# ANALYSIS OF COMMUNICATION BOARDS IN ONLINE UNIVERSITY COURSES

Mihaela Gazioglu, Carina Ionela Branzila
Phd 'Al.I.Cuza' University of Iași, CELTA, PhD Student and Graduate Assistant of English 'Clemson' University, USA, PhD, Assistant Lecturer of English, FEAA, 'Al.I.Cuza' University of Iași

*Abstract: Nowadays, when technology advances at a rapid pace, everything, including university studies, needs to adjust to this rapid change. One of the ways in which higher institutions of education like universities adapt to these changes is to offer online courses, free or for a tax. These courses are becoming increasingly popular worldwide. An important part of these online courses is represented by discussion boards, which are an integral and extremely valuable part of such courses. This article will analyze the content of these discussion boards to show their usefulness and effectiveness.*

*Keywords: discussion boards, online, university courses*

Nowadays, when technology advances at a rapid pace, everything, including university studies, needs to adjust to this rapid change. One of the ways in which in which higher institutions of education like universities adapt to these changes is to offer online courses, free or for a tax. These courses are becoming increasingly popular worldwide. A quick internet survey shows that prestigious universities like Standford offer as many as 185 online courses, Harvard offers no less than 157 courses, MIT a staggering 203 courses whereas Microsoft, another important learning platform, offers 295 online training courses. It seems the future of learning is happening online. An integral and extremely important part of these online courses is represented by discussion boards, which are an integral and extremely valuable part of these courses. In this article the authors will analyze the content of such discussion boards so as to show their usefulness in the case of these online courses. At the beginning of the analysis of the online discussions, research was based on the discussion transcripts and it was mainly focused on gathering quantitative data about levels of participation (Henri, 1992). However, researchers realized that the information about the number of contributions that students made did not help much in evaluating the quality of the interaction (Meyer, 2004). Thus, content analysis was used as a technique to make available the information contained in transcripts of asynchronous discussion groups. Henri called CMC a ''gold mine of information concerning the psycho-social dynamics at work among students, the learning strategies adopted, and the acquisition of knowledge and skills'' (1992, p. 118). Other researchers used the transcripts of online discussions to study critical thinking (Bullen, 1997; Newman, Webb, & Cochrane, 1995) or the process of the social construction of knowledge (Gunawardena, Carabajal, & Lowe, 2001; Gunawardena, Lowe, & Anderson,1997). In this context it is easy to notice that the purpose for using content analysis is to reveal information that is not readily available just by reading the transcripts. Thus, for this reason, content analysis is still the main method used to analyze online discussion.

The first point of reference for a content analysis is the transcript of the discussion. This transcript is read and analyzed and codes using a special classification scheme are assigned to certain aspects of the text. The analysis unit is typically the sentence or paragraph. However, depending on the length of the online discussion the corresponding analysis can be "difficult, frustrating and time-consuming" (Rourke et al, 2001).



BDD-A30598 © 2019 Arhipelag XXI Press
Provided by Diacronia.ro for IP 216.73.217.142 (2026-11-14 22:59:16 UTC)

In time, there have been developed various models for analyzing and interpreting the data in online courses. One of the first models to be designed was Henri's (1992) analysis based on categorizing 'message units' into five dimensions of learning: participation, interaction, social, and cognitive and metacognitive. It is important to mention that she divided the cognitive dimension into five types of reasoning skills: 1) elementary clarification, 2) in-depth clarification, 3) inference, 4) judgment, and 5) strategies. Moreover, Henri pointed out that it is not enough to merely examine the *skills* demonstrated in message content, but rather researchers should look for evidence in the level of information processing. Henri sees participation as direct involvement in the discussion, therefore the number of posts by an individual or a group are counted. To measure interaction, the connections between posts are counted as well. Interaction, as defined by Henri, takes place in three steps. First, information is communicated, then an answer is provided for this information, and, at the end, a second answer relating back to the first is made. Interactions were categorized by the researcher as explicit, implicit or independent. An explicit interaction is where one or more ideas refer explicitly to one or more messages. An implicit interaction is where one or more messages or ideas do not specifically mention a connection. Independent interactions are statements connected to discussion, but which do not respond or comment on it.

Unlike prior strategies, Henri's model defined not only the types of skills and interactions demonstrated in online postings, but also attempted to qualitatively determine the nature and content of online interactions that provide proof of cognitive development and meaningful learning.

According to several notorious researchers in the field (McKenzie & Murphy, 2000; Marra, Moore & Klimczak, 2004; Enriquez, 2009), this model is considered one of the most influential in research regarding on-line board discussions

Henri's model was also met with considerable criticism especially in connection to her definition of interaction, which emphasizes on the connections between posts, rather than on the discussion as a whole (Gunawardena, Lowe & Anderson 1997; Marra et al. 2004; Enriquez, 2009).

