

THE OPEN FORUM AS AN IMPROVING TOOL BETWEEN TUTOR AND STUDENT WITHIN THE VIRTUAL LEARNING ENVIRONMENT: A CASE STUDY WITH TWO PEDAGOGY CLASSROOMS IN SANTOS, BRAZIL

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Abstract

The current work points out the importance of the open forum as a special tool for enhancing the relationship between tutor and students within a virtual classroom on a distance learning basis. The research is primarily qualitative and emphasizes various aspects of postings, access rates and other parameters derived from the open forum set up for two virtual classrooms involving 199 students that attended a specific subject in Pedagogy at a private university located in Santos municipality, Sao Paulo State, Brazil.

Classrooms were given #1 and #2 identification tags. There were 101 students in classroom #1, and 98 in classroom #2, with 11 males against 90 females and 13 males against 85 females, respectively (average ratio: 88% female, 12% male).

Three main questions were addressed: I) How can the free forum be considered as an instrument of learning diversification within a virtual learning environment (VLE)?; II) How are the free forum access rates in comparison with the rates of disciplinary forums and other related mandatory activities?; and, III) Is there any qualitative gain for tutor-student interactions within a VLE by considering reports and experiences presented throughout the free forum postings and discussions?

Two classrooms worked on with the Moodle-platform system were studied during the second semester of 2008. Fifteen significant postings were picked from each of the classrooms, reported and discussed accordingly, after 208 postings from classroom #1 and 212 postings from classroom #2 were analyzed and categorized according to the following category groups: I) Confidence gain when accessing the Moodle platform after discussions and interactivity carried out with the open forum; II) Improvement of the tutor-student relationship; III) Self-esteem and enhancement of the educational process as a whole; IV) Reliability on the tutor's work held within the VLE; V) Enhancement of the student-student and tutor-student interactivity; and, VI) Criticism to the educational process and/or teaching/learning approaches.

Results suggest that students and tutors take the open forum into deep consideration. Interactivity and reliability to develop several activities of the distance learning platform seem to be enhanced with the dialog carried out during open forums. The author suggests that other tutors at the same university open similar forums in their virtual classrooms to increment a deeper dialog between tutor and students. Thus, higher rates of interactivity and, consequently, qualitative gain might be possible in interpersonal relationships present in teaching-learning situations within a virtual environment.

Keywords - Free forum; interpersonal relationships; tutor-student interactivity.

1 INTRODUCTION

The virtual learning environment (VLE) is a unique information sharing room, which is also appropriate for interpersonal relationships [1; 2; 3; 4]. Its intrinsic characteristics – physical separation, ease to access resources found within the worldwide web, flexibility for schedules and chronograms, and so forth – make Distance Learning Education (DLE) classrooms rich educational deposits, with multiple research and study possibilities [5].

Actually, there are countless possibilities for didactic and pedagogical work within virtual classrooms, which vary from the simple access to available materials to more or less restricted interactions that follow certain criteria established by DLE institutions [6]. Regarding the latter, several mechanisms are often used to supply students with effective participation throughout all educational processes, such as written materials, forums and chats, offline activities, glossaries and collaborative construction with the use of specific resources, such as the Wiki tool [7].

With so many possibilities available, DLE-based students are expected to have certain abilities to seize every capacity offered. Proper organization to follow chronograms and course schedules and actively participate in all VLE activities suggested is perhaps the most crucial ability students should bear. Such ability, though fundamental, is not always directly and immediately noticed by tutors or teachers during the VLE activity period [8; 9].

VLE-based teachers, who are also commonly known as teachers-tutors, yet need specific and directed abilities to be coherent toward proposed activities and to dedicate adequate follow-up on their students' performance. Interactivity with students is one of the best desirable abilities, although it might not be easily noticed by many teachers [8; 10; 11]. Within a physical classroom, interactivity is naturally kept through dialog and physical-temporal contact; however, within a VLE environment such feature does not exist. Thus, interactivity might be gained through various pedagogical strategies, such as forums [12]. Distance education is "(...) a bidirectional communication process on a dialogic basis (...)" [5, *apud* 13].

