

*Present situation analysis  
within critical-complex pedagogy:  
surfing the text, the context and the discourse*

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**Abstract:** This paper discusses the improvements that critical-complex pedagogy proposes to present situation analysis – a fundamental pre-course investigation of students’ communicative and learning needs and wants in English for Specific Purposes literature. The pedagogy expands students’ communicative needs analysis beyond rhetorical and linguistic conventions of the target discourse. A three-phase investigation for the design of an online Critical English for Academic Purposes course is presented and demonstrates the potentialities of the pedagogy to orient the investigation of students’ pre-course knowledge about textual, contextual and discursive features of the target genres, in order to identify their literacy skills to produce those genres.

**Keywords:** Critical-complex Pedagogy. Critical Needs Analysis. Present Situation Analysis. Academic Literacy.

## 1. Introduction

Critical-complex pedagogy structures the design and execution of academic writing courses, helping teachers and course designers to investigate the specificities of the relevant discourse and of the educational context in order to offer courses that are sensible to classes' contextual needs and constraints, and which can effectively contribute to the development of students' academic literacy (VIEIRA, 2019a). One of the main procedures within the pedagogy is a critical needs analysis of students, which contemplates a target and a present situation analysis, students' learning needs and wants. The results are fundamental to define initial learning goals and to design appropriate tasks throughout the course.

Although present situation analysis has been widely approached in the literature, especially within English for Specific Purposes (ESP), it has mainly focused on the investigation of the target situation students will need English for, and the relevant genres in it (cf. RAMOS; LIMA-LOPES; GAZOTTI-VALLIM, 2004; DE CARVALHO, 2008; DE OLIVEIRA, 2011; ATAI; SHOJA, 2011; VIEIRA; ARANHA, 2015a, 2015b – among others). Besides, it has also been dedicated to identify learners' rhetorical knowledge and language skills to consume and produce those genres (cf. BAKIĆ-MIRIĆ, 2012; VIEIRA, 2017; ARANHA; VIEIRA, 2018). Departing from Ferreira's (2015) concept of academic literacy as the ability to produce and consume academic texts on specific disciplines, according to linguistic, textual and social conventions, however, critical-complex pedagogy proposes an expansion in present situation analysis.

Added to students' learning needs and wants, and their initial linguistic and rhetorical knowledge and skills to produce the target genres, critical-complex pedagogy orients the investigation of learner's pre-course comprehension about the contextual factors involved in the use of those genres by the target discourse community. This is important because, as stated by Aranha (2009), students' lack of knowledge about the discursive practices in the academia is the main cause for their difficulties to produce academic texts. Such a comprehensive present situation analysis is only possible if it proceeds an equally comprehensive target situation analysis, in which the target genres are contextually, textually and linguistically analyzed, in order to raise relevant data to understand, describe and teach the target genres beyond their format.

In this paper, based on the data from a target situation analysis previously carried out (VIEIRA, 2019a, 2019b), a three-phase investigation conducted during the preparation stage of an online *Critical English for Academic Purposes* (CEAP) (BENESCH, 2012) course for Brazilian computer science graduate students is presented. The aim is to discuss critical-complex pedagogy's proposal for pre-course present situation analysis, demonstrating how it orients a feasible way to investigate learners' social and academic profile, their learning needs and wants, as well as their initial literacy skills to produce the target genres, by means of identifying their background knowledge about social, rhetorical and linguistic conventions of those genres.

*Present  
situation  
analysis within  
critical-  
complex  
pedagogy*

## **2. Critical-complex pedagogy: a brief presentation**

Sensible to the complexity of language teaching and learning, critical-complex pedagogy (VIEIRA, 2019a) finds one of its theoretical bases on the teaching principles of CEAP – the critical perspective of English for Academic Purposes (EAP), one of the branches of ESP (English for Specific Purposes) teaching approach. Proposed by Sarah Benesch (2012), CEAP advocates for the need to bring contextual issues, along with linguistic and textual ones, to the forefront of language classes. Those contextual issues would refer to political interests and power relations related to the use of language in the target discourse community and to the very process of language teaching and learning. For these purposes, critical-complex pedagogy proposes a complex methodology for course design, execution and evaluation.

That methodology is inspired by Burns and Joyce's (1997 *apud* HYLAND, 2004) steps for genre-based academic writing courses, as well as on Freire's (2012) Complex Educational Design. It has been firstly proposed in a previous work (VIEIRA, 2014), and modified years later (VIEIRA, 2019a), and it organizes the work in CEAP courses into 3 stages: preparation, execution and reflection. The first one (the Preparation Stage) is divided into ten steps, in which

- I) the context where the target language will be used is identified;
- II) the sequence of events in such a context is delineated;
- III) the genres used in the sequence are listed;
- IV) target and present situation analysis are carried out;
- V) students' learning needs and wants are investigated;

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127

- VI) teachers' needs analysis is conducted;<sup>1</sup>
- VII) a means analysis is realized, in which the logistics for the execution of the course is considered, such as the mode of classes (whether online, hybrid or presential), total workload of the course, frequency of classes etc. Here, educational, economic and political interests of the institution where the course will take place are also investigated;
- VIII) initial learning goals are defined;
- IX) authentic texts are selected and analyzed;
- X) the first draft of the course and the tasks of the first unit are designed.