Gunawardena, Lowe, and Anderson (1997) proposed a different content analysis model that acknowledged Henri's framework but identified the model's basis on a teacher-centered learning paradigm as a weakness (DeWever et. al., 2005). Thus, Gunawardena's model, based on a constructivist framework, was designed to identify evidence of knowledge construction. Their interaction analysis model (IAM) was developed in an attempt to understand and describe the processes of negotiating meaning and knowledge co-construction in a collaborative online discussion environment (Gunawardena et al.,1997). The researchers used the transcripts of an online discussion to design a model that identified five phases students generally must move through while involved in such a debate: 1) sharing and comparing information when observations or opinions are being posted; 2) discovery and exploration of disagreement or inconsistency among students, a phase when they are asking and answering questions to clarify disagreement, 3) negotiation of meaning or knowledge co-construction:negotiating meaning of terms and negotiation of the informational weight to be used for various arguments, 4) testing and modification:testing the proposed new knowledge against existing cognitive schema or personal experience, 5) wording agreement and applications of newly constructed meaning:summarizing agreement and metacognitive statements that show the construction of new knowledge (DeWever, et. al, 2005). This model has been used in a variety of studies focused on online discussion content analysis (Beaudrie, 2000; Kanuka & Anderson, 1998; Marra et. al., 2004), thus making the IAM one of the most frequently used online content analysis models currently available (DeWever, et. al, 2005).

Another model worth mentioning that adds to online discussions a different perspective is Anderson et. al (2001) approach. This model develops on teaching presence, one of the three elements of the community of inquiry as conceptualized by Rourke et al. (1999), accompanied by cognitive and social presence. The researchers understand ''the function of the teacher as consisting of three major roles: first, as designer of the educational experience, including planning and administering instruction as well as evaluating and certifying competence; second, as facilitator



BDD-A30598 © 2019 Arhipelag XXI Press
Provided by Diacronia.ro for IP 216.73.217.142 (2026-11-14 22:59:16 UTC)

and co-creator of a social environment conducive to active and successful learning; and finally, as a subject matter expert who knows a great deal more than most learners and is thus in a position to 'scaffold' learning experiences by providing direct instruction'' (Anderson et al., 2001, p. 2). These three roles, using the original message of the learner as the unit of analysis, represent the basis for the IAM model to assess teaching presence.

There are many more other models that have been developed and which are dealing with a large variety of concepts such as critical thinking (Bullen, 1997; Newman et al., 1995); knowledge construction (Pena-Shaff and Nicholls, 2004; Veerman and Veldhuis-Diermanse, 2001; Veldhuis-Diermanse, 2002); cognitive, social, and teaching presence (Garrison et al., 2001; Rourke et al., 1999); perspective-taking (Jarvela& Hakkinen, 2002); interactional exchange patterns (Fahy et al., 2001); or learning strategies (Lockhorst et al., 2003). Although all these cases contain elements assuming certain theoretical backgrounds, DeWever (2005) notices that not all studies provide a clear link between the theory and the instruments they propose.

It is interesting to notice that the majority of the studies chose complete messages as the unit of analysis, and this preference is explained by the Rourke's argument that this is the most objective identification of units of analysis. Thus, researchers work with the unit as it has been originally defined by the author of the message.

Another important observation is provided by Mazur (2004), who indicated that one of the main purposes of analyzing CMC discourse is to understand the extent to which the discourse represents the larger socio-culture of the population. If we want to comprehend how an online discussion illustrates understanding and knowledge, we must use analysis protocols that are contextualized within the larger culture. By using any of the transcript analysis models, it is possible to gain valuable information about critical thinking and cognitive processes present in discussions.

However, transcript analysis also raises some problems that need to be addressed.

First, ethically, it is necessary to receive consent both from lecturers and from students for such an evaluation.

Secondly, there are issues concerning the reliability, validity and replicability (Rourke, Anderson, Garrison & Archer, 2001) of the content analysis. There have been discussions about its surface reliance related to the text-based content under which transcription is produced but not necessarily possible to replicate (Enriquez, 2009; Rourke et al. 2001). Moreover, one may question objectivity when the interpreter's subjective criteria play a role in the process of categorizing and grading messages (Rourke, Anderson, Garrison & Archer, 2001, Fahy, 2006), and, hence, the reliability of the analysis itself needs to be assessed.

Although discourses can be analyzed at various levels, many studies are no longer focused on the strict linguistic sense of discourse but rather examine their integration with other levels and dimensions of discourse such as how the *information* contained in previous sentences affects the discourse (Cumming & Ono, 1997).

