

Education and 'cyberculture': how are the future teachers preparing themselves to lead educational processes aimed to students with partial continuously attention?

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ABSTRACT. This scientific paper aim to show that within curricular matrix of the graduation courses, the supervised curricular internships is presented as a fruitful condition to face the contemporary concerns of the educational field which manifest themselves with the input of the cyber culture. Underpinned in official documents about curricular internship; in studies about teacher training; and, on the concept of 'informational literacy', the scientific paper debate on the following question: How are the future teachers preparing themselves to lead educational processes aimed to students with partial continuously attention? In its conclusions, the scientific paper underscores the importance of the curricular internship in the face of demands of a broadly connected society, especially, with respect to students' reactions of the Basic Education to the stimulus who they receive of the world around they and of the informational world.

Keywords: network society; curricular internship; 'informational literacy'.

Educação e 'cibercultura': como os futuros professores estão se preparando para conduzir processos educativos voltados a estudantes com atenção continuamente parcial?

RESUMO. Este artigo tem como objetivo mostrar que dentro da matriz curricular dos cursos de licenciatura, o estágio curricular supervisionado se apresenta como uma condição profícua para enfrentar os dilemas contemporâneos do campo educacional que se manifestam com o aporte da 'cibercultura'. Fundamentado em documentos oficiais sobre estágio curricular; em estudos sobre formação de professores; e, no conceito de 'literacia informacional', o artigo debate sobre a seguinte questão: como os futuros professores estão se preparando para conduzir processos educativos voltados a estudantes com atenção continuamente parcial? Em suas conclusões, o artigo destaca a importância do estágio curricular frente às demandas de uma sociedade amplamente conectada, especialmente, no que diz respeito às reações dos estudantes da educação básica aos estímulos que recebem do mundo ao seu redor e do mundo informacional.

Palavras-chave: sociedade em rede; estágio curricular; 'literacia informacional'.

Educación y 'cibercultura': ¿cómo se preparan los futuros docentes para llevar a cabo procesos educativos dirigidos a los estudiantes con atención parcial continua?

RESUMEN. Este artículo tiene como objetivo mostrar que, dentro de la matriz curricular de los cursos de pregrado, las prácticas curriculares supervisadas se presentan como una condición fructífera para enfrentar dilemas contemporáneos del campo educativo que se manifiestan con el aporte de la cibercultura. Basado en documentos oficiales sobre prácticas curriculares; en estudios sobre formación del profesorado; y, en el concepto de alfabetización de la información, el artículo discute la siguiente pregunta: ¿cómo se preparan los futuros docentes para llevar a cabo procesos educativos dirigidos a los estudiantes con atención continua y parcial? En sus conclusiones, destaca la importancia de la práctica curricular frente a las demandas de una sociedad ampliamente conectada, especialmente, con respecto a las reacciones de los estudiantes de educación básica a los estímulos que reciben del mundo que los rodea y del mundo informacional.

Palabras-clave: sociedad en red; práctica curricular; alfabetización informacional.

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Introduction

Consider the following scenario: a place/space where human beings "[...] electrically connect their bodies to both physical and cyber environments on equal terms, dissolving any boundaries between the physical and the virtual" (Santaella, 2014, p. 35). Under these conditions, these thinking beings, "[...] in fractions of seconds, react to the stimuli coming from the surrounding world and the informational world" (Santaella, 2014, p. 35). That is, their attention is "[...] irremediably a continuous partial attention. That is, the attention responds at the same time to different focuses without lingering reflexively on any of them. It is continuously partial" (Santaella, 2014, p. 35-36).

Basic questions: in this scenario, how can children, adolescents, and young people keep their eyes fixed on a board full of words and/or numbers for forty-five (45) minutes or four (4) hours? This is a common practice in schools, but before blaming them it is necessary to discuss a reality, which is: if almost everything in school is associated with a period before the emergence of communication and information technologies that triggered the creation and permanent development of mobile devices frequently used by children, adolescents and young people, how will it manage to stay ahead of the discoveries and innovations that emerge in this field? In dialog with undergraduate students and basic education teachers over the past few years, it has become evident that future teachers are expected to take actions and make proposals capable of facing the challenges of a networked society. This is the main reason why the present article questions how future teachers are being prepared to become teachers in a time when the major behavioral influences are provoked by the "cyberculture".