In the second stage, the first unit of the course is executed, followed by the third stage, in which students and the teacher evaluate the tasks, their own performances and the course in general. Based on the results of Stage 3, initial learning goals are revised, and, if needed, the first draft of the course is altered to meet the new goals; unit 2 is designed and executed, after which the whole process is restarted.<sup>2</sup>

Those three stages are, then, recurrent and recursive, since a constant assessment of the course may lead to a constant redesign of tasks and units, depending on the needs and possibilities identified. Needs analysis, then, is the main methodological procedure in critical-complex pedagogy, once it is a privileged source of information for adequate tasks design for the target audience throughout the course. Not only are rhetorical, textual and linguistic specificities regarding the target discourse identified, but also is pedagogical, ideological, political, economic, and emotional information related to the students, the teachers and the institution involved in the course investigated, as well as the relations of power that may determine what can be taught, when and how.

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1 Teachers' teaching beliefs, wants and skills highly influence language course execution. According to Kumaravadivelu (2003), although learning is not a consequence of teaching, teaching has a fundamental role in the learning process, mediating and facilitating it. Besides, the classroom, as an authentic context of human interaction, is not free from relations of power. Therefore, teachers' needs should also be considered in language course design, in order to anticipate teachers' style, preferences, ideologies, abilities and difficulties regarding, among other things, content, teaching approach, and methods for learning assessment, and, then, plan classes that meet students' and teachers' needs, as well as institutional ones.

2 Cf. Vieira (2020) for a deeper discussion on the grounding principles of critical-complex pedagogy and its procedures for CEAP course design, execution and evaluation.

Such a comprehensive ongoing needs analysis, which orients task design and learning assessment, then, enables this pedagogy to carry out a complex and a critical approach to CEAP course preparation and execution. It all starts in Stage 1 (Preparation) – steps (i) to (iv), with a target and a present situation analysis (SONGHORI, 2008). In the former, an investigation of the discourses that the target audience needs to understand and produce in English is carried out, and in the latter students' pre-course knowledge and deficiencies to engage with the target discourse community are investigated, in order to determine relevant content for the course.

Genres, as social, historical and cultural conventionalized ways of communicating and acting in society, are privileged objects to investigate the discourse,<sup>3</sup> since they reveal the content, the rhetoric organization and the register that are socially expected in a given context of human (inter)action. Moreover, they also show the social and communicative organization of such context, how the participants divide and structure their actions, based on power relations. Due to the complexity of language and its use, a number of perspectives on genre study have emerged, focused on investigating different levels of the discourse involved in genre use (cf. BAWARSHI; REIFF, 2013). Critical-complex pedagogy proposes the use of two of them in target situation analysis: sociorhetoric (SWALES, 1990; 2009) and the new rhetoric school (BAZERMAN, 2004) – one as a complement to the other, as a way to promote a critical approach to literacy teaching, investigating the target genres with a focus on text and on context, inextricably.

The new rhetoric school departs from a brief analysis of the text (intertextualities, the relationship among genres, their organization within a system of genre) in order to understand the context of language use: the organization of the activity system, members' perception about their own roles in this organization, how genres perform social activities etc. (BAZERMAN, 2004). Sociorhetoric, which is the basis of ESP literature, on the other hand, departs from a brief analysis of the context (the organization of the discourse community, and what

*Present  
situation  
analysis within  
critical-  
complex  
pedagogy*

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129

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3 In this paper, “discourse” is understood after Fairclough (1989), according to whom, discourse is the use of language, being language a social practice. It means that language use, i. e. the discourse, “is always a social act in itself [...], determined by the larger social and ideological conditions of society” (PENNYCOOK, 1994). It comprehends, thus, the relation between form and meaning, content and rhetorical organization, which are motivated, limited and shaped by contextual issues, such as ideology and power relations.

its communicative purposes are for the use of the target genres) to understand how the discourses are organized into texts and why texts are produced the way they are (BAWARSHI; REIFF, 2013). A register and a rhetoric analysis reveal communicative conventions that are typically used and which are socially and culturally recognized and expected for communicating in a given context of human activity. Rhetoric models (SWALES, 2009) are then constructed, in which moves and steps are organized according to how prototypical they are in the genre and to which position they appear in the text.<sup>4</sup> These models, along with the contextual information investigated, are essential in critical-complex pedagogy since they inform present situation analysis as well as tasks design, which are based on the analysis, comprehension and production of the target genres.