**Conclusion**

Research (Seaman & Allen, 2018) highlight the importance of online courses and discussion forums in online higher-education which offers easier access to education to all categories of learners worldwide. This innovative and fast-growing means of education allows for a more affordable access to specialized training. The fast pace of progress in technology had led to increasingly better online learning platforms, more affordable and easier to access. Interaction through these platforms – in other words discussion boards- offers as valuable an input as can be. These discussions allow for reflection on the course to take place and this is an important part of any online course, they also allow feedback and evaluation, proving a most useful tool.

## BIBLIOGRAPHY



BDD-A30598 © 2019 Arhipelag XXI Press
Provided by Diacronia.ro for IP 216.73.217.142 (2026-11-14 22:59:16 UTC)

Bates, A.W. (2005) T!echnology, e-Learning and Distance Education London/New York: Routledge Falmer
Beaudrie, B. P. (2000). *Analysis of group problem-solving tasks in a geometry course for teachers using computer mediated conferencing.* Retrieved from: https://www.learntechlib.org/p/121583/
Bennett, S., Maton, K. & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology*, 39(5), 775-786. http://dx.doi.org/10.1111/j.1467-8535.2007.00793.x
Bullen, M. (1997). *A case study of participation and critical thinking in a university-level course delivered by computer conferencing*. Retrieved from https://open.library.ubc.ca/collections/ubctheses/831/items/1.0056000
Carr, N. & Chambers, D. P. (2006). Teacher professional learning in an online community: The experiences of the National Quality Schooling Framework Pilot Project. *Technology, Pedagogyand Education*, 15(2), 143-157. http://dx.doi.org/10.1080/14759390600769094
Condon, S. L., & Cech, C. G. (1996). Discourse management strategies in face-to-face and computer mediated decision-making interaction. *Electronic Journalof communication/LA Revue Electronique de Communication,6*(3).
De Wever, B., Schellens T., Valcke, M., & Van Keer H. (2006). Content analysis schemes to analyze transcripts of online asynchronous discussion groups: A review. *Computers andEducation, 46*, 6-28.
Enriquez, J. G. (2009). Discontent with content analysis of online transcripts. *Association for Learning Technology Journal*, 17(2), 101-113. http://dx.doi.org/10.1080/09687760903033066
Fahy, P., Crawford, G., & Ally, M. (2001). Patterns of interaction in a computer conference transcript. International Review of Research in Open and Distance Learning, 2. http://www.irrodl.org/content/v2.1/fahy.pdf
Gao, P., Wong, A. F. L., Choy, D. & Wu, J. (2010). Developing leadership potential for technology integration: Perspectives of three beginning teachers. *Australasian Journal of EducationalTechnology*, 26(5), 643-658. http://www.ascilite.org.au/ajet/ajet26/gao.html
Garrison, D. R., Anderson, T. & Archer, W. (1999). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87-105. http://dx.doi.org/10.1016/S1096-7516(00)00016-6
Garrison, D. R., Anderson, T., & Archer, W. (2001). Critical thinking, cognitive presence, and computer conferencing in distance education. *American Journalof Distance Education, 15*(1), 7–23.
Gunawardena, C. N., Lowe, C. A. & Anderson, T. (1997). Analysis of a global online debate and the development of an interactive analysis model for examination social construction of knowledge in computer conferencing. *Journal of Educational Computing Research*, 17(4), 397-431. http://hdl.handle.net/2149/772
Gunawardena, C. N., Carabajal, K., & Lowe, C. A. (2001). Critical Analysis of Models and Methods Used to Evaluate Online Learning Networks. In *American Educational Research Association Annual Meeting.* Seattle: American Educational Research Association.
Harasim, L. M. (1989). Online education as a new domain. In R. Mason & A. R. Kaye (Eds.), *Mindweave: communication, computers and distanceeducation* (pp. 50–62). Oxford: Pergamon Press.
Haythornthwaite, C., & Andrews, R. (2011). E- Learning theory and practice. London: Sage.
Henri, F. (1992). Computer conferencing and content analysis. In A. R. Kaye (Ed), *Collaborative learning through computer conferencing: The Najaden Papers*, 117-136. Berlin: Springer-Verlag.
Jarvela, S., & Hakkinen, P. (2002). Web-based cases in teaching and learning: The quality of discussions and a stage of perspective taking in asynchronous communication. Interactive Learning Environments, 10, 1–22.



