which image interpretation is encouraged, the exercise of the mind and the development of multiple skills are not the same to those from urban - marginal and country families where domestic violence is more common, intellectual stimulation lower and parents education limited.

The great differences that persist between countries and within them cannot be concealed, it is clear that not all students have ICT access, in addition to the digital divide gap are other gaps: socio-economic, geographical, in education systems, and between socially disadvantaged groups (Sunkel, Trucco and Espejo 2013, 40-52). Traditionally in Ecuador private schools have invested more funding resources in ICTs. Therefore:

H1a: Media competence of high school students is higher in private schools than in public or co-financed ones.

H1b: Media competence of high school faculty is higher in private schools than in public or co-financed ones.

If we look again at the age digital divide, Ferrés, Aguaded and Garcia (2012, 39) in the results of their study on the degree of media competence in Spanish citizens, identified that "the gaps are less extreme in young people and adults and much more pronounced in older people." It's no wonder that sometimes young people seem to use and better implement new technology tools, teachers feel the need to be updated faster; school as an institution needs a change, teachers also need to change their mentality (Gabelas, 2007, 71). The author further reiterates that "The audiovisual and multimedia literacy of the teaching staff is a pending subject prior to the youth literacy itself" (71). Considering that the age gap among the students is shorter than among faculty:

H2a: Age has not significant influence on high school student's media competence.

H2b: Age has an inverse influence on high school faculty's media competence.

Methodology

This is an inductive study of correlational scope. Through a literature review and an overview of regulations and context, it was possible to study the facts and learn about the relationship or degree of association between different educational establishments considering their sustainability and the degree of media competence of their students and teachers, and in turn identify if inequality in ICTs use and access determines the level of competence. The research aims to specify characteristics and traits of the inequality phenomenon and its impact on the degree of competence analyzed, i.e. the correlational scope in this study describes the research variables and then establishes relationships between them.

To measure the degree of media competence from a quantitative approach two questionnaires were applied to students and teachers. These questionnaires have been previously used and evaluated in the framework of the Ecuadorian project promoted by the Universidad Técnica Particular de Loja, UTPL, called "media literacy in young people, teachers and parents of public and private educational institutions in Ecuador." Most of the time the questionnaires were filled online at high school laboratories, although sometimes it were delivered in print, because some educational institutions did not have internet or the connection was faulty.

The questionnaires were built on Ferrés and Piscitelli's (2012, 79-81) proposal, they suggest that media competence is about the mastery of knowledge, skills and attitudes related to six basic

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dimensions: languages, technology, aesthetics, interaction processes, production and broadcasting processes, and ideology and values. Herein are based the main indicators in the analysis and expression areas that serve as a basis for the study and results inference. It should be noted that several researchers have used Ferrés and Piscitelli’s dimensions to analyze the degree of media competence, or to contrast, extend or analyze on the subject (Dornaletche, Buitrago, and Moreno 2015, 178; Garcia, González, and Aguaded 2014, 18; González, Gozávez, and Ramírez 2014, 122).

The questionnaire was applied to 707 students and 355 teachers from public, private and co-financed high schools in the city of Cuenca, southern Ecuador. The sample was proportionally distributed among the three types of schools studied, because of the potential importance of the socio-demographic composition of their students as well as the financial resources of the institutions in the results. The students’ sample were aged between 14-18 years and were enrolled in the last four years of high school, their teachers composed the teachers’ sample (Table 1).

Table 1. Profile of students and teachers sample

<i>Students Gender</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Teachers Gender</i>	<i>Frequency</i>	<i>Percentage</i>
<i>Female</i>	394	55,7	<i>Female</i>	185	52,11
<i>Male</i>	313	44,3	<i>Male</i>	170	47,89
<i>Students Age</i>			<i>Teachers Age</i>		
<i>14</i>	155	21,92	<i>From 21 to 30</i>	61	17,18
<i>15</i>	204	28,86	<i>From 31 to39</i>	77	21,69
<i>16</i>	169	23,9	<i>From 40 to 49</i>	106	29,86
<i>17</i>	118	16,69	<i>From 50 to 59</i>	102	28,73
<i>18</i>	61	8,63	<i>From 60 to 71</i>	9	2,54
<i>Type of school</i>			<i>Type of school</i>		
<i>Public</i>	374	52,9	<i>Public</i>	152	42,82
<i>Private</i>	251	35,5	<i>Private</i>	168	47,32
<i>Co-financed</i>	82	11,6	<i>Co-financed</i>	35	9,86

Source: González – Ugalde, 2015.

