

## Students' Argument Patterns in Asynchronous Dialogues for Learning

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**Abstract:** The research reported in this study focuses on how distance students can learn to use argumentation processes as a tool for learning. For ten weeks, 30 student teachers studied the web-based 15 credit course Teacher Assignment. Data were collected from five student groups' asynchronous argumentation, relating to authentic cases of teacher leadership. Focus was placed on the extent to which students used own and others' texts meaning content in the discussion forum and how the content can be analysed. An analytical framework, based on Bakhtin's theories of dialogues, and Toulmin's argument pattern (TAP), is employed to assess the quality of the written asynchronous argument patterns. A close investigation of the dialogical argument pattern (N=253) shows the extent to which students distinguish, identify and describe the meaning content of the arguments that emerge in social and dialogic interactions in the web-based setting. A dialogic model for argument analysis is also described.

### 1. Introduction

The importance of developing reflective critical reasoning and argumentation, both individually and collectively, has been highlighted in several studies within the field of distance learning and education (e.g. Vonderwell, 2003; Finegold & Cooke, 2006; Wegerif, 2006; Swann, 2010). While many models are available for the design of online activities to promote learning, there are considerably fewer dialogic models for the analysis of arguments. Research points to the tension between teachers' ambitions to develop collective and dialogic interactive learning environments, and finding ways to concentrate participants' discussions more on course content. Matusov (2007, p. 218) describes that the typical classroom tends to lack a strong discursive community in many academic subjects, because the students rely upon their own opinions, which are often uninformed, capricious and poorly developed. He believes that this situation is shaped by the invisible authority of social traditions, as well as voices of the external authority of expert texts or teacher. According to other researchers (Meyer, 2003; Schellens & Valcke, 2005; Wegerif, 2007; Richardson & Ice, 2010), academic education should place value and emphasis on the processes of argumentation, engaging in collective higher-order and critical thinking, and forms of reflective interaction that support students' ability and motivation to cooperate in effective ways. For example Erduran and Villamanan's (2009) study indicates that only 35 % of engineering students' written arguments were valid.

The purpose of the present study is to investigate the extent to which students used own and others' texts meaning content in the discussion forum as a tool for learning. Collective asynchronous dialogues in a university web-based learning environment are investigated. Additionally, the aim is to develop an analytical dialogic model, allowing to distinguish, identify and describe the meaning content of the arguments that emerge in social and dialogic interactions in the web-based setting, both directly and retrospectively. Argumentation ability is here related to the process of assembling and reassembling different components of the students' own and others' words and meanings. There is also a need for the students to understand the "ground rules" of argumentation, and to discuss and argue with one another in a reasonable way. According to Scheuer et al. (2010), students not only need to "learn to argue", they also need to learn good argumentation practices, through argumentation about specific topics, using peer scaffolding and peer support. In other words, "arguing to learn", in the sense that practicing argumentation skills supports critical thinking, as well as other important aspects in learning processes. Certain of these aspects will be discussed below.

### 2. Theoretical approach

Dialogue exchange is a dynamic process, and many individual actions and complex chains of utterances combine to produce effects. The theoretical approach is here related to the Russian linguist Mikhail Bakhtin's theoretical framework of dialogues (1981; 1986, 2004a; 1986, 2004b), and Toulmin's argument pattern (TAP). Toulmin (1958, pp. 98, 101, 103) describes how this can be achieved with an argument model containing six elements. Three are mandatory, while the remaining three are more voluntary or optional, since they occur often, but not always. The basic argument model consists of three mandatory elements: C (*claim*), D (*data*) and W (*warrant*). The extended argument model includes three more optional elements; Q (*qualifier*), R (*rebuttal*) and B (*backing*).

The first mandatory element, *claim* (C), is a superior standpoint, with a relationship to any determination or assertions about what exists, or the justification of the norms or values that people hold or desire for acceptance of the claim. The second mandatory element, *data* (D), is the information which the claim is based on, and may consist of previous research, personal experience, common sense, or statements used as evidence to support the claim. The third mandatory element, *warrant* (W), is explicit or implicit argument that explains the relationship between data and claim, for example, with words such as *because* or *since*.