In this debate, it would be of great help to present the configuration of the curricular matrices of undergraduate courses in Brazil and observe which theories of teaching and learning are being studied as possibilities of understanding the dilemmas arising from the education and communication interface, as well as if the classic areas of knowledge, such as Psychology and Sociology of Education, are problematizing and understanding the current challenges of cyberculture. As said, it would be of good use to do this study, maybe it will be done in the future, but, for now, this article focuses on an important stage in the formation of future teachers: the supervised curricular internship. The intention of this is to demonstrate that in this 'part of the formation' there are indispensable devices for the updating and enrichment of the teaching profession, especially because it brings future professionals closer to the "real life" of children, teenagers and young people from different economic, social and cultural realities, but with one similarity: influenced by "cyberculture".

In this sense, facing these influences, as part of the task of being a teacher and researcher, I consider it necessary to bring up some of the reflections that arose from meetings with teachers in continuing education processes, and with undergraduate students, that is, future teachers.

In order to address the concerns raised by the theme and other issues announced, the following discussions were organized in three axes: '1. Half a century of curricular internship in undergraduate courses. What to expect from the next 50 years? The understanding of the interfaces between education and communication goes through the training of teachers and the making of schools today'; '3. The scope of information literacy in face of the demands of a network society'. In relation to this concept - 'information literacy' - its presentation and problematization, although still in maturation, gained space in this article due to students' questions in search of suggestions and/or answers to the challenges of teaching nowadays. Therefore, the concept in question, even though it is defended in this article as an alternative to be observed, remains open from the rereading that it will provide. In the final considerations, the article highlights the importance of the curricular internship facing the demands of a widely connected society, and calls attention to the importance of realizing the scope of 'informational literacy' in the processes of teaching and learning in a networked society where human beings increasingly present behaviors that are continuously partial.

Half a century of curricular internship in undergraduate courses. What to expect in the next 50 years?

CAPES Edictal nº 06/2018 - Public Call for the presentation of proposals in the scope of the Pedagogical Residency Program¹ - provoked several discussions in the undergraduate courses of many Brazilian

¹ Information about the Pedagogical Residency Program (PRP) can be accessed at: Brazil. Ministry of Education. Coordination for the Improvement of Higher Level Personnel [CAPES]. (2018).

universities. Based on Laws, Decrees, Resolutions and Ordinances, including Ordinance nº 38, of February 28, 2018), which established the Pedagogical Residency Program (PRP), the Call provided a set of reflections (of political and pedagogical nature) regarding the meaning and significance of the PRP and its indications/guidelines to the supervised curricular internship.

Before that, throughout the years 2016 and 2017, the Institutional Program of Scholarships for Initiation to Teaching (PIBID), also generated interesting debates about teacher education (first degree) and its relations with teaching practice in basic education. In these years, the PIBID seemed to be part of the 'living-dead' child's play. In other words, sometimes news appeared that the PIBID would end, or return in another configuration, and at other times it was announced that the PIBID would continue to be guided by the same Edictal for another six months. This situation deserves to be highlighted because it reveals that Brazilian education still suffers from many influences of governments, and is unable, in many cases, to consolidate a Brazilian State action for education.

These two Programs (PIBID and PRP), currently (2019/2020), reflect important educational movements in undergraduate courses, especially regarding the relationship between university and school, as well as the relationship between theory and practice. However, although its objectives² signal the enrichment of initial training and internship, we continue to experience an internship that follows a way of teaching at the university, which does not dialogue frankly and openly with the reality of basic education and the demands of a time when children, adolescents, and young people express themselves 'in' and 'in networks'.

In any case, regardless of the educational movements that aim at the training and performance of teachers, these happen under the guidelines of an educational policy that comes from Legislation. In Brazil, the legislation that marks the middle ground between the past and the present of the supervised curricular internship is the Law of Directives and Bases of National Education, Law Nº 9.394 of December 20, 1996 (Brazil, 1996).

The changes referring to internship after 1996, directly or indirectly, are referenced in the LDB/1996 (Brazil, 1996), especially in Art. 61³. Although the Law has had some articles changed, such as Art. 61 (included by Law nº 12.014, 2009), it remains a guideline for national education, including for the PIBID and PRP.