The data was processed and analyzed using SPSS. A univariate analysis was performed using descriptive statistics such as frequency tables and measures of central tendency and dispersion. A bivariate analysis was conducted through contingency tables including Chi Square. The significance level was 0.05.

Results

The applied questionnaires to students and teachers measured their degree of media competence each with 34 two point questions, covering the six dimensions proposed by Ferrés and Piscitelli (2012, 79-81), though not always the same indicators were used, so analysis is not done on a comparative basis. Also the order of the questions and the contents thereof were different.

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No missing values were obtained in the results, since the digital survey for students and teachers, must be answered in full in order to be sent, which is why those printed surveys that were incomplete were nullified since they could not be accepted by the digital system, which casts the information to a database exportable to Excel and SPSS.

Students' Results

The highest score students could get was 68 points. Table 2 shows that students in private schools achieved the highest rating 34.10 / 68 which is only half of the total possible; although in all cases it is observed that the data are scattered as indicated by its standard deviation, and the maximum score achieved is 55/68, which equals to 80.9% of the possible mark.

Table 2. Descriptive results of students by different types of schools.

<i>Type of School</i>	<i>Mean / 68</i>	<i>Standard deviation</i>	<i>Max. score</i>	<i>Min. score</i>
<i>Public</i>	32,60	6,480	51	15
<i>Private</i>	34,10	6,649	55	15
<i>Co-financed</i>	30,38	5,959	47	19

Source: González – Ugalde.

The overall results obtained in the studied dimensions provide support for H1a because the highest level of media competence reached is 50.15% in private school students, followed by 47.94% in public school students and 44.67% in co-financed school students (Table 3). Nonetheless final results show no significant difference between the degree of media competence of students from different types of school funding; gender shows no significant differences either, where male students (49.06%) have slightly higher results than female students (47.82%). H2a is supported considering that results by age difference point to a general tendency to better performance in older than younger students but said difference is not significant. However, significant results were observed in certain dimensions in terms of type of institutional support (private, public or co-financed), gender or age of the respondents.

Table 3 also reveals that the dimension with better results is aesthetics, which along with language and technology, get results above average in all three types of educational institutions; while the other categories are less successful than average, within which the poorest results correspond to the category of production and broadcasting.

Table 3. Students' results in all dimensions by types of school.

<i>Dimension</i>	<i>Public</i>	<i>Private</i>	<i>Co-financed</i>
<i>Language</i>	57,06	59,80	50,70
<i>Technology</i>	58,12	59,63	54,27
<i>Reception and interaction</i>	41,62	44,30	40,08
<i>Production and broadcasting</i>	25,97	35,72	19,93
<i>Ideology and values</i>	44,68	42,39	41,25
<i>Aesthetics</i>	60,20	59,05	61,78

Average percentage

47,94

50,15

44,67

Source: González – Ugalde, 2015. Note: Results are expressed as percentages achieved.

Does having more computers affect the degree of competence?

In 2013 the ratio of the number of elementary and high school students with internet access in the urban area of the city of Cuenca, regarding the number of computers was uneven, considering the type of funding: Private, public and co-financed, as can be seen in Figure 1.