BDD-A30598 © 2019 Arhipelag XXI Press
Provided by Diacronia.ro for IP 216.73.217.142 (2026-11-14 22:59:16 UTC)

Jonassen, D. H., & Kwon, H. (2001). Communication patterns in computer mediated versus face-to-face group problem solving. *Educational TechnologyResearch and Development, 49*(1), 1042–1629.
Jordan, K (2011(Do beginning teachers know how to participate and interact in online discussion? Outcomes from a Victorian case study, *Australasian Journal of Educational Technology*, 27(7), 1247-1262
Kanuka, H., & Anderson, T. (1998). Online social interchange, discord and knowledge construction. *Journal of Distance Education, 13(1), 57–74*
Kennedy, G. E., Judd, T. S., Churchward, A., Gray, K. & Krause, K. (2008). First year students' experiences with technology: Are they really digital natives? *Australasian Journal of Educational Technology,* 24(1), 108-122. http://www.ascilite.org.au/ajet/ajet24/kennedy.html
Lazonder, A. W., Wilhelm, P., & Ootes, S. A. W. (2003). Using sentence openers to foster student interaction in computer-mediated learning environments. *Computers & Education, 41,* 291-308.
Lockhorst, D., Admiraal, W., Pilot, A., & Veen, W. (2003). Analysis of electronic communication using 5 different perspectives. Paper presented at ORD 2003.
Macdonald, J. (2003). Assessing online collaborative learning: process and product. *Computers & Education, 40,* 377-391
Marra, R. M., Moore, J. L., & Klimczak, A. K. (2004). Content analysis of online discussion forums: a comparative analysis of protocols. Educational Technology Research Development, 52, 23–40.
McCreary, E. K. (1990). Three behavioral models for computer-mediated communication. In L. M. Harasim (Ed.), *Online education: perspectives on a newenvironment (pp. 117–130). New York: Praeger*
McKenzie, W., & Murphy, D. (2000). I hope this goes somewhere: evaluation of an online discussion group. Australian Journal of Educational Technology, 16, 139–257.
Meyer, K. (2004). Evaluating Online Discussions: Four different frames of analysis. *Journal of Asynchronous Learning Networks, 8* (2), 101-114.
Neuhauser,C. (2002). Learning Style and Effectiveness of Online and Face-to-Face Instruction, *American Journal of Distance Education,* 16(2), 99-113
Newman, D. R., Webb, B., & Cochrane, C. (1995). A Content Analysis Method to Measure Critical Thinking in Face-to-Face and Computer Supported Group Learning. Interpersonal Computing and Technology Journal, 3, 56-77.
Pena-Shaff, J. B. & Nicholls, C. (2004). Analyzing student interactions and meaning construction in computer bulletin board discussions. *Computers & Education, 42,* 243-265.
Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon,* 9(5). Retrieved from : http://www.marcprensky.com/writing/Prensky%20%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf
Romano, M. E. (2008). Online discussion as a potential professional development tool for first year teachers. *Technology, Pedagogy and Education,* 17(1), 53-65. http://dx.doi.org/10.1080/14759390701847591
Rourke, L., Anderson, T., Garrison, D. R., & Archer, W. (2001). Methodological issues in the content analysis of computer conference transcripts. International Journal of Artificial Intelligence in Education, 12, 8–22.
Schellens, T., Van Keer, H., Valcke, M., & De Wever, B. (2007). Learning in asynchronous discussion groups: A multilevel approach to study the influence of student, group, and task characteristics. Behavior & Information Technology, 26, 55-71 Retrieved from: https://www.researchgate.net/publication/220208394_Learning_in_asynchronous_discussion_groups_A_multilevel_approach_to_study_the_influence_of_student_group_and_task_characteristics



BDD-A30598 © 2019 Arhipelag XXI Press
Provided by Diacronia.ro for IP 216.73.217.142 (2026-11-14 22:59:16 UTC)

Seaman, J.E, Allen, I.E, Seaman, F. Grade Increase. Tracking Distance Education in The United States Babson Survey Research Group). Retrieved from https://eric.ed.gov/?id=ED580852
Veerman, A., & Veldhuis-Diermanse, E. (2001). Collaborative learning through computer-mediated communication in academic education. In Euro CSCL 2001 (pp. 625–632). Maastricht: McLuhan institute, University of Maastricht.
Veldhuis-Diermanse, A. E. (2002). CSCLearning? Participation, learning activities and knowledge construction in computer-supported collaborative learning in higher education. Retrieved from http://library.wur.nl/WebQuery/wurpubs/319732
Zhao, Y. & Rop, S. (2001). A critical review of the literature on electronic networks as reflective discourse communities for in service teachers. *Education and Information Technologies*, 6(2), 81-94. http://dx.doi.org/10.1023/A:1012363715212



BDD-A30598 © 2019 Arhipelag XXI Press
Provided by Diacronia.ro for IP 216.73.217.142 (2026-11-14 22:59:16 UTC)