

CONTEMPORARY ASPECTS OF THE SHARED CONSTRUCTION OF KNOWLEDGE: A PERSPECTIVE IN VIRTUAL SETTINGS

ASPECTOS CONTEMPORÂNEOS DA CONSTRUÇÃO COMPARTILHADA DO CONHECIMENTO:
UMA PERSPECTIVA VIRTUAL

ASPECTOS CONTEMPORÂNEOS DE LA CONSTRUCCIÓN DEL CONOCIMIENTO COMPARTIDO:
UNA PERSPECTIVA VIRTUAL

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ABSTRACT

The aim of this study was to analyze suggestive interactions of processes of shared construction of knowledge among students and professors of a specialization course in family health, in the distance learning modality. The method adopted was the case study, with the evaluation of 66 thematic discussion forums, in light of the methodological framework of social network analysis. Social interactions among the participants were tabulated and graphic matrices were later created. The results indicate the possibility of shared construction of knowledge in the thematic discussion forums, given the existence of interactive relationships. In conclusion, distance learning, as it appropriates virtual cyberculture tools, reaffirms its importance in professional qualification, where resources not only enable the socialization of scientific knowledge, but also instigate the genesis of knowledge that is collectively built.

Keywords: Family Health; Health Human Resource Training; Education, Distance. Discussion Forums.

RESUMO

O presente estudo tem como objetivo principal analisar as interações sugestivas de processos de construção compartilhada do conhecimento entre alunos e tutores de um curso de especialização em Saúde da Família, na modalidade de educação a distância. O método utilizado foi de estudo de caso, com avaliação de 66 fóruns temáticos de discussão, à luz do referencial metodológico da análise de redes sociais. Realizou-se a tabulação das interações sociais entre os participantes e, posteriormente, a criação de matrizes gráficas. Os resultados revelam a possibilidade da construção compartilhada do conhecimento nos fóruns temáticos de discussão, devido à existência de relações interativas. Concluiu-se que a educação a distância, com apropriação das ferramentas virtuais da cibercultura, reafirma sua importância na qualificação profissional, cujos recursos não apenas permitem a socialização de saberes científicos, mas instigam a gênese de saberes construídos coletivamente.

Palavras-chave: Saúde da Família; Capacitação de Recursos Humanos em Saúde; Educação à Distância; Fóruns de Discussão.

RESUMEN

El objeto principal del presente estudio es analizar las interacciones que conducen a procesos de construcción compartida del conocimiento entre estudiantes y profesores de un curso de especialización en salud de la familia en la modalidad de educación a distancia. La metodología utilizada fue el estudio de caso, que analizó 66 foros temáticos interactivos, desde el referente metodológico del análisis de redes sociales. Primero, se tabularon las interacciones sociales entre los participantes y después se crearon las matrices gráficas. Los resultados señalan que en los foros temáticos de discusión se puede construir conocimiento compartido porque existen relaciones interactivas. Llegamos a la conclusión que la educación a distancia, con herramientas virtuales de la cibernética, reafirma su importancia en la calificación profesional, cuyos recursos no sólo permiten la socialización del conocimiento científico sino que también fomentan su construcción colectiva.

Palabras clave: Salud de la Familia; Capacitación de Recursos Humanos en Salud; Educación a Distancia; Foros de Discusión.

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INTRODUCTION

The valorization of “the knowledge of others” can be understood as a recent pedagogical trend. Based on the precepts of Paulo Freire, it has become a reality in many educational environments, from academic institutions to health care spaces.

Therefore, the shared construction of knowledge prescribes the valorization of life experience as a source of knowledge. This perspective removes the notion of a protagonist in the educational projects, turning every participant into potential subjects and educators.¹

It is valid to state that a shared construction of knowledge allows for the creation of a bridge of knowledge, through which pieces of knowledge come together to create new ones, becoming bigger than the sum of their parts. The construction of knowledge, thus, is related to the articulation of pre-existing knowledge, which is essentially integrated to two counterpoints: science and common sense.²

The construction of knowledge must break with the vertical models of education, in which knowledge is associated solely to scientific knowledge, which marginalizes life practices and experiences. Horizontal strategies for sharing knowledge mixes the roles of the actors of the educational process, that is, the transmitter and the receiver work together to build that which is called knowledge-synthesis, which, in short, is the articulation of the contributions of both groups.³

It stands out that this type of construction can only take place from a dialogic relation, such as social interaction, which can be understood as a product of social situations experienced through the physical presence of two or more subjects.⁴ However, the virtualization of relations exposes the potential of a new setting: the worldwide web and its interactive tools. Among these tools are the discussion forums, an educational resource oftentimes used in distance education in this virtual setting.