It is relevant to point out that besides content, for the definition of the initial learning goals for the course and the design of tasks, other investigations need to be carried out. Students' learning needs and wants are analyzed in order to find better ways to design tasks and activities. Investigating their learning styles and their preferred learning strategies is a productive way to identify how students like to and how they learn better. Visual, auditory and kinesthetic (GILAKJANI, 2011) are adjectives that describe the learning style of students who learn better, respectively, with visual aids, by listening to oral authentic use of the target language, and by engaging with the task. Communicative, analytical, authority-oriented and concrete (WONG; NUNAN, 2011) represent learning strategies adopted by students who like to learn, respectively, by communicating in the target language, by means of tasks that give them a certain level of independence in learning, following well-explained commands, and making concrete use of the content.

In short, Critical-complex pedagogy believes that language and its use, teaching and learning are complex systems. It recognizes that a number of pedagogical and non-pedagogical factors may continuously influence the educational process. Therefore, such a comprehensive needs analysis aforementioned cannot be restricted

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4 "Moves" are the different rhetorical strategies used by the members of the community to advance in the communicative game and to be closer to reach the main communicative purpose of the genre (MOTTA-ROTH; HENDGES, 2010). "Steps" are different ways in which the "moves" can be performed. See Swales (2009) for a better comprehension about rhetoric models.

to a pre-course activity, as typically proposed by ESP literature. Next section explains how needs analysis is structured in critical-complex pedagogy, with a focus on the present situation analysis, object of discussion in this paper.

### **3. Present situation analysis within critical-complex pedagogy**

Needs analysis, according to Hyland (2005), investigates skills, texts, linguistic forms and communicative practices that a certain group of students needs to know in order to engage with a given social group. Although it is not an exclusive procedure of ESP, it is a determining factor to reach specificity: a key principle of this teaching approach. To design courses that prepare students to engage independently and critically with their academic discourse community, it is primordial to understand and to describe the target discursive practices, as well as what students already know about them, what they still need to learn and improve in the course, as well as how students' learn better and how/what they like to study.

For a target situation analysis, authentic exemplars of the target genres (cf. CHENG, 2008) and the experience of recognized members of the target discourse community (cf. SARMENTO, 2012) tend to be the object of investigation, whereas for a present situation analysis, the target audience is the main source of information (VIEIRA, 2017). Questionnaires, interviews, authentic language data (texts and recordings), self-assessment, pre- and post-course testing, and learners' diaries are commonly used methods for investigating students' socio-cognitive needs (FLOWERDEW; PEACOCK, 2001). Because each method relies on different kind of information, using different methods to triangulate data helps to increase the reliability of the investigation (cf. ATHAI; SHOJA, 2011; VIEIRA, 2014).

Present situation analysis, as with any other approach to needs analysis, has long been taken as the first step in the design of ESP courses, since the beginning of this teaching approach in the end of the twentieth century (cf. SWALES, 1990). Within time, however, new studies demonstrated the importance of a continuous assessment of students' needs throughout the course to adequate the syllabus to the new demands, based on students' performance on the tasks (cf. KAVALIAUSKIENĖ; UŽPALIENĖ, 2003; SHING; SIM, 2011). Critical-

*Present  
situation  
analysis within  
critical-  
complex  
pedagogy*

---

131

complex pedagogy also proposes this so called “ongoing needs analysis”, although it expands the investigation beyond present situation analysis, incorporating target situation analysis, teacher’s needs and means analysis. In critical-complex pedagogy, then, present situation analysis is a piece of a hologram, which can only reveal the whole picture of how the teaching-learning process is coming along and whether the course is able to fill in students’ socio-cognitive needs if all the other pieces are also considered. Besides, another characteristic in critical-complex pedagogy that is worth of mentioning is the focus on contextual factors, along with rhetorical and linguistic ones, related to the use of the target genres both in the target and the present situation analysis, as a way to understand, describe and teach the target discursive practices beyond its format.

In previous work (VIEIRA, 2019a; 2019b), in order to implement critical-complex pedagogy and evaluate its applicability to distance learning in Brazilian higher education context, an online CEAP course for Brazilian computer science graduate students was designed and executed. Because Brazilian computer science graduate students’ immediate need to use English is to produce research articles and abstracts (VIEIRA, 2014), this 15-hour pilot course focused on promoting students’ literacy to produce one of those genres: the abstract. The design of the course started by a comprehensive target situation analysis, in which, besides conducting a linguistic and a rhetorical analysis of exemplars of the genre, based on sociorhetoric, the publication process of high-impact journals in the field was investigated, in order to identify factors that might influence the acceptance of papers by Brazilian researchers.

Oriented by the new rhetoric school, a three-phase investigation was carried out, in which Brazilian experts who had published in those journals answered to a questionnaire and were individually interviewed, and referees’ evaluation of accepted and refused papers submitted by those experts to those journals were analyzed. Results revealed the profile of those scientists, the reasoning behind researching and publishing in the field, as well as social, political and ideological factors that tend to influence both processes. Those results informed the pre-course present situation analysis to be described and discussed here.