The disciplinary forum is one of the most extensively used activities within the Moodle system learning platforms [14]. Interactivity enhanced with disciplinary forums is assessed by various researchers ([3; 15], just to mention two of them) as a very beneficial feature. One of the main objectives of such forum type is to allow students to freely speak of proposed themes, share individual opinions and personal experiences, and so forth. Moreover, disciplinary forums also aim to enhance group experience, even in a VLE, so that both horizontal (student-student) and vertical (teacher-student) interpersonal relationships may be strengthened [16]. Regarding this, "(...) interaction is a dialog, which makes it possible to build knowledge, whereas participation implies simply 'to be there and intervene', but it does not need to have an appropriate response addressed (...)" [3].

Although disciplinary forums are mechanisms to enhance vertical-horizontal discussion and participation in a VLE classroom, they sometimes are said not to offer deeper possibilities for improving the teacher/tutor-student relationship. As disciplinary forums are constantly evaluated and graded, and many tasks imposed by the teacher/tutor, such interactivity may, sometimes, vanish. Thus, disciplinary forums might be reduced to 'another task' of a VLE course, without their interpersonal characteristics [17].

After considering this kind of interactivity within disciplinary forums and having assessed two VLE classrooms of a Pedagogy course in Santos, Sao Paulo State, Brazil, I decided to investigate some possibilities to improve the teacher-student relationship by making use of a free forum (i.e., an open forum where everybody can freely express opinions and discussions).

The core hypothesis considers the fact that the use of a free forum can enhance some important aspects within a VLE classroom: I) betterment of the student-teacher relationship within a DLE-based classroom, II) extra-disciplinary problem-solving, and III) gain of self-esteem to develop disciplinary activities proposed in the virtual classroom. By considering this line of thinking, one can infer that the free and open forum may increase platform use, thus making it easier for students to acquire some indispensable abilities on the DLE-based syllabi, being these purely mechanical (use of computer and Internet resources and applications) or otherwise (problem-solving, activity performance ways etc.).

So to say, the present study takes as a central proposition the following: the free and open forum is a non-formal and non-evaluative room that enhances discussions and opinion sharing on a VLE classroom, and it is also an important way to approach students to teachers in an exclusively virtual relationship.

The research aims to answer the following questions: I) How can the open forum be considered a tool that enhances learning diversification within a VLE classroom?; II) What are the access rates to the open forum in comparison with disciplinary forums and other proposed activities for the Pedagogy course?; III) Is there any qualitative gain concerning the teacher-student interactions within a VLE classroom from experiences and reports presented in the open forum?

2 METHODOLOGY

Two free and open forums entitled "*Bote a boca no trombone...!*" ("Speak up with no fear...!") were available within two Pedagogy classrooms (5th semester) at Unimes Virtual (Universidade Metropolitana de Santos, Santos, Brazil) during the second half of 2008, on a Moodle platform environment. To avoid unnecessary repetition, such forums will be referred from now on as "Speak up". In the present study, each classroom will be referred with their respective number, i.e. Room 1 and Room 2.

In each room, the free forum was linked right below the general guidelines of a specific Pedagogy subject. The "Speak up" link was active from August to December, 2008.

The introductory title of the forum consisted of a small text, which invited participants (students) to freely share opinions, on a non-evaluative and non-formal basis, on various matters related to such specific Pedagogy subject, technical problems of the Moodle platform, difficulties to carry out disciplinary activities, and so forth. Moreover, the forum clearly advised participants that "Speak up" was a dialog tool to be shared amongst all parts involved (Fig. 1).

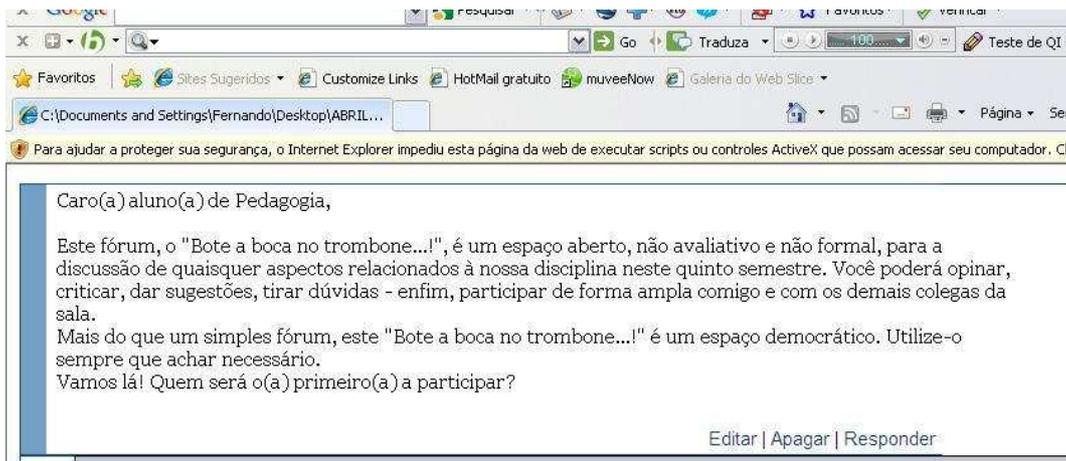


Fig. 1. Introductory title of each of the two “Speak up” forums (text in Portuguese).