The first optional element, *qualifier* (Q), is related to the claim, and indicates the degree of strength in the claim of using peculiar comments, for example, with words such as *probably*, *maybe*, *therefore* or *so*. The second optional element, *rebuttal* (R), is connected to the *qualifier* (Q), providing statements or facts that either contradict the claim, data or rebuttal, or qualify an argument, with words such as *but* and *unless*. The third optional element, *backing* (B), can be connected directly to the warrant (W), with often implicit motives underlying claims, expressed with words such as *because of* or *on account of*. According to Toulmin, all terms of the basic argument model (C, D & W) are required to describe or analyse the argument. A summary is given in Figure 1.

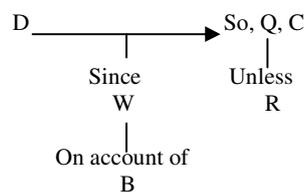


Figure 1. Summary of Toulmin's argument pattern (Toulmin, 1958, p. 104)

If we now proceed to examine the various elements of the argument against the background of Bakhtin's theories on dialogue (1981; 1986, 2004b; 1986, 2004a), we can observe a dialectical relation in dialogic sense and dialogic interaction. For Bakhtin (1981, p. 293), every utterance, spoken or written, is always double-voiced, carrying within itself the voice of those who have used it before. It always contains "the other" from different contexts, as well as the speaker's own voice, expressed from a particular viewpoint or perspective. The voices are thus "half someone else's", and become "one's own" only when the speaker appropriates them. Bakhtin (1981, p. 427) talks about a 'discourse' [Rus. *slovo*] in the dialogue, and points to social and ideological differences within a single language. He further emphasises that language has *multiple* functions, and every utterance, with its attitudes and values, places humans in a cultural and historical tradition:

Therefore, one can say that any word exists for the speaker in three aspects: as a neutral word of a language, belonging to nobody: as an *other's* word, which belongs to another person and is filled with echoes of the other's utterance; and, finally, as *my* word, for, since I am dealing with it in a particular situation, with a particular speech plan, it is already imbued with my expression. (Bakhtin, 1986, 2004b, p. 88)

Meaning is first created when two or more voices or discourses encounter each other, that is, when the reading or listening voice answers or reacts to the writing or speaking voice. In the present article, in line with Bakhtin's reasoning, it is argued that discourse contains words from the author in three aspects: The first aspect is the *neutral* word that reflects the world of others, in the sense of more general meanings. This word is not built on specific words from literature or personal experiences. The second aspect is *others'* word, which is filled with echoes of others' voices, based on others' experiences and reasoning from others' texts, including references and paraphrases of other people's words from literature. Others' words have been created in another context. They are negotiated, and confirm a certain meaning relating to the argument at hand, but they do not originate in the person him/herself, and are not necessarily related to the person's own experience. Finally, the third aspect is *my* word, because the speaker or writer has experience of a particular situation, and connects a certain line of reasoning with internal reflections and feelings.

The combination of these three aspects means that discourse is *double-voiced*, and contains the speakers' or writers' own words, as well as others' words. Arguments, evidence and rebuttal, etc. with own and others' words, are all constructed and reconstructed through mutual negotiation, which shapes and confirms a particular meaning. In Bakhtin's account, the notion of utterance is inherently linked with that of *voice*, which is "the speaking personality,

the speaking consciousness. A voice always has a will or desire behind it, its own timbre and overtones” (1981, p. 434). In other words, the utterances contain *dialogic overtones*, which can, for example, be composed of assertions regarding the world, ontological conclusions, or hypotheses regarding a phenomenon. The double-voiced discourse is appropriated to become my own words and build a mosaic of quotations, integrations and transformation of other utterances or texts. Therefore, every utterance becomes a link in a chain of utterances, since each utterance can be considered as an answer to preceding utterances, that is, it has *addressivity* (Bakhtin, 1986, 2004b).