#### 4. The study

Although critical-complex pedagogy promotes a comprehensive ongoing needs analysis, contemplating target and present situation analysis, students' learning needs and the teachers' needs, as well as a means analysis, due to restrictions of space, this paper focuses on the initial present situation analysis for the design of the aforementioned course. A three-phase investigation was conducted by means of multiple methods for data gathering and analysis in order to identify the initial socio-cognitive needs of the target audience.<sup>5</sup> Table 1 presents those phases, their goals, the methods used, and the quantity of students who participated in each of them.

*Present  
situation  
analysis within  
critical-  
complex  
pedagogy*

**Table 1. Phases of present situation analysis**

133

Phase	Goals	Methods	Quantity
1	a) Identify candidates' social profile; b) Promote a self-assessment of candidate's literacy skills to produce research article abstracts in English and of their knowledge about contextual factors related to the target genre; c) Recognize candidates' learning styles and preferred learning strategies; d) Investigate candidates' wants regarding the writing course for academic purposes; e) Conduct the first selection of students to the course.	Questionnaire	55
2	Identify candidates' initial knowledge about social, rhetorical and linguistic factors regarding the production and circulation of abstracts in computer science.	Reading activities	7
3	a) Evaluate candidates' initial knowledge about written English, academic register and the genre abstract, as well as their skills to produce the genre according to computer science's conventions. b) Conduct the second selection of students.	Written test	7

Source: Elaborated by the author

Google web search engine was used to look up high-level public universities located in the five regions of Brazil, and an e-mail

<sup>5</sup> This investigation has been submitted to the Ethical Board of the Institute of Biosciences, Humanities and Exact Sciences (Ibilce) CEP/UNESP-Ibilce (CAAE: 86954718.0.0000.5466), and approved with no revisions required (approval letter number 2.659.635).

Bruna  
Gabriela  
Augusto  
Marçal Vieira

---

134

was sent to their computer science post-graduation department,<sup>6</sup> requesting them to forward an invitation to their students. To confirm their interest in participating in the course, students should answer an online questionnaire, available at the end of the e-mail.<sup>7</sup> Fifty-five graduate students from all over Brazil were interested. Due to time and financial constraints, a limit of 10 students were initially thought for the course. The questionnaire aimed at raising some socio-cognitive information about the students, mainly based on their self-assessment, and conducting the first selection of students, based on three criteria.

Firstly, candidates should be graduate students of Brazilian public universities. This research departs from the results of another one (VIEIRA, 2014) which investigated the needs of computer science graduate students from Brazilian public universities related to the use of English in the academic environment. This course was then designed, following critical-complex pedagogy, in order to meet the needs of this specific audience (which may or may not be similar to the realities of students of other fields, other kinds of institutions or other countries in the globe). Then, candidates should have previous or current experience in conducting research. Because the course focused on research article abstracts, for a more purposeful learning with meaningful written tasks, students needed to have a repertoire to write about when asked to produce authentic exemplars of the genre. Finally, candidates needed to know the basics of English syntax. Although ESP courses can be taught to students with no previous knowledge of English, it demands specific tasks to introduce learners to the language system, which demands a lot of time, and wouldn't fit in a 15-hour course.

Designed at Google Docs, there were 15 questions and sub-questions in the questionnaire, counting 29 questions. It was organized into six sections, which aimed at: (section 1) presenting the course as part of a doctorate research and collect candidate's consent to use their data; (section 2) tracing candidates' social and academic profile; (section 3) recognizing candidates' previously academic experiences related to the study and the production of academic writing in English; (section 4) promoting candidates' self-assessment about their skills to write research article abstracts in English and their perceived difficulties in

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6 All the chosen programs were grade 3-5 by the Coordination of Superior Level Staff Improvement (CAPES) – the Brazilian organ responsible for evaluating higher education in the country.

7 Available at <https://forms.gle/PejpYypKsZYmDCs79>.

the academic publishing process; (section 5) investigating candidates' beliefs over researching in computer science and their perceptions about some factors that might influence the publishing process in the field; (section 6) identifying the candidates' learning styles and their preferred learning strategies; and (section 7) determining candidates' wants and expectations regarding the course.

Data analysis followed a quali-quantitative approach. They were automatically tabulated by Google Docs, and were then analyzed in two levels, as proposed by Aaker and Day (1990): nominal and ordinal. The former aimed to identify candidates' personal, professional and authorial characteristics. The latter classified which features recurred more among the candidates. These data revealed candidates' profile, their background knowledge and beliefs regarding researching in the field, and their perceptions over their own skills and difficulties to write and publish abstracts. All this information enabled the teacher to verify who were eligible for the course according to the pre-established criteria, and to anticipate some socio-cognitive needs of students to be further investigated in the next phases.