From August to November, 2008, the access rates to the forums were monitored with the Moodle platform tracking system. Thus, it was possible to report not only the access numbers to both forums, but also important data such as access hours, week days, and number of postings by participant (Table 1).

Table 1 – Access hours, access days and number of postings by participant (rooms 1 and 2) of the “Speak up” forums (access hours are expressed on a 24-hour time frame).

ROOM 1			ROOM 2		
Access hours	Access days	Number of postings by participant	Access hours	Access days	Number of postings by participant
00h00-06h00	12%	0 47	00h00-06h00	09%	0 55
06h01-18h00	67%	1 122	06h01-18h00	72%	1 107
18h01-23h59	21%	+1 39	18h01-23h59	19%	+1 50

The qualitative analysis on postings is another important point, as results and discussions depend primarily upon them. Various authors [18; 19; 20; 21; 22; 23] were central references for the qualitative analysis, which considered all postings during the period mentioned before. All criteria adopted for the qualitative analysis are described in Table 2.

Table 2. Qualitative analysis criteria considered for the “Speak up” postings.

Gain of self-confidence to access activities linked in the virtual platform from discussions and opinion sharing at the “Speak up” forums.
Improvement of the teacher-student relationship.
Self-esteem of the educational process as a whole.
Criticism to the educational process and/or teachers’ and/or students’ attitudes.
Increase of trust in teachers’ work within the VLE classrooms.
Increase of the teacher-student and student-student interactivity.

From the posting samples of Table 1, fifteen postings that I considered highly significant were picked from Room 1, and some parts of the same postings were written down and shown in Table 3.

Table 3 – Fifteen parts of “Speak up” postings from Room 1.

Student #	Part of the posting picked and written down
1	“(…) I’d like to thank our teacher for being always with us. He is very participative and gives us much motivation and stimulus. He opens an appropriate environment so that we can really keep a relationship with him and among us, students”.
2	“Feedbacks are very effective and certainly will subsidize the teaching practice. We’ve come to the final step, but we can’t let us be taken by the F1 flags, as the walking has just started, and true winners don’t get afraid of humbly going on and on and on!”
3	“I tried to participate in every proposed activity, and I think the final result was very positive”.
4	“(…) I think this forum is worthless, ‘cause I complain, and complain (...) and nothing really happens in this university. I doubt someone will take my words seriously...”
5	“Every semester, we aim to be constantly improving our apprenticeship. However, in many cases, the stimulus to keep us go before so many difficulties comes from our VLE classmates and tutors. (...) The need to go deeper into knowledge is really contagious, so I can really say that EFFORTS are the word of the day when it comes to say about learning.
6	“I still feel a bit confused and lost within the VLE class, but with this “Speak up...” forum I feel safe (...) It seems that I’m speaking with the teacher and with the other classmates”.
7	“I thought that I’d be alone within a DLE course, but I felt myself as though I were in a conventional classroom”.
8	“I’d like that you teachers could give us some feedback on our tests, ‘cause we can clear doubts out and, consequently, generate an apprenticeship circle: I make a mistake, then I can improve if I understand my mistake – so, I can learn, and the circle is again closed”.
9	“I feel safer with the platform activities because professor Fernando helped me o a lot in this forum (...)”
10	“(…) Professor, in the beginning I felt a little lost, but I think I could overcome some difficulties. I was afraid of DLE tutors, but I felt at home with you”.
11	“Every time I had difficulties with the Sciences content, and I let other course subjects aside because my priority was Sciences. Dear Fernando, your scientific eyes are similar to the ones I have, because I think that’s the way Sciences should be viewed, and not that kind of knowledge area which is feared by so many people... that’s terrific and very important when it comes to be initial grades at school. I’ve spoken of you to many people and respectfully, I’d like to share some ideas about Science matters and human being as well. Many people would like to meet you personally. Congrats! You could stand your point and open your thoughts during crucial moments of our discussions. You also let us all speak up freely and could hear us. We felt a pedagogical touch throughout various moments of the course and it does count in a VLE classroom. Maybe it is even more important than that of a physical classroom”.
12	“The course is really sensitive and the teacher supplies us with opportunities to share ideas and discuss his own experience with us. He maximizes time for deep thinking so that we can re-think our attitudes and understand them. We could feel that he assumes his mistakes as most teachers and he was able to suggest some alternative paths which had been walked through in his own teaching practice”.
13	“My performance was great in forums, self-tests and distance tests. I’d like to thank for all (...) Thank you for your dedication with us”.
14	“So nice we could talk here... I missed meeting more classmates besides those I meet frequently at my studying VLE branch”.
15	“(…) Regarding our forums: precise observations. Serious, dense and indignant touch when some internet site articles were copied with no reference... (wow!). You can be sure that all of us vibrated with such part, as you wrote, dear Master, exactly what most of us thought...”.