Law nº 12.014, 2009 (Brazil, 2009), which amended Art. 61 of Law nº 9.394, of December 20, 1996, in order to discriminate the categories of workers who should be considered education professionals, expanded the 'fundamentals' about the training of education professionals, thus broadening the concept of internship, without replacing or completely excluding Art. 61 of LDB/96 (Brazil, 1996). Besides this, other documents such as the Opinion CNE/CP 009/2001 (Brazil, 2001) and the Resolution CNE/CP nº 1/2002 (Brazil, 2002a), that deal with the National Curricular Guidelines for the Training of Basic Education Teachers in degree courses; the Resolution CNE/CP nº 2/2002 (Brazil, 2002b), that established the duration and the workload for degree courses, as well as the Law nº 11.788, of September 25, 2008 (Brazil, 2008) (Legislation in force), which provides on the internship of students and presents the legal basis for it to remain linked to the educational process, also feed legally and pedagogically on LDB/1996 (Brazil, 1996).

Regarding the Legislation that, directly or indirectly, dealt with the internship in the period before the LDB of 1996 (Brazil, 1996), it is worth mentioning: the Law that set the rules for the organization and functioning of higher education and its articulation with the middle school, that is, Law Nº 5.540, of November 28, 1968 (Brazil, 1968); Resolution nº 9, dated October 10, 1969 (Brazil, 1969)⁴, from the Federal Education Council, which regulated the theme in its Article 2º; Law nº 6.494, dated December 7, 1977 (Brazil, 1977), which provided for the internship of students from higher education institutions and regular high school (former high school) and supplementary⁵ education institutions; Decree nº 87,497, of August 18, 1982 (Brazil, 1982), which regulated Law nº 6,494/1977 (Brazil, 1977) and established the rules for students regularly enrolled and with effective attendance in courses related to official and private education, in higher education and high school, regular and supplementary education (Art. 1º).

² The objectives of the Institutional Program of Scholarships for Initiation to Teaching (PIBID) are available at: <https://www.gov.br/capes/pt-br/acesso-a-informacao/acoes-e-programas/educacao-basica/pibid>. Likewise, the objectives of the Pedagogical Residency Program (PRP) are available at: <https://www.gov.br/capes/pt-br/acesso-a-informacao/acoes-e-programas/educacao-basica/programa-residencia-pedagogica>.

³ The training of education professionals, in order to meet the specificities of the exercise of their activities, as well as the objectives of the different stages and modalities of basic education, will be based on: I - the presence of solid basic training, which provides knowledge of the scientific and social foundations of their work competencies (Included by Law nº 12.014, of 2009 (Brazil, 2009); and, II - the association between theories and practices, through supervised internships and in-service training (Included by Law nº 12.014, of 2009 (Brazil, 2009)).

⁴ In its Article 2º, Resolution nº 9 of October 10, 1969, of the Federal Council of Education, regulated the theme by stating that: "[...] it will be mandatory the teaching practice of the subjects that are object of professional qualification, under the form of supervised internship to be developed in real situation, preferably in a school of the community" (Brazil, 1969).

⁵ In Art. 2º, Law nº 6.494, of December 7, 1977, states that: "Curricular internship is considered [...] the social, professional and cultural learning activities, provided to the student by participation in real life and work situations of his environment, being carried out in the community in general or with legal entities of public or private law, under the responsibility and coordination of the educational institution" (Brazil, 1977).

In summary, we can say that if we observe the historical and political context of all this legislation and relate the objectives of the laws, decrees and resolutions with practical actions in the educational field, we see that teacher training and the internship itself, due to the different realities of basic and higher education in all federal entities, not always found in the academic and scientific debate the justifications for a 'format' suitable and up to contemporary educational demands. But, if the intention is to understand the place of the internship in undergraduate courses in Brazil, the tip is to focus on this legislation⁶.

Part of this legislation, including Law N° 5.540 of November 28, 1968 (Brazil, 1968), (almost all of it, expect for Art. 16), was repealed by Law N° 9.394 of December 20, 1996 (Brazil, 1996) and subsequent legislation. Hence the statement that LDB/1996 (Brazil, 1996) is halfway between the past and the present of supervised curricular internship. This rescue, however, serves only to situate us concerning the internship we have. In other words, it serves to say that, yes, we do have a 50-year-old piece of legislation that establishes the rules for initial teacher education (first degree) and the supervised curricular internship linked to it. Therefore, we should not look at this legislation just because it is the legal basis that allows educational institutions to train teachers, but because throughout this period researchers, educators, legislators, and several other professionals, as well as institutions related to education, have dedicated a lot of effort to give life to the legislation we have.