Eleven out of the 55 Brazilian computer science graduate students who answered the questionnaire were selected for Phase 2: reading activities. By e-mail, those students received a set of three reading activities in Microsoft Word format, whose aim was to investigate students' current knowledge about social, rhetorical and linguistic factors involved in the production and circulation of abstracts in computer science.<sup>8</sup> In activity 1, a representation of the academic publication process, based on Guilford (2001), was presented and the candidates were requested to indicate the genres produced in some stages of the process, who were responsible for producing them, the target audience of these textual productions, and their communicative purposes. Although Guilford's (idem) process representation wasn't designed based on computer science high-impact journals, a brief analysis of the authors' guidelines of those journals revealed that the publication process in this field of study is quite similar to Guilford's proposal. The aim of this activity was to identify candidates' current knowledge about this activity system, its system of genre and the power relations that those genres regulate.

*Present  
situation  
analysis within  
critical-  
complex  
pedagogy*

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135

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8 Available at [https://drive.google.com/file/d/1runwyaIPtNNPQR4tS\\_Dlq\\_Oz6skmLnbe/view?usp=sharing](https://drive.google.com/file/d/1runwyaIPtNNPQR4tS_Dlq_Oz6skmLnbe/view?usp=sharing).

Activity 2, inspired by Aranha (2009) and based on the rhetoric model of research article abstracts designed in the target situation analysis (VIEIRA, 2019a), aimed to verify candidates' current knowledge about the genre. Five passages from different abstracts in the field were presented. Based on their knowledge about the rhetorical and the linguistic conventions of the genre, candidates must label each passage as either one of the following moves: contextualization, objectives, methods, results and conclusion. Finally, activity 3, inspired by Aranha and Vieira (2018), aimed at verifying candidates' current knowledge about the academic register. Three passages from different abstracts in the field were modified with inappropriate words/expressions to the academic communication, and candidates should identify them and explain why they sounded weird to that context of human (inter)action.

Data analysis of Phase 2 also followed a quantitative and a qualitative approach. The latter – based on the new rhetoric school's postulates (activity 1), and on sociorhetoric's ones (activities 2 and 3) – aimed at comparing candidates' responses to their own answers at the questionnaire. The goal was to understand the discrepancies and the similarities between their perceptions about their own literacy skills to write abstracts and the ones verified by the teacher based on their performance in the activities. Difficulties and lack of knowledge regarding the context of genre production and its communicative purposes, rhetorical structure and register were classified in order to be part of the syllabus of the course. Quantitative analysis determined the order of importance of each content in the course, once the most problematic issues would be first approached in the syllabus.

The written test was proposed after activity 3. Candidates must produce a research article abstract on the research they were then carrying out or on a previous research of their own. The goal was to deepen the assessment of their initial knowledge about the English language system, the academic register and the genre abstract in computer science, and to evaluate their skills to produce the genre in the field. Data analysis also followed a mixed approach. Firstly, the candidates' production was rhetorically and linguistically analyzed and compared to the considered rhetoric model of abstracts, in order to verify whether the texts fit the expectations of the discourse community, as well as their potential to reach the genres' communicative purposes. According to the target situation analysis previously carried out (cf.

VIEIRA, 2019a), the defining criterion of a high-level research article in computer science and subfields is to bring contributions and innovations to the field and/or to the world/society. Therefore, candidates' abstracts would fulfill the genre's communicative purposes if, besides presenting the research according to the conventionalized rhetorical organization, they emphasized the contributions/innovations of the work.

Quantitative analysis in Phase 3 also aimed to identify the most common difficulties of the candidates in order to prioritize them in the course. Data from the three phases of the present situation analysis were triangulated, offering the teacher a wide comprehension of candidates' initial knowledge, skills and deficiencies related to the production and publication of abstracts in the field. The seven candidates who performed the reading activities and the written test were selected to take part in the course. Despite the huge difficulties of some of them to produce the genre, all of them fit the three criteria previously established.

*Present  
situation  
analysis within  
critical-  
complex  
pedagogy*

---

137

## **5. The teaching and learning context: students' profile, learning needs and wants**

The data presented here are limited to the seven students selected to take part in the course. All of them are male and were, then, doctorate students. Table 2 presents students' social and academic profile, their learning needs and wants, raised on, respectively, sections 2, 3, 6 and 7 of the questionnaire. Students' names are fictional to preserve their anonymity.