### 3. The study

The present study is based on the analytic framework of Bakhtin’s theories of dialogues (1981; 1986, 2004b; 1986, 2004a) and Toulmin’s argument pattern (1958). It aims to examine the extent to which students used own and others’ texts meaning content in the discussion forum as a tool for learning. The aim is also to develop an analytical dialogic model that can be used to distinguish, identify and describe the meaning content of the arguments that emerge in social and dialogic interactions in a web-based setting, both directly and retrospectively. The research question in this study is:

- In what ways do students’ use own and others’ texts meaning content in the asynchronous dialogues in a web-based discussion forum as a tool for learning and how can the content be analysed?

#### 3.1 Methodological considerations and analysis

The study monitored 30 student teachers (of which 19 were women and 11 were men) at a Swedish School of Education, who participated over a period of ten weeks in a course called “Teacher Assignment”. The course deals with various aspects of the teacher’s role and mission. The students were divided into five groups, with five to seven individuals in each. Each group included both men and women. Every student contributed with a case from their own experience, while an additional case presented an authentic incident, which had led to legal proceedings. Materials relating to this final case also included relevant laws and regulations. The students first submitted their own particular contribution to the case assignment. Afterwards, they had to argue and critically examine the contributions of the other members of their group, over a period of a week. The purpose of the assignment was to start an argumentation and a discussion concerning different solutions to the underlying problems in the cases. The data collection thus consists of the students’ asynchronous written arguments in five student groups (A-E), within the frame of the case assignments relating to teacher leadership, and aiming to develop collaborative discussions and the ability to critically examine ideas in this area. Of the total of 362 arguments, 253 (70 %) were selectively analysed through a two-phase analysis (Patton, 2002). The remaining 109 (30 %) arguments were excluded, since they mainly concerned administrative, organisational or social communications between students.

Table 1. Number of asynchronous arguments in the web-based learning community in five student groups.

	Group A	Group B	Group C	Group D	Group E	N
Number of students	7	5	6	6	6	30
Number of arguments	77	70	109	48	58	362
Selective analysis	63	61	58	34	37	253

Combining Toulmin’s argument patterns and Bakhtins theoretical dialogic frameworks seems appropriate for this study, because Bakhtin broadens the concept of language, by pointing to the fact that dialogic interaction and a dialogic relation are inherent to all communication. On the other hand, Toulmin’s practical argument pattern makes the structure visible that connects various data, claims and support for the arguments to each other. Using a combination of these perspectives thus makes the analysis of written asynchronous dialogues more explicit, reliable and valid.

A revised version of Toulmin’s argument pattern with the mandatory and optional elements, inspired by developments of the specific features in the TAP made by Kneupper (1978) and Simon et al. (2006), is given in Figure 2 below. The first phase of analysis was focus placed on specific features: the extent to which students had made use of Toulmin’s mandatory elements; data, claims and warrants, the optional elements; qualifiers, rebuttals and backings (which in English are often presented by characteristic words, such as *because*, *so* or *but*), and how the different elements in the same argument are related to each other. However, this phase of the analysis does not show how the elements relate, explicitly or implicitly, to other arguments in a chain of utterances. The dialogical interaction with other claims, data, warrants, etc. can not be distinguished, as such, in the first phase of analysis, or the creation of meaning, when two or more voices or discourses encounter each other, as Bakhtin emphasizes. Toulmin (1958, p. 94) describes procedure in his analysis as: “studying the operation of arguments sentence by sentence, in order to see how their validity or invalidity is connected with the manner of laying them out, and what relevance this connection has to the traditional notion of ‘logical form’”.