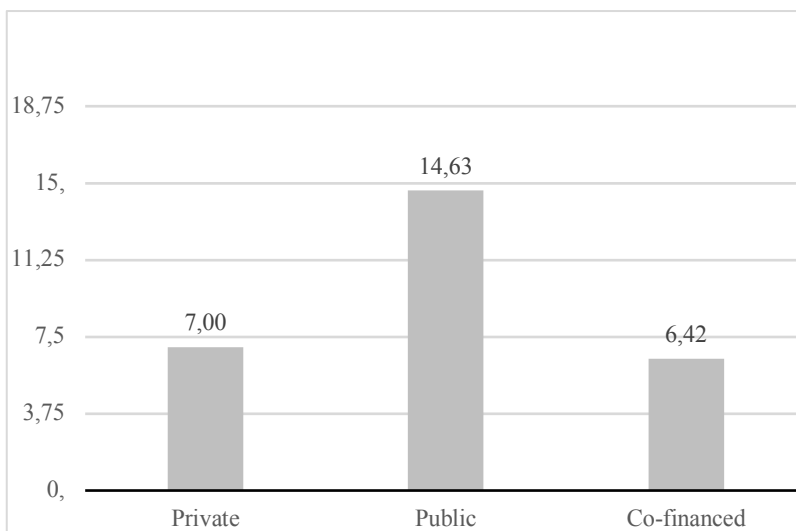


Figure 1. Ratio of the Number of Students per Computer
Source: Azuay's 6th Coordination Zone of Education (2013).

Although private and co-financed schools have less students per computer, the overall difference in their media competence is not significant even though private school students show better results.

Students' results for each dimension

Language dimension

Analyzing concrete results of the different dimensions, it is noted in the language dimension that not all types of schools have equal performance ($p=0.003$), and that students of co-financed schools perform an average of 9.1% lower than students of private schools, especially in a question in which students were presented with numbered images that needed to be sorted in order to determine whether they were able to build a visual narrative ($p < 0.001$), in which students from co-financed schools scored 7.3% while students in public schools scored 13.1% and 24.3% private schools. Although younger students obtain lower results, as well as female ones, these results are not significant and are consistent with the general trend of the results.

Technology dimension

In this dimension no overall significant data was obtained by the type of institutional funding, age or gender of respondents, although some of the partial results are significant, such as the question that identifies the knowledge that students have about different technologies ($p < 0.001$), where

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private school students outperform with about 10% to public schools students and with more than 15% to co-financed school students.

It stressed that despite the differences between accesses to media resources for students of schools with various kinds of founding, differences in the overall results of the technology dimension are not high, especially among students of public and private schools as shown in Table 3.

Reception and interaction dimension

This dimension is the most extensively studied through 14 questions, in which we can observe in regard to different types of schools ($p = 0.016$) a slight edge on the results of private schools students (44.30%) compared to public (41.62%) and co-financed (40.08%) ones. Age is not significant in this category, and in terms of gender ($p = 0.020$), men outperform (44.74%) women (40.53%), although in both cases the results are below 50%.

Among the significant responses in this category the poorest score comes from the question regarding the students participation in social and / or political issues through technologies ($p = 0.041$), in which co-financed schools students achieve 12.2%, followed by public (14.7%) and private (21.5%) schools students. Interaction is also evaluated through questions that seek to know whether students have reported or complained about media broadcasted or Web content ($p < 0.001$), where students from the three types of schools score higher than in the previous question (public schools 20.3%; private 42.9% and co-financed 20.7%).

Both aforementioned questions have simple answers in the affirmative or negative and in both private school students get the highest score. On the other hand, when queried about how they participate in social and / or political issues ($p = 0.001$), and specific options are provided such as spreading through social networks relevant information about the individuals' rights, or through active participation in forums organized to discuss important issues to citizens, students of private schools obtained lower scores (23.5%) than those of public (34.6%) and co-financed (37.2%) ones.

Production and broadcasting dimension

This is the worst evaluated dimension, in which significant differences were observed regarding the kind of funding the school has ($p < 0.001$), where students from private schools (35.72%) outperform those of public (25.97%) and co-financed (19.93%) schools with a pattern that stays consistent in the three questions used to assess this dimension. This is the only dimension with significant results in terms of age ($p = 0.006$) in which younger students (14 and 15) have the lowest performance while by gender ($p = 0.003$) female students get slightly better results than male ones (29.43% females to 27.87% males). Female students score better (48%) than males (40.4%) on the question regarding knowledge of the definitions of various media professionals, including: trend hunter, community manager, Web master or screenwriter ($p = 0.003$).

This dimension which gets the lowest scores in the study has along with the aesthetics dimension, the least amount of questions (three), also these questions have a higher degree of difficulty than many of the other and it requires a higher level of awareness as explained in the question on the knowledge that students have of various definitions of communication professionals ($p = 0.003$), or in the question that required that with five out of seven images the student develop a visually well told story ($p < 0.001$), question in which students from co-financed schools get really low scores (7.3%) followed by public (13.1%) and private (24.3%) students. The last question assessed in this category required students to arrange seven steps needed to film a video ($p = 0.006$). Students from private schools obtained the best scores (32.3%), followed by public (21.9%) and co-financed (18.3%) ones.