Students' social profile brings fundamental differences that may influence the teaching and learning processes. Firstly, regarding their affiliation, it is important to consider the financial discrepancies in terms of governmental investments that each state in the country receives for education. Amazonas Federal University (UFAM) is located in the north of Brazil and, according to a report in Terra website, Amazonas is the least invested state in the country, receiving R\$ 3.075, 89 per student in elementary school a year. The University of Campinas (UNICAMP) and Uberlândia Federal University (UFU) both are in southeastern Brazil, located in the state of São Paulo and Minas Gerais, respectively. The latter gets R\$ 3.869,33 per student/a year whereas the former, R\$ 5.788, 19. These numbers reveal that, since basic school, educational opportunities are not equal in the country, and, in higher education, those inequalities

may affect students' preparation for university in general, and so for CEAP courses. Besides, considering students' age, working with academic writing from a social-interactionist perspective may be a big challenge in the course, since, in Brazil, the autonomous model of literacy grounded the teaching of writing during the years 90 and 2000.

**Table 2. Students' profile, learning needs and wants**

Students	Age	Affiliation	Academic writing experience	Learning needs	Wants
Kléber	34	UFU	English + AWC + RAP	Kinesthetic + analytical	Rhetorical, textual, register
Nilton	33	UFU	English + RAP	Kinesthetic + concrete	Rhetorical, textual, linguistic
Robson	37	UFAM	English + AWC + RAP	Kinesthetic + concrete	AP, genre, linguistic
Olavo	34	UFAM	English + AWC + RAP	Kinesthetic + analytical	AP, linguistic
Leandro	32	UNICAMP	English + AWC + RAP	Kinesthetic + analytical	Genre, rhetorical, textual
Alberto	47	UFU	English	Kinesthetic + analytical	AP, linguistic
Danilo	28	UFAM	English + RAP	Kinesthetic + analytical	Rhetorical, textual, linguistic

Source: Elaborated by the author

Students' academic profile, as previously mentioned, was fundamental to their selecting for the course. All of them said that they have taken an English course in language schools for at least three years, besides other experiences that, according to them, have contributed to their learning of the language (working, studying and traveling abroad). Although there is no direct correspondence between studying and learning, it was expected that, after years of studying the language, English grammar and syntax would be familiar to them. The Reading activities and the written test proved these expectations were right. The same holds true for students' previous experience with academic writing and the production of the target genre. Fifty seven percent of them affirmed that they had already taken any academic writing course (AWC), and all students but Alberto had already published at least one

research article (RAP). This experience, as expected, contributed to those students' familiarity to both this social practice and the target genre. As the new rhetoric school explained, the immersion into social practices is primordial to learn the specificities of the language that shapes ideas and the logic of communicating and acting in each context of human (inter)action (BAZERMAN, 2004).

To identify students' learning needs, question 12 in the questionnaire investigated their learning styles (GILAKJANI, 2011); and question 13, their preferred learning strategies (WONG; NUNAN, 2011). A table with two statements regarding each style and each strategy were presented, and students were supposed to grade each sentence from 1 (strongly disagree) to 5 (strongly agree). The sentences with most grades (4) and (5) represented students' learning styles and preferred strategies. According to their answers, it is possible to state that 100% of the students are kinesthetic, which demands tasks that promote students' active learning, i.e. in which students learn by doing. Besides, five of the seven students make use of analytical learning strategies, whereas the other two prefer concrete strategies. For the former students, tasks in which students can have a high-level independence are needed; for the latter, it is important to offer tasks that promote a concrete use of the language.

Finally, students' wants were the last investigation to understand the context of language teaching and learning. As shown in Table 2, learning rhetorical, textual and linguistic aspects of the target genre is the big motivation (question 13) and interest (question 14 and 15) of most of the students. Three students mentioned the context of academic publication (AP), and only one commented on the need to improve his knowledge of the academic register. These data converge to the ones to be presented below, regarding students' biggest difficulties to read and to produce the genre, revealing the relevant content to be approached in the CEAP course.

## **6. Students' current academic literacy skills for the production of research article's abstracts**

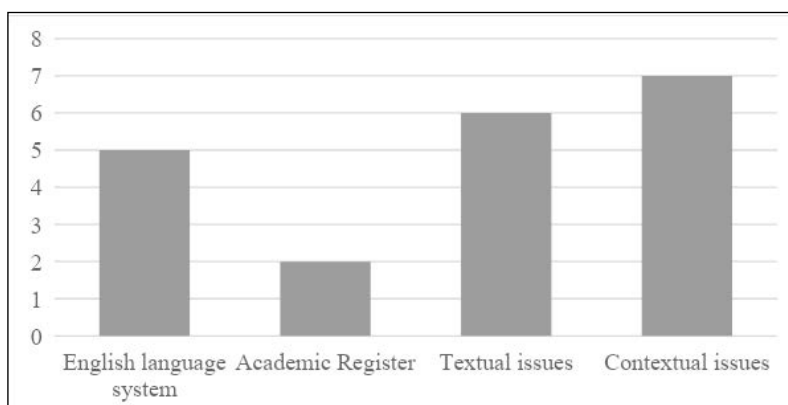
Three sets of data were considered to identify students' academic literacy skills prior to their participation in the course: (i) their perspective over their own skills to produce abstracts in English, raised by sections 4 and 5 in the questionnaire; (ii) their answers to the reading activities; and (iii) their performance in the written test. Figure 1 shows a summary of students' deficiencies.