Likewise, Table 4 brings parts of fifteen significant postings from Room 2.

Table 4 – Fifteen parts of “Speak up” postings from Room 2.

Student #	Part of the posting picked and written down
1	“I studied hard and did all of the activities, forums and other tasks up to my limit and these were all enough for my apprenticeship. As I am an Internet fan, it was easy to navigate through the Unimes platform. The VLE activities seduce me! Many times, I went over the proposed schedules and did more than recommended... but it was worth it, I did gain many things! (...)”.
2	“We have to speak up with no fear indeed as there are things we can’t stand... such as disciplinary activities that ought to be done in a very short time (...)”.
3	“Contents were very important for my professional life, it’s a pity I couldn’t dedicate more time to the activities, but everything was so fast (...)”.
4	“Most information was really important, and my knowledge burden grew tremendously. I think I can do a great job with my future students (...)”.
5	“I do thank my teacher Fernando and his attitude toward so many questions. He was always pleasant when guiding debates and addressed questions. I do miss everything, but I know I will keep having this kind of perspective to things and reasons (...)”.
6	“I’d like to say I had no difficulty to follow classes on the virtual platform at the university. My major problem was to have the internet access available every day so that I could see classes daily. I live in a farm, which is at the borderline of Mato Grosso do Sul state. When possible, I traveled to the nearest town, paid the road toll and asked for a computer with Internet access – usually, a family member or a friend made a computer available to me”.
7	“I loved participating in this forum. It was a pleasure to meet more people and interact with the professor (...)”.
8	“I think it’s a nice idea to speak up freely, but do you really think it will somehow be worthwhile???”.
9	“Keep on being such an authentic and authoritative tutor, you are a valuable man (...)”.
10	“(…) I had many difficulties to access things in the beginning, to answer forums (...) but, then, I gradually gained more self-confidence (...)”.
11	“I do think it’s important to report everything here so that future classmates have the opportunity to know good teachers. These professionals increase the university quality level. Excellent teachers tend to drive others to be like them. This is the so-called <i>presence pedagogy!</i> ”
12	“(…) I do agree with my classmates that we gain more self-confidence in the platform, and this forum helps us too (...)”.
13	“I learned, by studying Science topics, that learning Sciences does not only mean knowing concepts and formula application – it also consists of absorbing attitudes and values. Thus, one can say that learning is not something that is simply and passively absorbed; on the other hand, we need to change the object of Education, i.e. knowledge, which is constantly interactive. If that was not so, we could infer that there is still the principle of the “ <i>tabula rasa</i> ” going on, as well as that there is no change in the world”.
14	“Sciences is very cool! The teacher supplied us with excellent material, with texts and clues, and forums were very active. Congratulations, dear teacher, for your dedication with us”.
15	“Now I can say I am almost a complete teacher, I feel myself prepared for the classroom challenges (...)”.

In transcriptions, only the selected parts directly related to “Speak up” were appropriately explained. Picked parts, taken directly from forums, clearly express or suggest possibilities according to the hypotheses and objectives mentioned before.

Comparatively, I monitored the number of access and participation rates in other disciplinary forums in rooms 1 and 2 (Table 5). Such comparative numbers were used to discuss the fact that access rates to the “Speak up” forum were higher than those of other proposed disciplinary forums.

Table 5 – Number of access and postings by participant in disciplinary forums for rooms 1 and 2.