Ideology and values dimension

The overall results of this dimension have no significance in relation to the type of institutional funding, age or gender of respondents. However, some questions have significant data, for example, the one about the steps taken by students for Internet search ($p = 0.003$), where, despite having greater access to technological resources, private school students receive lower scores (35.1%) than public (46.5%) and co-financed (52.4%) ones.

Aesthetics dimension

As for the aesthetic dimension, although it is evaluated with only three questions, the results obtained by students from different types of schools ($p = 0.034$) are on average higher among all the evaluated dimensions (Table 3), and this is the only dimension in which co-financed school students obtained the best score (61.78%) followed closely by public (60.20%) and private (59.05%) ones. Age is not significant in this dimension, but gender is ($p = 0.014$), since female students scored 61.08%, followed not far by male students with 58.58%.

Teachers’ results

As for the results of teachers, they could also get a score as high as 68 points, and as seen in Table 4, the results show that teachers in private schools achieved the highest rating 39.10 / 68 which is slightly above half of the highest possible score; in all cases it is observed that the data are scattered as indicated by its standard deviation, and the maximum score achieved by teachers is 60/68 which is equal to 88.23% of the highest possible score.

Table 4. Descriptive results of teachers by different types of schools.

<i>Type of School</i>	<i>Mean / 68</i>	<i>Standard deviation</i>	<i>Max. score</i>	<i>Min. score</i>
<i>Public</i>	35,28	8,468	51	14
<i>Private</i>	39,10	8,551	60	14
<i>Co-financed</i>	38,14	9,867	51	17

Source: González – Ugalde.

The overall results obtained by teachers in the dimensions studied, support H1b since the highest degree of media competence is achieved by private school teachers with 60.54%, followed with 59.27% by co-financed school teachers and finally public school teachers with 53.48%, as detailed in Table 5. It was also found that although there are differences between the degree of media competence among teachers from different types of schools, these general data are not significant, nor are results by gender, where there is no major difference between female (57.47%) and male (58.31%) teachers, and neither are significant the overall results by age, nonetheless H2b is supported since younger teachers show higher media competence (61.92%) than older ones (51.60%); however significant results were observed in some indicators of the dimensions as shown below.

Table 5. Teachers’ results in all dimensions by types of school.

<i>Dimension</i>	<i>Public</i>	<i>Private</i>	<i>Co-financed</i>
<i>Language</i>	58,30	69,03	71,42
<i>Technology</i>	54,93	65,35	61,35
<i>Reception and interaction</i>	51,11	58,72	55,95

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<i>Production and broadcasting</i>	37,59	42,19	40,00
<i>Ideology and values</i>	52,99	55,36	54,77
<i>Aesthetics</i>	65,95	72,60	72,13
<i>Average percentage</i>	53,48	60,54	59,27

Source: González – Ugalde, 2015. Note: Results are expressed as percentages achieved.

Teachers' results for each dimension

Language dimension

A detailed analysis of teachers' results show that there are significant differences in performance in the language dimension ($p = 0.006$), and that the highest score is achieved by co-financed school teachers (71.42%) and the lowest by public school ones (58.30%). We must consider that this dimension is evaluated with only 3 out of the 34 questions for the studied dimensions in the questionnaire, although the 3 questions show significant results ($p < 0.05$) in relation to the institutional founding.

In this dimension interesting results are obtained by age ($p = 0.001$), for example teachers 39 years old or younger achieved scores above 70%, while teachers over 50 years old just surpassed 50%. Gender did not prove significant in this dimension.

Technology dimension

In this dimension not overall significant data by the type of school or age of respondents was obtained, however it is the only dimension that presents significant data regarding gender ($p = 0.034$), where the results suggest that male teachers reach 63.56% while female ones 58.06%. Significant results are also found in several questions, such as one that refers to the knowledge that teachers have of the movie maker program ($p = 0.006$), in which private (57.7 %) and co-financed school teachers (54.3%) exceed with over 14% to public school (40.1%) ones, corroborating the overall result, in which the lowest level of media competence goes to public school teachers.