What about the years to come? Education professionals and attentive educational institutions know, more than anyone, that it is necessary to make a critical reading of reality to understand what education should not lack in the coming years. Many have already realized that the scientific and technological discoveries of the last decades and their profound transformations in the ways of communication have provoked, and continue to provoke/suggest changes in the teaching and learning processes. They know that in the next fifty (50) years these forms of communication. And, as we cannot stop them from existing, the best thing is to know and 'master' them so as not to become their slaves.

The dynamism of communication and information technologies is such that it does not allow us to make deterministic projections about the next fifty years of graduation courses and internships. But, to future education professionals, here is a hint: in a networked society, where mobile devices are being prepared for different uses in everyday life, ignoring and/or forbidding the presence of these devices in the lives of students in basic education will no longer be an option. Therefore, learning from the propositions of 'information literacy', enriching it with didactic and pedagogical foundations that express the academic rigor necessary for a teaching and learning process of excellence, seems to be a good path to follow.

It is in this context that I call attention to the supervised curricular internship in basic education as a *sine qua non* moment for the understanding of this reality and the challenges of being a teacher today and tomorrow. The emphasis on the importance of the internship as a condition to clarify the challenges arising from the relationship between education and 'cyberculture' is in line with what Loureiro and Rocha (2012) argue, that is: "[...] we live in the network and on the network. Being a citizen with digital literacy skills is fundamental" (Loureiro & Rocha, 2012, p. 2726).

As Bauman (2014) insisted, in times of liquid modernity, we must know how to distinguish information from knowledge, besides having the ability to know how to discard unnecessary information. The generations that are in school today were born connected in this time, so it seems wise not to ignore it if we really want to understand it. This is what I propose in this article by bringing to mind the concept of 'information literacy'. Before dealing with it, however, let's pause for a moment to reflect on the challenges of being and doing school today.

The understanding of the interfaces between education and communication goes through the training of teachers and the making of schools today.

Think about a school. It can be the one you studied, study, 'taught', or are currently teaching. Keep thinking about it. Walk around it. Walk into a classroom. What do you see?

If among the objects you see is a 'blackboard', be calm about the place that occupies your mind at this moment. Calm in the sense that you are in a well-known place, but do not get attached to it because of the blackboard (green or white), because although it is the greatest expression of a school and a classroom, and

⁶ As already mentioned, it is not the purpose of this article to delve into conceptions of internship and the legislation that regulates it. The concern here is only to locate, briefly, the legislative configuration of the internship that we have. For those who want to deepen the study on the history of internship, I suggest seeing the articles: a) History and application of internship legislation in Brazil (Colombo & Ballão, 2014) and, b) Supervised curricular internship in Brazilian higher education: some reflections.

remains there: 'empty', 'fixed' and 'vertical', in contrast to other instruments of teaching and learning, 'full', 'mobile' and 'horizontal' (Nóvoa & Amante, 2015), times are different and we need to be aware of the changes to not be uncritically changed by them.

Now, continuing the imaginary exercise, at least for a moment, try to see this classroom without the blackboard. See yourself, as a student or as a teacher, learning and teaching in this classroom without the blackboard. If this mental exercise did not generate any uneasiness, ask yourself: what would it be like, in practice, to study or teach in a school where the classrooms are devoid of this instrument?

According to António Nóvoa (Nóvoa & Amante, 2015)⁷, the classroom was invented from the blackboard. Its importance was (is) such that the arrangement of chairs in rows in front of the blackboard defines the space where educational processes should occur. Therefore, in practice, the blackboard remains the 'guarantee of the lesson'. The power of the blackboard is so representative in a classroom that, even when a computer and a data show become part of the classroom teaching resources, most of the time these instruments replace the chalk and paintbrush, but not the way of teaching and watching classes.

But, as we know, the changes of the last decades have not been outside the school. The 'physical world' continues to protect a school structure from the last century, but the 'virtual world' has gone beyond the walls and grids of schools and reached the classrooms. Mobile devices that connect human beings into networks are a reality in schools. We cannot ignore this fact. Let's see why: a study on the 'challenges of teaching in the digital age' reveals that, according to a report by the International Telecommunication Union [ITU] (2015) "[...] the world's online population reached almost three billion people (40% of the world population) in 2014" (Silva, Alves, & Pereira, 2017, p. 538-539). Moreover, it is also relevant the information that the number of the population with internet access has doubled in the last five years in developing countries.