Bruna  
Gabriela  
Augusto  
Marçal Vieira

140

Students' answers to the considered questions in the questionnaire showed that most of them (85%) had a negative view of their own literacy skills to produce abstracts in English, believing that their knowledge of the English language system and of academic writing were not good enough to produce abstracts independently. The item "genre" (described as the ability to define the communicative purposes of the text, to visualize the target audience of the text, and to pose yourself critically in the discourse) was the second most checked in question number 8, in which students should identify their biggest difficulties to write the target genre. Together with "text" (to choose and to organize relevant information), it was checked by three students. "Grammar" (word order, punctuation, verbal conjugation, pronouns etc.) and "Register" (to choose appropriate words and expressions to the field and to the academic environment), both, were checked by four students.

**Figure 1. Students' deficiencies to produce research article's abstracts**



Source: Elaborated by the author

Starting by the micro-textual level, students' assessment of their own linguistic knowledge converged to the one observed by the teacher in their textual production. Although two students did present only punctual problems in only four categories (punctuation, inadequate use of article and pronouns, and inadequate verbal conjugation), the other five students presented big difficulties with the English language system. Problems in at least six categories were identified in their text, including serious syntactical inadequacies and verbal regency. Passages 1-5 below illustrate those problems:



Passage 1: *However, how [do we?/ does anyone?/ to?] characterize and identify relevant aspects of LMS collaboration in a way that [it?] continuously encourages the learning?* (taken from Alberto's written test).

Passage 2: *A set of digital videos was sent between two dtn nodes and results [were?] measured.* (taken from Robson's written test).

Passage 3: *However [Despite?] the advantages of the application planning for this purpose, it is realized that computationally; such a process can be [computationally] costly.* (taken from Nilton's written test).

Passage 4: *Its design was guided by requirements elicited from [by] previous work in [on] creation of workflow variants [creation,] using a scenario in the hydrology domain.* (taken from Leandro's written test).

Passage 5: *In D2D, mobile users can communicate among itself [themselves] using the the traditional antenna technology[.] present in 4G[.] and they can also communicate using other near mobile users as [a way?] to transmit data to destination node.* (taken from Danilo's written test).

Present  
situation  
analysis within  
critical-  
complex  
pedagogy

---

141

In Passage 1, the student asked two questions with no subject identified. In Passages 2 and 5, relevant words were omitted in the sentence. In Passage 3, Nilton was confused by the meaning of the linking words "however" and "despite"; besides, the student's sentence construction was weird to English. Finally, in Passage 4, two problems in verbal regency can be identified.

Regarding the academic register, the second item in which students believe to find most difficulties when producing abstracts in English, however, only two students demonstrated to have such a difficulty. The other five showed to have punctual problems, mostly related to the use of acronyms without previous definition. In the written test, four of the seven students presented only one academic register inadequacy each in their text. In the reading activity number 3, in which students should identify words and expressions inappropriate to the academic register, the same four students got all the answers right. Despite this good performance of most of the students in the academic register, tasks on this topic should also be designed for the course. According to critical-complex pedagogy, it is necessary to

consider the contradictions between students' perceptions about their skills and those perceived by the teacher in pre-course activities and tests in order to design tasks that both answer to their socio-cognitive needs and respect their beliefs. A good strategy is to propose different activities in the same tasks, adding those contents in which students are already good at but want to improve on as stages for performing the task, not a whole task for them (cf. VIEIRA, 2019a).

Bruna  
Gabriela  
Augusto  
Marçal Vieira

---

142

Concerning the textual dimension of the genre, students' performance in the reading activities and in the written text converged to their perceptions about their own knowledge and skills before the course, i. e. students showed to have difficulties regarding the selection of relevant content and their organization in research articles' abstracts. In the written test, all the students, but Danilo, presented texts that are inappropriate to the genre in their field of study. Table 3 shows the moves presented in the abstract produced by each student.

According to the rhetorical model of abstracts, produced in the target situation analysis (cf. VIEIRA, 2019a), Moves 1, 2, 3 and 4 (contextualization, objectives, methods and results) are prototypical in computer science research articles' abstracts. Moves 5 and 6 (conclusion and structuration) are prototypical in some subfields, but may be absent in others, such as in Information Systems. Danilo was the only student to produce an abstract with all relevant information for the genre (M1, M2, M3 and M4). Olavo's text contained the biggest number of moves (5), but missed one of the most relevant information for communicating through this genre: the results of the research. The same holds true for Kléber's, Leandro's, Robson's and Alberto's. One of the main communicative purposes of abstracts, according to Motta-Roth & Hedges (2010), is to call the attention of the readers to the full paper. If, according to the results of the target situation analysis, a defining criterion for high-level research in computer science is to bring innovation/contributions to the society and/or to the world, research articles' abstracts, to be effective in catching the readers' attention, must highlight the contributions of the paper. This is mainly possible by the presentation of the results of the research.