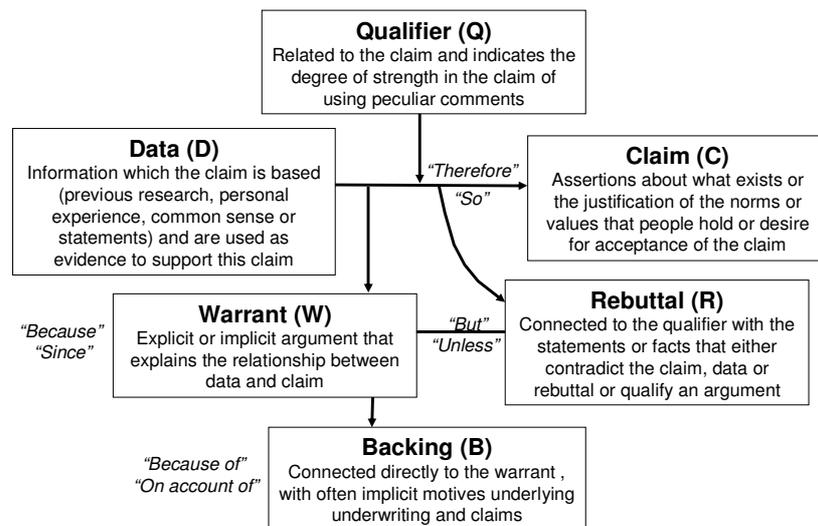


Figure 2. Revised version of Toulmin’s argument pattern (TAP).

The second phase of analysis involved discovering and identifying another set of relevant aspects, using an approach based on Bakhtin’s theories of *double-voiced discourse* (1984, p. 185). He provides fundamental insights into the dynamics of dialogue, included the following meanings (Amhag & Jakobsson, 2009), outlined in Figure 3:

Double-voiced discourse	Patterns of meaning in the arguments
1. Neutral word of a language	<ul style="list-style-type: none"> <li>reproduces other people's world view</li> <li>aims at any general meanings and thinking</li> <li>is not built on words from literature or personal experiences</li> </ul>
2a. Others' word	<ul style="list-style-type: none"> <li>reproducing reproductions of previous voices</li> <li>contains echoes of other voices, dialogic overtones</li> <li>explicit voices can be heard presenting voices</li> <li>the voices do not originate in the person himself</li> </ul>
2b. Others' word from literature [my addition]	<ul style="list-style-type: none"> <li>reproducing reproductions of other authors' voices</li> <li>drawing on other subject experience and reasoning from other texts</li> <li>references to and paraphrases of other people's words from literature, expressing these in their own words</li> <li>creating, negotiating and confirming the meaning</li> </ul>
3. My word	<ul style="list-style-type: none"> <li>carries internal reflections and feelings</li> <li>contains their own and others' voices, arguments, justifications, contradictions, experience etc. as appropriated to the speaker's own words</li> <li>constructs and reconstructs a mutual meaning or a part of it</li> <li>creating, negotiating and confirming the meaning</li> </ul>

Figure 3: Summary of double-voiced discourse and patterns of meaning in the arguments.

#### 4. Findings

The study led to two main sets of results. The first results, summarised in Table 2 below, give a picture of how the 30 students used the argument elements. The majority of analysed contributions (64 %) made use of all three of Toulmin’s mandatory elements (C, D, W); combined with one or two of the optional elements (Q, R, B). 15 % contained three of the mandatory or optional elements and 21 % contained two of them. Overall, these contributions showed a lack of relationship and dialogic interaction with the other group members' arguments. But there are differences between the five groups and concerning to what extent the students were engaged in comparing the various statements and justifying opposing arguments. Here, group B stands out, with the largest number of arguments with only two elements (33 %) and lowest number of arguments with the most elements (48 %), compared with Group E, which displayed the largest number of contributions with numerous argument elements (84 %), and only 5 % with two objects.

Table 2. Number of asynchronous arguments in the web-based learning community in five student groups.