According to the study,

In Brazil, the National Household Sample Survey - PNAD (IBGE, 2013) found that 49.4% of the population aged 10 or older (about 85.6 million people) was connected to the internet and almost half (48%) of the total households in Brazil had internet access. Another scenario that the survey pointed out was the increase in households with only cell phones as a means of telephony in 2013. There were still about 130.8 million people aged ten years or older, about 76% of the population in Brazil, with a cell phone (Silva et al., 2017, p. 538-539).

These are just some data that prove the existence of connected societies. One could highlight others that justify the need to pay attention to the influences of these connections, but in order not to be repetitive and fall into obedience, these are enough to say that the modification in the way of interacting in the world due to these connections is undeniable, and, this being so, we have to agree with the idea that children, adolescents, and young people connected almost daily to the internet will inevitably consider the information that circulates in the media, partially or completely, as a guiding source for their decision making.

It is public knowledge that the influence of digital media on people's decision-making has been changing political, economic, social, and cultural agendas in Brazil and around the world. Based on this information, but going beyond it, what education professionals are interested in, is to know how it is possible to face the negative effects experienced in this scenario. And here emerge the challenges of being and doing school today.

The questions presented at the beginning of this section were intended to bring up a provocation, which is: if there is a new (not so new) way of communicating, teaching, and learning, then it is up to the school, a privileged place for communication, teaching, and learning, the task of welcoming, living with, and responding to this way. The question that follows this provocation is: is the school prepared to face such a challenge? This is not a question to which we should give a simple answer, perhaps it is not even possible to answer it, because the school is a very broad term, that is, it is possible that school 'A' is prepared and school 'B' is not. Similarly, a suggestive answer might suit school 'A' and not school 'B'. So, instead of looking for answers to this question, or if you prefer, as part of the answer, I suggest thinking about teacher training. In particular, the training of future teachers.

Future teachers should know that their contributions for schools to intelligently face the contemporary challenges in the educational field require the ability to perceive the boundaries between the old and the new, between the obsolete and the recent, between the old-fashioned and the modern. It will be up to future teachers to have enough humility, greatness of spirit, and wisdom to understand that the information once available in encyclopedias and almanacs, and more recently in textbooks, which had the teachers as the

⁷ In the article: *In search of freedom. The university pedagogy of our time*. António Nóvoa and Lúcia Amante (2015) present the metaphor of the blackboard, to explain the rise and fall of modern pedagogy, enshrined from the mid-nineteenth century.

main articulators and 'explainers of their meanings', now, in the digital age, "[...] started to be disseminated in high scale and the knowledge acquired today becomes obsolete in a short time" (Silva, et al., 2017, p. 339). In this configuration, with the accelerated modification of the production and dissemination of information, human relations, actively or passively, are also changed. That is why the school cannot 'turn its back' on the human beings that circulate through it, as well as on the mobile devices that they carry in their backpacks, in their pockets, under their wallets, in short, to which they are permanently connected. It is in the middle of this context, actively involved without being absorbed by it, that the teachers' contribution lies in the constitution of a school that is up to the contemporary challenges.

Those who know the reality of Brazilian basic public education know that, as far as the demands related to "cyberculture" are concerned, facing them, in some cases, is a Herculean task, because, for the school to be able to live up to today's demands, it should have the minimum conditions to put into practice projects that can explore the investigated objects. But when it comes to information and communication technologies, for example, most schools, although they are computerized, are unable to present and clarify in their Political Pedagogical Projects (PPPs) an action that indicates how it is organized to face the 'demands' of contemporaneity. In other words, if everything, or almost everything, that exists in the school is associated with a period prior to the emergence of communication and information technologies that triggered the creation and permanent development of mobile devices frequently used by children, adolescents and young people, how will it manage to stay ahead of the discoveries and innovations that emerge in this field?

Brazil is a very large, socially and culturally diverse country, so it is not correct to generalize events, in this case, events experienced in the educational field. Thus, it is never too much to emphasize: what is being said here about the school and basic education is supported by bibliographic and documental productions about these objects of study and, mainly, by the experiences acquired in the interaction with undergraduate students in the supervised curricular internship courses; with "pibidians" and "residents", and also in the Continued Teacher Education Programs. It is with this public that I have been debating about "being and doing school today". Amidst the demands of this experience, we came to the concept of "information literacy". The previous findings indicate that 'information literacy' can be a light to the didactics and methodology that guide teaching and learning processes. Let's see what it is and how this concept can contribute to the formative journey of future teachers.