**Tabela 3. Rhetorical moves in the abstracts produced by students in the written test**

Alunos	M1	M2	M3	M4	M5	M6
Kléber	✓	✓	✓		✓	
Nilton		✓		✓		
Robson		✓	✓			
Olavo	✓	✓	✓		✓	✓
Leandro	✓	✓	✓			✓
Alberto	✓					
Danilo	✓	✓	✓	✓		

Source: Elaborated by the author

*Present  
situation  
analysis within  
critical-  
complex  
pedagogy*

---

143

Finally, the answers of the students to the questions in section 5 of the questionnaire and to the first reading activity, added to their performance in the written test, showed a lack of critical thinking regarding the context of production, circulation and consumption of research articles' abstracts. Firstly, regarding the activity system of research articles' publication, different to what the target situation analysis showed, most of the students (57%) believed that the defining criteria for high-level research in the field is related to the text: having good arguments (Kleber), being objective and coherent (Olavo), having good references (Alberto), simple writing (Danilo). In the questionnaire, only Nilton and Robson mentioned the contribution of the research. The same holds true for their performance in the reading activity. All students, but Olavo and Robson, were able to identify almost all the genres produced in each stage of the publication process, as well as the authors and the target audience of each, but failed to identify the communicative purposes of the genres.

Besides, regarding the multiple factors that might influence the publication process in the field, investigated by the question 11 of the questionnaire, converging to the results of the target situation analysis (VIEIRA, 2019b), all students recognized the non-neutrality of the process, checking contextual factors that might positively and negatively cause such an influence. "Having a foreigner co-author" (85%) or having co-authorship with an acknowledged researcher in the field (100%), "be from or having partnership with foreign institutions" (100%), and "having a doctorate degree" (71%), are, according to the

students, positive contextual influences for having the paper accepted. “Being a Brazilian researcher or being from a Brazilian institution” (42%), on the other hand, were evaluated by them as a negative factor. Still, different from the results of the target situation analysis, none of the students indicated “gender” as an influential factor, denying/neglecting the presence of sexism in the academia.

Contributing to the development of students’ academic literacy, as the critical-complex pedagogy advocates, demands working beyond linguistic and textual features, so students are able to comprehend more than just the conventionalized forms of the communication in the target discourse community through the target genres. For an independent participation in the community, students need to understand its social organization, the activities its members are engaged in, their social interests, the genres used to reach those interests, the relations of power organized and perpetuated by those genres etc. Understanding the context of human (inter)action enables students to reflect upon their own roles in the target academic discourse community; how knowledge is perceived, how researches are conducted, how and why they are shared the way they are, and only then to produce written text effectively and independently, communicating instead of following fixed formulas. Moreover, knowing all this contextual information is essential for students to analyze which of those discursive practices are effective, and which could be improved; as well as which of them are fair, which needed to be changed and how it can be done.

## 7. Final remarks

This paper presented a pre-course present situation analysis in order to show how critical-complex pedagogy’s theoretic-methodological frame orient a comprehensive investigation, which enables teachers and course developers to navigate linguistic, textual and contextual factors regarding students’ knowledge about the target situation, as well as their learning needs and wants. Because the pedagogy’s ground principle is to be sensible to the complexity of language and its teaching and learning, different methods for needs analysis are adopted, aiming at raising a range of information about the same “piece of the hologram”.

Learners’ self-assessment by means of questionnaires enables the teacher to investigate their perception about their own knowledge of the target discourse community and its members’ discursive practices

and students' skills to engage in the community by means of the target genres, as well as to listen to their preferred ways to study and learn. Authentic language data taken from students' performances in reading and writing activities are an important source of information about what students can do before the course based on their background knowledge, and what needs to be improved. Triangulating those data is important to compare students' beliefs over their own knowledge and skills and those perceived by the teacher, in order to consider both types of information when selecting and organizing the content for the course.

The big contribution of critical-complex pedagogy is the expansion of genre investigation and teaching to contextual factors related to both the target discursive practices and the considered teaching and learning environment. Bringing contextual factors to the classes, CEAP may contribute to students' academic literacy in such a way that they see themselves as part of the community and as members who are responsible for its stagnation or improvement. To do so, an ongoing critical needs analysis is fundamental, starting with both a pre-course target and present situation analysis, like the one discussed in this paper. While the first informs the teacher over the contextual, linguistic and rhetoric conventions of the target discourse community, the second helps the teacher to determine relevant content to the course, based on what students still need to learn, how and why.

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*Present  
situation  
analysis within  
critical-  
complex  
pedagogy*

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145

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Bruna

Gabriela

Augusto

Marçal Vieira

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146

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analysis within  
critical-  
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147

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Bruna  
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148

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*Present  
situation  
analysis within  
critical-  
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149

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