	Group A	Group B	Group C	Group D	Group E	N of 362
Selective analysis	63 (82%)	61 (87%)	58 (53%)	34 (71%)	37 (64%)	253 (70%)
CD, CW, CR, DR, WB	15 (24%)	20 (33%)	12 (21%)	4 (12%)	2 (5%)	53 (21%)
CDW, CDR, CDQ, CWR, DWB	10 (16%)	12 (20%)	6 (10%)	5 (15%)	4 (11%)	37 (15%)
CDWB, CDWQ, CDWR, CDWRB	38 (60%)	29 (48%)	40 (69%)	25 (74%)	31 (84%)	163 (64%)

Note: C, claim; D, data; W, warrant; B, backing; Q, qualifier; R, rebuttal

The second set of results shows the importance of dialogic interaction. In the following excerpts, the argument patterns in written, asynchronous dialogues will be distinguished, identified and described, as well as the dialogical relations between written contributions. The students’ names are fictitious. The first excerpt, in Figure 4, is Chris’ answer to one of his group members, about an authentic case of a boy's transfer to another school.

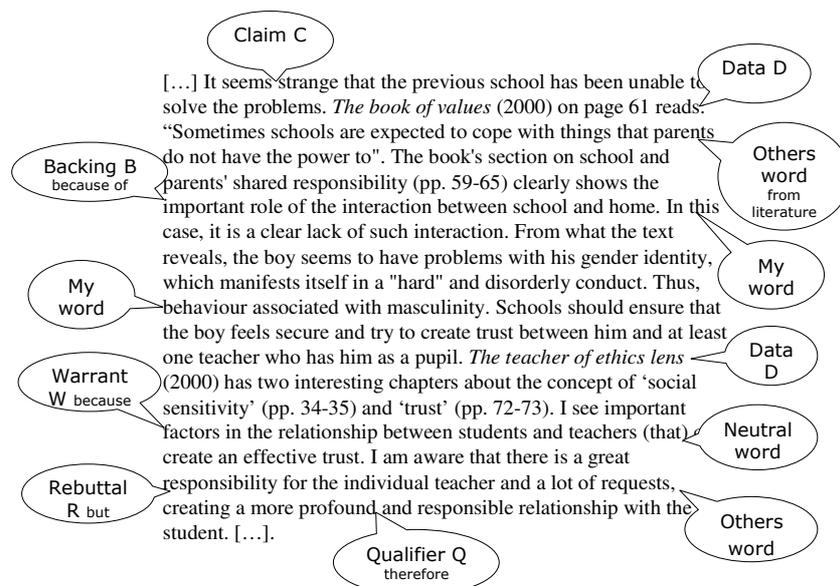


Figure 4: The specific elements and words with different voices in the meaning content of the argument.

The *claim* in this excerpt is Chris' standpoint that the fact that the boy had been transferred to another school and that the situation was also linked to the boy's natural reaction to their lack of interest and the school's inability to solve it. The boy cannot trust anyone - neither parents nor school. The *data* are part of the claim, which is supported in the literature on the important interactions between social sensitivity and trust. The *warrant* is here explicit, *because* it explains the importance of the relationship between school and home and between teachers' teaching and students' schoolwork. Chris' statement: "I am aware that there is a great responsibility" is the *backing* in this argument, *because of* the meaning in the following: What I write is highlighted in the literature and therefore, I write it in my post. If we look at the *qualifier* of the claim in this example, it is that the teacher should create a more profound and responsible relationship with the student. Finally, the post contains a rebuttal, in the qualified statement which begins with *but*: "But it may be needed in order to succeed with difficult students". 'Backing', 'qualifier' and 'rebuttal' are all optional elements, which are related to the mandatory elements, 'claim', 'data' and 'warrant'.