The scope of information literacy in the face of the demands of a networked society

To start the conversation, I think it is important to say that: I was reluctant to discuss this concept. Yes, I had some concerns about using it, especially because it is still a little debated concept in Brazil. However, as already mentioned, the work developed with teachers from the basic education network and undergraduate students⁸ gave rise to a set of questions that 'demanded' answers to the manifestations of the participants of the Programs mentioned above, especially the manifestations of the trainees during their visits to the schools for the supervised curricular internship.

Not infrequently, the future teachers, after their first experience at school, said they did not know how to make the connection between what they were learning at the university (and the way they were learning), with what was being taught (and the way it was being taught) at school. But besides this anguish, the academics' agony in not seeing correspondences between what the teachers (in schools) said and what the students (basic education) heard was always present.

The report of a student after finishing the supervised internship II explains this concern:

[...] professor, I attended classes of four subjects, I saw few differences between one and another in terms of the teachers' didactics and the students' participation, but what scared me the most was that I couldn't see a connection between what the teachers were saying, pointing to the blackboard, and what the students were doing at their desks. They - the students - were fiddling with their cell phones, talking to their classmates, or doing other things but paying attention to the teachers. One or the other was paying attention.

It was because of reports like these that I accepted the suggestion/provocation to prepare a class based on a theme that did not ignore what was being experienced by that group of trainees. The next step was to look for

⁸ Over the last few years I have worked as a teacher and internship supervisor in undergraduate courses; Institutional Supervisor of the National Pact for the Strengthening of High School Education (PNEM); Area Coordinator of the Institutional Program of Scholarships for Initiation to Teaching (PIBID); Coordinator of the Pedagogical Residency Program (PRP).
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research on topics that would allow me to problematize the trainees' anxieties and, if possible, shed some light on them.

As we will see in the following paragraphs, this concept has variations in terminology, but, according to Ana Loureiro and Dina Rocha, to respect the transversality of the concept and not to move away from the context of the other theories of teaching and learning that circulate in the school, in the Portuguese language, it is suggestive to use 'information literacy' (IL). According to the authors, this terminology,

It will be the one that should be adopted if we take into account all the aspects inherent to the concept, implying from the teaching/learning theories, generated by the educational sciences, the cognitive issues, presented by psychology, the social issues presented by sociology through the socio-cultural development of the contexts, where these practices are inserted (Loureiro & Rocha, 2012, p. 2730).

Because of this scope, according to the authors, one must consider the cross-cutting nature of this concept. In this sense, it is necessary to be aware of the different aspects of the terminology in order not to fall into misinterpretations regarding its use. After all, although this concept originated in the 1970s, "[...] its effective development is related to the expansion of information technologies and the evolution of the Information Age" (Loureiro & Rocha, 2012, p. 2730).

One of the possibilities to avoid falling into misunderstandings about the meaning of the terminologies is to understand the approximations and distancements between the concepts of 'digital literacy' and 'information literacy'. According to Loureiro and Rocha (2012), we live in societies that are networked and networked and, "[...] Digital Literacy and Information Literacy are now key concepts of this networked society" (Loureiro & Rocha, 2012, p. 2727). In this new configuration of relationships, "[...] every citizen must possess skills at the level of Digital Literacy and Information Literacy" (Loureiro & Rocha, 2012, p. 2727). But what is the difference between these concepts?

According to Loureiro and Rocha (2012), 'digital literacy' means:

A person's ability to effectively perform tasks in digital environments-including the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge acquired in digital environments (Loureiro & Rocha, 2012, p. 2727).

As for 'information literacy', although its properties and applicability are similar to 'digital literacy', it goes further by suggesting that "[...] the process of teaching and learning about technology and the use of technology [...] requires sophisticated information search and processing skills (i.e., 'information literacy')" (Loureiro & Rocha, 2012, p. 2727, emphasis added).

In a study concerned with the literature review of these terminologies, Faria and Ramos (2012) point out that these concepts "[...] sometimes appear as almost synonymous, for some authors, sometimes with distinct definitions, for others" (Faria & Ramos, 2012, p. 29). Therefore, "[...] what some consider digital literacy is by others called information literacy" (Faria & Ramos, 2012, p. 29). Nevertheless, based on exploratory study in abstracts of articles dealing with these terminologies, the authors state that, "[...] 'digital literacy' points to elementary and instrumental uses of digital resources" (Faria & Ramos, 2012, p. 29, emphasis added), whereas, "[...] 'information literacy' to a reflective and critical use, based on higher order thinking processes, of these resources, in the service of research, treatment and analysis of information" (Faria & Ramos, 2012, p. 29, emphasis added).