Room 1				Room 2			
	Number of postings	Posting by participant			Number of postings	Posting by participant	
Forum 1	75	0	23	Forum 1	83	0	33
		1	29			1	44
		+1	23			+1	6
Forum 2	81	0	41	Forum 2	95	0	37
		1	19			1	45
		+1	21			+1	13
Forum 3	53	0	25	Forum 3	61	0	22
		1	17			1	31
		+1	11			+1	8

3 RESULTS AND DISCUSSION

There were 101 enrolled students in Room 1 (11 males, 90 females), and 98 students in Room 2 (13 males, 85 females) during the “Speak up” application period (Fig. 2). The male/female ratio in both rooms is practically the same, being the female presence strongly noticed (average of 88% females against 12% males).

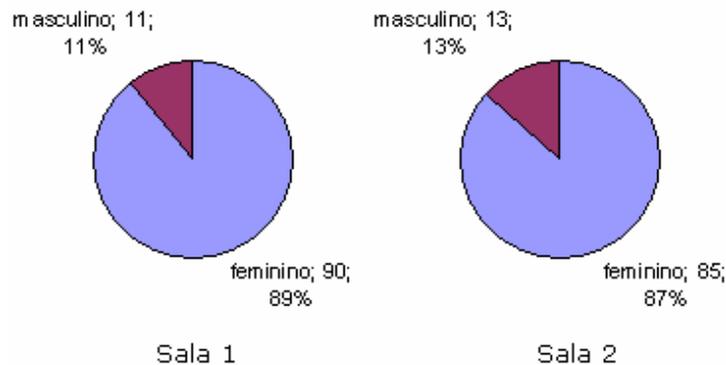


Fig. 2. Male/female ratio among students in Rooms 1 and 2 (‘masculino’ = male; ‘feminino’ = female; ‘sala’ = room).

By considering at least one posting of the “Speak up” forum throughout the analyzed period, one can see that the male participation is likewise proportionally lower: 17 total postings sent by male students against 191 postings sent by female students in Room 1, and 23 total postings sent by male students against 189 postings sent by female students in Room 2 (Fig. 3).

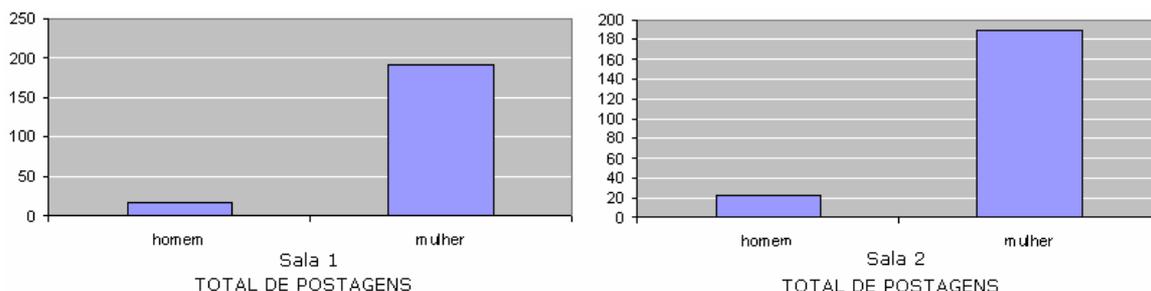


Fig. 3. Total participation (with at least one posting) at the “Speak up” forum in Rooms 1 and 2 (‘total de postagens’ = total posting number; ‘homem’ = male; ‘mulher’ = female; ‘sala’ = room).

In Room 1, 47 students did not post any comment (22.6% of the total postings). In Room 2, 55 students did not post any comment in the “Speak up” forum (25.9% of the total postings). Such numbers of participants that did not post any comment in the forum, though representative (about ¼ of the total postings) in both rooms, are probably due to students that did not participate in other programmed activities, as shown in Table 5. Many students, although officially enrolled, did not participate in the programmed activities, including “Speak up”.

By observing Table 1, we can realize that the overall participation in the “Speak up” forum preferably occurred from 06h01 a.m. to 6 p.m. (18h00, Brazilian time), from Monday to Friday, in both rooms, with a slight percentage difference in such indicators. Most participants posted at least one comment in “Speak up”, and the number of students that posted more than one comment are significant (18,8% of the overall postings in Room 1, and 23.6% in Room 2). From the table, we can clearly see that participation in the free forum was higher than the number of officially enrolled students, and also higher than each of the disciplinary forums proposed in each room (Table 5).