If we look at the case above, the analysis only using Toulmin's argument pattern failed to show that meaning is something that is created between others' words or utterances. According to Bakhtin (1986, 2004b), every utterance, is always formulated by different voices with meanings of others' words in different contexts: a discourse in the dialogue. The links in this chain of voices can be observed, including those claims, data and warrants of neutral words, others' words and my words that are used as evidence. The claim in Chris' standpoint that it "feels like unengaged manners of parents solving their children's problem" is an example of his *own* word, with internal reflections and feelings. The data is an example of basing argument on support from the literature of *others'* word, which is filled with echoes of other people's words and reasoning from other texts. A *neutral*, more general word is exemplified when Chris writes "I am aware that there is a great responsibility to the individual teacher". The *warrant* has a dialogical relationship between Chris' argument with *data* and *claims*, that explains the importance of the relationship between truth, love, hate, deceit, distrust, respect, social sensitivity, trust, and so forth, like in the excerpt above between parents and child, and between school and home. The *backing*, *qualifier* and *rebuttal* include all kinds of individually established semantic ties with relations between subjects and objects (Bakhtin, 1986, 2004a, p. 138). In short, the excerpt illustrates that the development of meaning - which is the basis of learning - is not created from a single word or from the language system alone, but arises in the relationship and interaction between *my* word and *others'* word. The second excerpt, in Figure 5, is from the following day's continued discussion between Chris and Katrina.

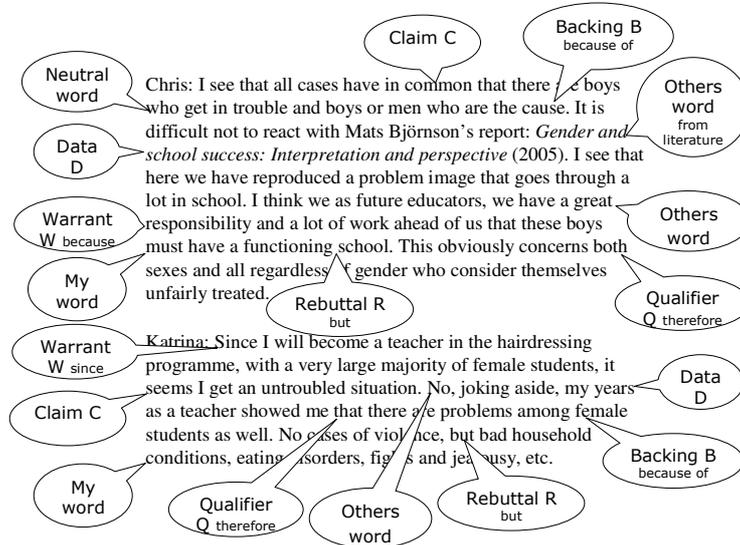


Figure 5: The specific elements and words with different voices in the meaning content of the argument.

The discussion illustrates the significance of comparing opposing arguments between classmates' cases of teacher leadership, when Chris starts a discussion about what he considers has been developed in their collective contributions. Chris' standpoint that "there are boys who get in trouble and boys or men who are the cause", and Katrina's counterarguments that "there are problems among female students as well", are the *claims* in this excerpt. Both claims point to problem areas that exist at school today. The *data* of gender and school success in Chris' statement is supported in the literature, while Katrina's argument is based in personal experiences from her years as

an unqualified teacher. The *warrant* in Chris' statement is here also explicit, *because* it explains the relationship between teachers' responsibility to have a functioning learning environment for both boys and girls and by Katrina *since* she will become a teacher with a large majority of female students. Chris writes: "I see that here we have reproduced a problem image that goes through a lot in school". This statement is the *backing* in the argument, *because* the meaning or motivation of the statement can be understood as: What I write is supported by the literature, therefore, I write it in my post. The corresponding meaning found in Katrina's statement can be understood as: What I write is supported by my personal experience. If we look at the *qualifier* of the two claims, it is confirmed in Chris' contribution by all, regardless of gender, who consider themselves unfairly treated, while in Katrina's contribution, the statement applies to female students suffering from bad household conditions, eating disorders, fights and jealousy, etc. Chris' statement that teachers have a lot of work in order to achieve a functioning school is the *rebuttal* in his argument.