Reception and interaction dimension

In this dimension significant data is observed in relation to the different funding of schools ($p = 0.020$), where following the study's general trend for teachers, a small advantage can be seen in private school teachers' results (58.72%) compared to the co-financed (55.95%) and public (55.11%) school teachers, age and gender are not significant in this category as shown in Table 5.

It is noted that while there is a growing tendency to network with colleagues and other professionals in the education field through digital media ($p < 0.001$), lack of educational activities aimed at research as a webquest ($p = 0.021$), does not provide the reception and interaction for teachers neither improve their media literacy.

Production and broadcasting dimension

This is the worst evaluated dimension for teachers through the eight questions used for this purpose. No overall significant results were observed by the type of institution or gender, but age is statistically significant ($p = 0.048$). The age group worst rated is of those from 50 to 59 years (32.23%), and once again the younger from 21 to 30 years get the best results (45.28%).

The only significant response within this dimension in relation to the type of school is the question that relates to the teachers participation in research projects, innovation or development of teaching materials in media competences ($p = 0.032$), in which the responses are low especially

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for public (15.1%) and co-financed school teachers (17.1%), although private school teachers (26.8%) while outperform the other groups, still show quite low scores on the subject and somehow reflects the poor performance of the overall dimension.

Ideology and values dimension

The overall results of this dimension are significant in relation to the different types of school funding ($p = 0.002$), as noted in Table 5, in which private school teachers have the best result (55, 36%) followed by co-financed (54.77%) and public (52.99%) ones. The results by gender or age are not statistically significant.

Some of this category questions present significant data, for example, which refers to the elements that teachers take into account in assessing the reliability of the information they receive in the media ($p = 0.005$), where private school teachers receive slightly higher scores (55.36%) than co-financed (54.77%) and public (52.99%) ones.

Aesthetics dimension

In the aesthetic dimension, which is evaluated with only two questions, we obtain significant results regarding the different types of school funding ($p = 0.022$), where private (72.60%), co-financed (72.13 %) and public (65.95%) school teachers obtained higher scores than in all other dimensions. Results by age and gender are not significant.

Particularly significant results were obtained in a question about the ability to distinguish aesthetic and artistic trends related to film products ($p = 0.005$) where in accordance with the trend set from the beginning on the results of teachers, private school teachers achieve the best score (72.60%), followed by co-financed (72.13%) and public (65.95%) school teachers.

Discussion

The degree of media competence changes and evolves alongside the increasing access to ICTs, improvements in the infrastructure for a greater connection and new public policies to reduce the digital divide. However, the results of this research show a trend that helps to describe the direct influence of the type of institutional funding, whether public, private or co-financed in the level of digital media literacy of students and teachers and therefore in their degree of media competence.

Inequality in ICT access

Latin America in recent years has joined the global trend in the design and implementation of ICT policy based on the 1 to 1 model. The project aims to implement ICT for classroom teaching in the learning process. The experiences and scope are different in each country (Lugo et al. 2014, 33-34), noteworthy is the position of the Argentinean case, with its *Conectar Igualdad* (Connect Equality), a national program in which the projection by May 2014 was surpassed with 3,981,874 Netbooks delivered, at the time of writing this article the program had 5,317,247 Netbooks delivered (www.conectarigualdad.gob.ar 2016).

The lack of ownership of ICT by not having easy access to technology can affect the degree of media competence of students and teachers, as Kaztman (2010, 22) points, students who attend private schools come of households with high incomes, are more likely to have digital equipment in their homes, teaching at a private institution benefits from students socialized in digitalized environments, but results of this research, in which private school students have in their institutions twice the number of computers per student than in public schools, the overall difference in the degree of media competence is not as significant. The effect of this inequality of resources and access is especially evident in the production and broadcasting dimension (Table 3), it is assumed that private schools students have more equipment at their households. Furthermore, in Ecuador the highest level of digital illiteracy occurs in the poorest groups, especially in rural areas (Secretaría Técnica para la Erradicación de la Pobreza, 2014, 58).

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There is no denying that there is a difference caused by unequal access to resources and technological tools in Ecuador. According to the Encuesta de Condiciones de Vida (Survey of Living Conditions), ECV 2013-2014, access to computers in quintile 5 is 68.1% while in quintile 1 is only 31.5%, according to data from population 12 years or older (Encuesta de Condiciones de Vida, 2013-2014).