The qualitative analysis, according to the criteria shown in Table 2, opened room for various interpretations. The sample universe is broad, with several subjective nuances that need attentive view and, as far as it is possible, linked with the analysis criteria [24]. In many moments, postings could be classified in more than one analysis criterion, thus evidencing multiple realities faced by students in their educational process, either in a physical or in a VLE classroom [25].

Various postings literally evidenced the gain in confidence when accessing the platform activities from discussions and other directions taken at the “Speak up” postings. Parts written down from Room 1 (students # 1, 6, 7, 9 and 13, from Table 3) are illustrative, as well as those from Room 2 (students # 1, 10, 12 and 15, Table 4).

Messages that evidenced the improvement of the teacher-student relationship are clearly represented in students # 5, 11, 12 and 15 in Room 1 (Table 3), and # 5, 9 and 14 in Room 2 (Table 4).

Aspects related to self-esteem of the educational process as a whole can be also verified in various postings, such as the picked parts written down from students # 2, 3, 5 and 9 in Room 1 (Table 3), and from students # 1, 3, 4, 11 and 13 in Room 2 (Table 4).

Criticism to the educational process or to the importance of the free and open forum was very scarce. Some parts are represented in students # 4 and 8 in Room 1 (Table 3), and in students # 2, 3, 6 and 8 in Room 2 (Table 4).

Increase of trust in teachers’ work within the VLE classrooms was verified in many postings. Parts written down from students # 1, 2, 9, 10, 11, 13 and 15 in Room 1 (Table 3), and students # 5, 9, 11 and 14 in Room 2 (Table 4) are illustrative.

Finally, the last criterion considered was the increase of the teacher-student and student-student interactivity. In Room 1, parts picked from students # 3, 5, 7, 10, 11, 12 and 14 (Table 3) are representative; in Room 2, illustrative parts include those picked from students # 5, 7, 11, 12 and 14 (Table 4).

4 FINAL CONSIDERATIONS

At the end of this study, I could notice some relevant points, which will be listed below as final considerations:

1. The free and open forum, represented in the present research work by the “Speak up with no fear...!” link, is a highly valuable tool;
2. By considering the access rates, the free forum is more used than the disciplinary forums and other activities and tasks proposed;
3. Students recognize the lack of a non-formal, non-evaluative free-speech room to share pedagogical problems, debate on pertinent questions regarding the learning process within a VLE platform, and to increase interactivity amongst the various levels of stakeholders (teachers, tutors and students);
4. There is qualitative gain on self-confidence toward teachers’ roles played within VLE classrooms;
5. There is an increased level of interactivity among students and among teachers and students, thus enhancing good practices and, consequently, increasing students’ performance in their disciplinary tasks and other activities that depend upon the use of certain tools made available in a VLE classroom.

If we consider the line of thinking settled by [5], the teacher working on a DLE basis “(...) also plays the role of a tutor”, and his/her main attributions are: “(...) participation in the evaluation process; mediation between teacher and students, and amongst students; (...) incentive to apprenticeship, **motivation**” [5, bold on purpose] – thus, monitoring of the free forum in terms of access rates, posting follow-up, existence of better interactivity development, and trust in the use of learning tools within a VLE classroom, and many other pertinent issues, can be addressed by the responsible tutor through the handling of proper mechanisms.

We suggest, then, that similar forums such as "Speak up with no fear...!" could be opened in other DLE courses to enhance a non-formal and non-evaluative process.

References

Most references are cited in Portuguese. The original paper from which this English version was prepared has been published at Paidei@, an electronic journal maintained by Unimes Virtual.

[1] ALAVA, S. (Org.). *Ciberespaço e formações abertas: rumo a novas práticas educacionais*. Porto Alegre: Artmed Editora, 2002.

[2] ALAVA, S. Uma abordagem pedagógica e midiática do ciberespaço. *Pátio Revista Pedagógica*, n.26, p. 9-11, mai./jul. 2003.

[3] BARBERÁ, E.; BADIA, A. *Educar con aulas virtuales: orientaciones para la innovación en el proceso de enseñanza y aprendizaje*. Madri: Machado Libros, 2004.

[4] COELHO, U.B.V. *Tutoria na formação de professores: um vasto campo de investigações*. Florianópolis, SC: UFSC, 2001. Dissertação (Mestrado em Educação) – Programa de Pós-Graduação em Educação, Universidade Federal de Santa Catarina, Florianópolis, 2001.