It is important to note that when it comes to digitally literate, several terms are used to address the subject. About this, Loureiro and Rocha (2012) state that it may seem unnecessary to call attention on these different terminologies, but "[...] this fact is fundamental, since being developed in different contexts, they may bring more value to the sharing of experiences and international projects - as it already happens today" (Loureiro & Rocha, 2012, p. 2730-2731)⁹. That is, at the international level, institutions such as the International Federation Library Association (IFLA), Unesco, OECD and the European Union, for example, express their interest in this subject, highlighting that, currently, "[...] LI is a central issue for governments and for professional, cultural, organizational and educational institutions" (Loureiro & Rocha, 2012, p. 2731). In addition, these institutions organize events and publish scientific and legislative information on the topic. As they are international institutions, the

⁹ According to the authors "[...] another term, the first to be more widely used, due to the needs of the context itself, is the term Information Literacy - this Anglo-Saxon terminology has been the most widespread, mainly due to a need inherent to its genesis and development as a concept and development of the associated practices. A third term, currently widely used, mainly due to the enormous contribution of the community of Spanish-speaking countries, both in the application of the concept and practice, as well as in the development of scientific literature on this topic is - Alfabetización Informacional (Loureiro & Rocha, 2012, p. 2730-2731).

engagement with local contexts and the emphasis on one term or another can trigger the development of different practices that are associated with one term or another. Hence the importance of understanding the meaning of the different terminologies, as well as their experiences in different contexts.

It is not a priority of this article to discuss each of the terms mentioned, but it is hoped that by now the choice of terminology and the reasons for it are clear. In case there are still doubts, it is worth pointing out the option for 'information literacy'. This choice is due to the broadening of its possibilities in relation to other terminologies, including 'digital literacy', and, obviously, the greater frequency of use of this term in the Portuguese language.

It is clear that, despite a more frequent use of the Portuguese language, we still have a lot to learn with this term. Perhaps this is the reason why Faria and Ramos state that "[...] more time needs to be devoted in class and on homework that deals with information literacy, and advocates a more balanced approach to preparedness in early childhood education" (Faria & Ramos, 2012, p. 48). In the articles they reviewed in their study, the authors found that scholars devoted to the subject for the longest time advocate that "[...] since Kindergarten, students should be habituated to not passively consume the information they encounter" (Faria & Ramos, 2012, p. 48). This finding convinced the authors of the importance of instruction for 'information literacy' from the beginning of early childhood education, because, according to them, "[...] research suggests that early instruction for information literacy [...] promotes critical thinking and elevates problem-solving skills, two tools necessary for survival in today's Information Age" (Faria & Ramos, 2012, p. 48)¹⁰.

I agree with this last idea, that is, with instruction for 'information literacy' as a condition for the 'promotion of critical thinking and the elevation of problem-solving skills'. My agreement is based on the conviction that students in basic education have already broken the boundaries between the physical and virtual environment, and no longer care if one day 'Bhaskara's formula will vanish from the cloud', yes, that is worrying. In other words, what if one day there is no place left to store information, the teachers ask? Well, that is a concern for us - for teachers, with 'teacher heads' - but not for students. Therefore, equating these discourses into class form, and not into new discourses, is a task that will have to be faced, especially by those who come - the future teachers.

Those who are used to a way of 'teaching' that has been internalized over many years will possibly have difficulties understanding how children, teenagers, and young people are consuming information and signifying it in the worldviews that they construct. However, it is not possible to keep postponing this task. Learning to be a teacher in a context marked by networked relationships is a process inherent to the teaching profession.

But beware! It is not about theorizing about this reality, elaborating discourses for teacher training, etc., it is about entering the classroom every week, during two hundred (200) school days, and 'teaching' from this reality. This is the alternative. Experiencing it is possible, but its success depends, to a great extent, on the "place" of the internship in the curricular matrix of undergraduate courses. I dare say that if the internship allows students to find the paths of "information literacy" in their incursions into schools, the interface between education and cyberculture will be more clearly captured and, consequently, understood with a greater sense of reality.