The growth of users connected to Internet in 2014 is encouraging for Ecuador. According to data provided by the Internet WorldStats (2015), 84.9% of Ecuadorians use Internet, while in 2011 only 27.2% did so, and therefore Ecuador is among the countries in the region that has grown most in Internet use.

The countries members of the Organización de Estados Iberoamericanos (Iberoamerican Organization of States), OEI, seek to achieve the "Educational Goals 2021" in which they aim to improve the quality and equity in education to tackle poverty and inequality (Organización de Estados Iberoamericanos, 2010, 9). ICT policies have an important role to play in ensuring the commitment made and should not be reduced only to the digital literacy of the population, "but is expected for enhancing the integration of ICT across the teaching-learning process, thus building up modern skills and improving educational achievements of students and teachers" (Lugo et al, 2014, 60).

Teachers and their degree of media competence

New demands on the teaching profession require that teachers be those responsible for the technological literacy of their students and mastery of a variety of skills required in the context of the demands of the society of knowledge (Diaz, 2009, 1).

According to the results of this research, the lowest degree of media competence was presented in public school teachers, a slightly higher level is that of co-financed school teachers, and as in the case of students, the degree of private school teachers is higher. However, as to the production and broadcasting dimension, teachers obtained the worst score through eight questions used for this purpose. We cannot take this as a final result, because it is possible that the results will improve with a reformulation or in deepening of the questions. This should be done for future research.

The overall trend is that teachers improve their degree of media competence and digital literacy, to assist in the development of a reflective and critical attitude to assess both the information and the tools and technological applications available to the students, for which they have platforms, internet portals and educational projects, such as *educarecuador.gob.ec* in Ecuador, *La Caja Digital* in Spain, *Educarchile* in Chile, the portal *educ.ar* in Argentina and *PerúEduca* in Peru, among other systems as Mooc, virtual learning environments *EVA* and Moodle. The platforms provide comprehensive training in the use, understanding, knowledge and critical discernment, for the management and selection of multimedia and multimodal information; as Soep (2012) emphasizes "Technology platforms increasingly organize our lives." (94).

The study of Dornaletche et al. (2014, 177) to measure the level of digital literacy in individuals of different age and educational level in Castile and Leon, Spain reflects a digital competence void even at a younger age, it also found a generational and gender digital divide. In Ecuador Marin Rivera and Celly (2014, 127) in their study about audiovisual competence training of teachers and students in the southern part of the country, found that in some cases students show knowledge of certain tools, that they have learned by themselves and that their teachers are unaware of. We found age is a differentiating factor in students and teachers, older teens and teachers under 40 years have a higher degree of media competence.

ICTs must be integrated into the curriculum across the board, they should be mediators of the learning process. The twenty-first century competences will be the information critical processing, problem solving, creative thinking, and team work, among others (Lugo et al. 2014, 35). Gutierrez (2008, 196) goes further and speaks of "re literacy" (now digitally) to teachers and indicates that their training should include a rethink in all subjects of the curriculum that takes into account the new social reality, as the personal development of citizens in a society of knowledge.

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Díaz (2009, 1) cites that in some studies in countries like Chile, Mexico, Colombia, Spain, "it has been concluded that teachers and students generally use ICT to streamline what they have been doing traditionally," i.e. retrieve and present information, and that a more constructive and innovative use is not given, associated "with complex learning, problem solving, generating original knowledge or collaborative work". She further points out that in our region ICTs will become another factor of inequality that perpetuate the cycle of social and educational exclusion in which many of our children and youth are trapped. In our region the digital divide fails to end, when an issue is solved another arises, we still must address structural problems such as low income, unequal distribution, institutional weaknesses and limited education levels (Dominguez, 2014, 33).

As evidenced by the results, there is very small difference in the degree of media competence that students have by the type of institutional funding, despite the fact that students from private and co-financed schools have approximately twice the chance of access to ICTs at their institutions than students from public schools. It is assumed that they are not taking advantage of that circumstance as they should. This also shows that the level of digital literacy is not only a result of accessing and using it, it is a result of being competent through education and proper motivation for effective use of ICTs.

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