[5] GUIOTI, E.A. *Educação a distância: tendências predominantes na sua expansão, Brasil e Espanha*. São Paulo: PUCSP, 2007. Tese (Doutorado em Educação) – Programa de Pós-Graduação em Educação, Pontifícia Universidade Católica de São Paulo, São Paulo, 2007.

[6] MASETTO, M.T. Mediação pedagógica e uso da tecnologia. In: MORAN, J.M. (Org.). *Novas tecnologias e mediação pedagógica*. Campinas, SP: Editora Papirus, 2000.

[7] PINTO, A. de C. *A formação de professores para a modalidade de educação a distância: por uma criação e autoria coletivas*. Florianópolis, SC: UFSC, 2004. Tese (Doutorado em Educação) – Programa de Pós-Graduação em Educação, Universidade Federal de Santa Catarina, Florianópolis, 2004.

[8] ALONSO, M. Mudança educacional: transformações necessárias na escola e na formação de educadores. In: FAZENDA, I. (Org.). *Interdisciplinaridade e novas tecnologias: formando professores*. Campo Grande, MS: Ed. UFMS, 1999.

[9] SOLETIC, A. A preparação de materiais escritos nos programas de educação a distância: problemas e desafios. In: LITWIN, E. (Org.). *Educação a distância: temas para o debate de uma agenda educativa*. Porto Alegre: Artmed, 2001.

[10] KEEGAN, D. *The foundations of distance education*. Londres: Croom Helm, 1986.

[11] POLETTINI, A.F.F. Rompendo o isolamento: contribuições para a mudança na prática do professor. ENCONTRO NACIONAL DE DIDÁTICA E PRÁTICA DE ENSINO, 1998, Águas de Lindóia, SP. *Anais I e Resumos*. Águas de Lindóia, SP: 1998.

[12] LITWIN, E. (Org.). *Educação a distância: temas para o debate de uma agenda educativa*. Porto Alegre: Artmed, 2001.

[13] HOLMBERG, B. *Educación a distancia: situación y perspectivas*. Buenos Aires: Kapelusz, 1985.

[14] BIZZO, N.M.V. Ensino de Ciências e EAD. In: LITTO, F.M.; FORMIGA, M. (Orgs.). *Educação a distância: o estado da arte*. Vol. 1. São Paulo: Pearson Education do Brasil Ltda., 2008.

[15] ALMEIDA, M.E.B. Educação, ambientes virtuais e interatividade. In: SILVA, M. (Org.). *Educação online: teorias, práticas, legislação, formação corporativa*. São Paulo: Edições Loyola, 2003.

[16] MAGGIO, M. O tutor na educação a distância. In: LITWIN, E. (Org.). *Educação a distância: temas para o debate de uma agenda educativa*. Porto Alegre: Artmed, 2001.

- [17] BELONI, M.L. *Educação a distância*. São Paulo: Autores Associados, 2003.
- [18] BOGDAN, R.; BIKLEN, S.K. *Investigação qualitativa em educação: uma introdução à teoria e aos métodos*. Porto: Porto Editora, 1994.
- [19] CRABTREE, B.; MILL, J. *Doing Qualitative Research*. Nova Iorque: Newbury Park/Sage, 1992.
- [20] GIL, A.C. *Métodos e técnicas de pesquisa social*. São Paulo: Atlas, 1987.
- [21] GLASS, G. Primary, Secondary and Meta-Analysis. *Educational Researcher*, vol. 5, n. 10, p. 3-8, 1976.
- [22] GUBA, E., LINCOLN, Y.S. Competing Paradigms in Qualitative Research. In: DENZIN, N.K., LINCOLN, Y.S. *Handbook of Qualitative Research*. Londres: Thousand Oaks, 1994.
- [23] LÜDKE, M.; ANDRÉ, M.E.D.A. *Pesquisa em educação: abordagens qualitativas*. São Paulo: Editora Pedagógica e Universitária, 1986 (Temas Básicos de Educação e Ensino).
- [24] MORAES, M.C. *Pensamento Eco-Sistêmico: Educação, aprendizagem e cidadania no século XXI*. Petrópolis, RJ: Vozes, 2004.
- [25] SILVA, M. *Sala de aula interativa*. Rio de Janeiro: Quartet Editora, 2002.