Final considerations

The future teachers that I talk to, whether interns, pibidians, or residents, are mostly between 18 and 25 years old. That is, they were born in the 1990s, during the emergence of the *World Wide Web*¹¹. In the early nineties the Internet gained huge popularity worldwide because of the dissemination of the World Wide Web, at that moment, future teachers were born and grew up, and today (at the beginning of the second decade of the 21st century), they are worried about how to act in the classroom to meet the demands of the generations that were born after them. Now look, if those who were born with the Internet are feeling alien

¹⁰ In the article Digital literacy and information literacy: a brief analysis of the concepts from a systematic literature review, Altina Ramos and Paulo Faria (2012), present, in more detail, both the specific and the common dimensions of 'digital literacy' and 'information literacy'.

¹¹ The World Wide Web (WWW), or simply Web, a new tool also born in the academic world, which, slowly and by tortuous ways, was passing over the issues of difficulty of use, comprehensiveness of information and universality of access and ended up transforming, once and for all, the nineties in the "[...] decade of the Internet" (Carvalho, 2006, p. 127). The British Timothy John Berners-Lee, physicist by training and software engineer by vocation and profession, is regarded as the creator of the Web, and indeed he is largely responsible, but according to himself: "The Web emerged as a response to an open challenge, through a whirlwind of influences, ideas and achievements from many sides until, by extraordinary feats of the human mind, a new concept materialized. It was a process of growth in stages, not a linear solution of one well-defined problem after another" (Berners-Lee, 1999 apud Carvalho, 2006, p. 127).

to the world of children, teenagers and young people who are attending basic education, imagine how the generations of teachers who preceded them feel?

It is obvious that many teachers, including those in the process of retiring, do not find it difficult to deal with technologies, but that is not what this is about. One thing is to understand technology and be aware of its importance in education, another, and quite different, is to live in a networked society, intertwined with the onus and the bonus of the connections experienced.

The demands on education professionals today are very different from the demands of the 1990s, 2000s, and 'until yesterday'. However, even knowing this, I often ask future teachers: 'Do you believe that the academic training you are getting will make you the generation of teachers that will meet the challenges of "teaching" a generation of people who were born and raised in a networked society? Therefore, let's not fool ourselves, we need to empower future teachers so that they start a new training process that will make subsequent generations more prepared to meet contemporary demands.

It is in this context that the look at the training of future teachers gains importance, that is, although the reports of the subjects that inspired this article to indicate concerns about the challenges of the relationship education/cyberculture, it is in them and with them that the possibilities that may become the most qualified in facing the educational demands of a network society are concentrated. They are not the only ones responsible for this, but it is through them that actions will be taken to clarify human behavior in a society that does not stop making connections between the physical and the cyber environment.

Future teachers will be able to learn, throughout their entire formative journey, how to identify and face the demands that emerge in the Education and Communication interface, but it is in the supervised curricular internship that the possibilities for a "richer capture" of the educational reality are concentrated. It is during the visits to the schools and the knowledge of the historical-geographical-social context where it is inserted, as well as the direct contact with the students of basic education, that the future teachers will be able to initiate an incursion to the daily life of children, teenagers, and young people of the 21st century, noticing their ways of interaction with their peers and the world. It is from this experience that the most appropriate answers to the educational demands of our time may emerge.

Finally, it is important to say: there is no reason to despair, but there are, and enough reasons, to defend that the initial formation of teachers should happen closer to basic education. The current legislation, little by little, has been increasing this proximity (the PIBID and the PRP have contributed to this), however, the curricular matrices of the undergraduate courses, for the most part, remain as they were in the last century. In face of this scenario, I do not defend nor propose radical changes in and for teacher education, I only suggest that the supervised curricular internship be given the necessary conditions for the perception of the teaching demands in basic education. In this sense, placing the internship in the paths of 'information literacy' seems to be a useful way out. After all, learning how to critically manage the use of available information is, without a doubt, an important action that should be ahead of the basic needs, desires, pretensions, emergencies and requests for a decent life in our times.

In summary, the undergraduate courses should keep at the center of the educational process the importance of the teaching profession and the scientific-pedagogical principles necessary for the teaching and learning processes, but they need to adapt their curricular matrices considering the possibilities of access to knowledge provided by the available information and communication technologies. In this sense, paying attention to the propositions of 'information literacy' during initial training (first degree) is an action to be considered and, continuously problematized.

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