If we look at the continued discussions between Chris and Katrina, the creation of meaning here also depends on the discourse, with *neutral* word, *others'* word and *my* words, as well as the context in which these voices are expressed. According to Bakhtin (1981, p. 293), the word in language is half someone else's, and becomes "one's own" when the speakers or writers populate it with their own intention and appropriate the words as their own. In the excerpt above, Chris uses words from the literature, while Katrina puts words on her own experiences and ontological conclusions. The utterances thus contain *dialogic overtones*, since they are filled with echoes of other people's words, arguments, evidence and reasoning from other texts (Bakhtin, 1986, 2004b). The mandatory elements, *claim* (on gender-related problems), *data* (from the literature) and *warrants* (concerning the teachers' responsibility), can here be related to the corresponding *backing*, degree of strength in the *qualifier*, and connecting *rebuttal*. The relation between *neutral* words (with general meanings) can be evaluated with respect to *others'* word (from literature) and experiences. Some are appropriated to become *my* words. The students become shareholders and co-authors in a joint meaning, in which knowledge and understanding develops. In short, the excerpt illustrates the fact that these mutual negotiations emerge in dialogues between students, and their *meaning potentials* arise as the range of *meaning-mediating* possibilities (Rommetveit, 2003). Such negotiations are illustrated in this argumentation about gender and functioning school for boys in trouble, and girls with bad household conditions, eating disorders, or fights and jealousy.

## 5. Discussion and online education implications

In the present study, combining analytical tools based on Bakhtin's theories of dialogues (1981; 1986, 2004b; 1986, 2004a) and Toulmin's argument pattern (1958), appears as a new way to make the specific elements in the arguments and the different words with voices in the dialogues – as well as the dialogical relations between them – more explicit – and more visible. It may be concluded from results emerging in this study, that using assignments drawing on authentic cases, is indeed a way to make the words more genuine and living (Bakhtin, 1984). The pedagogical structure with group argumentations over a specific period, where dialogue exchange and collaboration are in focus, opens for the manifestation of *written polyphony*, because the students' independent voices in their arguments have the same value or authority as authors in books. A more complex argumentation develops when the content is confronted with others' utterances, consisting of comparing different statements and justifying opposing arguments. There may be direct and explicit opinions in the contributions. We may find assertions about what exists, or statements that contradict, confirm, complement or develop further. Common sense or implicit or unspoken motives may also be expressed. In this particular form of discourse, the students' argumentations consist partly of their own words and voices, and partly of others'. Each argument is an intersection of words, where at least one aspect of others' words can be read, and each utterance can be considered as an answer to preceding utterances, that is, it has *addressivity* (Bakhtin, 1986, 2004b). This addressivity is made more possible in collaboration with other students.

The implications and results that the study highlights are that it is not enough to consider individual written, asynchronous dialogues in order to analyse learning. It is in social and dialogic interactions that understanding of different *meaningful* meanings is clarified and develops. Based on these results, it may be concluded that the following approaches can promote *learning dialogic interactions*, in a way that stimulates students to progressively deepen and refine their understanding, as well as enabling them to express reasonable critical positions:

- Strategies for *peer scaffolding* and critical- and higher-order thinking. That is, to be co-actor in a joint learning process with self-assessment.

- Strategies for *peer support* with collective argumentation and providing response on concrete and literature-related assignments. That is, to be each other's 'critical friends' in a joint learning process.

This process creates the conditions for students to find structure and patterns of how learning and reasoning can be shaped, negotiated and confirmed “between I and other”, in a web-based context. Dialogic patterns and argument patterns that developed during the three studies and were illustrated in selected excerpts. These provide examples of how web-based dialogic interactions can be distinguished, identified and characterised. The analysis offers students, student groups and teachers further insights into how they can use Bakhtin’s dialogue language concepts and Toulmin's argument model, and thereby gain greater awareness of how “arguing to learn” and “responding to learn” can be evaluated and developed in web-based education.

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