In this context, this article raises the following question: the use of interactive resources in virtual media can really enable social interaction between subjects?

THE GENESIS OF KNOWLEDGE UNDER THE LIGHT OF POST-MODERN SCIENCE

Modern science generates knowledge as well as the lack of it, rapidly changing the role of the subject involved in this process, sometimes a scientist, sometimes a specialized ignorant. In this sense, scientific knowledge is legitimated and share, while simultaneously being questioned and demystified.² In this setting, knowledge must be built, and not offered. For that reason, opinions, experiences, and even common-sense work in the opposite direction, since they cannot be quantified or measured.⁵

There is an explicit movement which seeks to subsidize the construction of new knowledge, influenced only by the

scientific perspective, and thus excluding all other sources of knowledge and creating a rupture with the ideas previously defended, passing through the building of knowledge and finishing with the establishment of an idea.⁵ This flow of the construction of scientific thought is similar to the theory of scientific revolutions as proposed by Thomas Kuhn⁶, for which ideas from the common sense have no relevance and are seen as superficial sources,² leading one closer to the seductive biological logic, historically used with the premise that the population should be trained to repeat healthy actions.

In this context, this work proposes for the analysis of the process of knowledge creation to be conducted under the light of post-modern sciences, for which rationality is not present in only one type of knowledge, but in the conjunction of all its forms.^{2,5,7} For this approach, common sense, coupled with scientific thought, brings rationality to its practices and enables the birth of new pieces of knowledge in a process of shared construction of knowledge.² Common sense is also an extremely relevant type of knowledge in this shared process. Oftentimes, it is responsible for bringing about the decoding of the other’s knowledge, being one of the main reasons why post-modern science is recognized as capable of analyzing the construction of knowledge.

The shared construction of knowledge involves many dimensions which cannot be quantified as to their degree of importance, not to mention that many authors build their thoughts on a foundation made up of science and knowledge in a way that is similar to that of the construction of shared knowledge, despite subtle differences.⁸⁻¹⁰

THE TRANSPOSITION OF THE SHARED CONSTRUCTION OF KNOWLEDGE INTO THE VIRTUAL SETTINGS IN THE THEMATIC DISCUSSION FORUMS

Although the process of shared construction of knowledge is not in any way restricted to face-to-face education, the discussion of cases in which it is mediated by digital tools and used in distance education is still scarce in national literature. A trend for these practices to migrate into virtual settings can be observed, indicating, especially, how much potential this dimension has when it comes to the connection between different types of knowledge. In this area, the thematic discussion forums stand out.

Thematic discussion forums are tools aimed at increasing the participation of professors and students in long-distance courses, enabling more interaction between participants and, therefore, building a community social environment.^{11,12} Educational experiences mediated by this tool work, in general, through the same dynamic, which, respectively, includes: the reading of texts, the exposition of ideas in the chosen platform,

further development of the discussion, and finally, the building of new knowledge.

The dynamics of using a forum are very simple, and therefore, it can be considered to be one of the first resources to be used in a formal virtual educational environment, and it is generally the most used tool.¹³ The forum has one main theme and is directed by a structuring team of professors who raise a question targeted at the dissertations of the students on the aspects they discuss, thus generating connective lines of meaning. It must be built in a way to respect freedom of speech, so that every participant can express their ideas, whether they agree with one another and with the professor or not.¹¹

Considering this context, this study aimed at analyzing the suggestive interactions of processes of shared construction of knowledge among students and tutors of a long-distance specialization course in Family Health, based on the thematic discussion forums.

METHODOLOGY

This work used a case-study methodology. With this in mind, the setting chosen for the study was the Specialization Course in Family Health offered by the Open University of the Unified Health System (UNA-SUS), in partnership with a public university in the state of Rio de Janeiro, originating from Long-distance education (LDE). This course is offered to medical professionals, dental-surgeons and nurses.

The adhesion of universities that offer traditional education to the UNA-SUS network enhanced the mobilization and cooperation in teaching, especially in Health Sciences, Computer Sciences and Human Sciences, which in turn brought teaching and research opportunities related to the multidisciplinary of the work groups, as it is necessary to carry on with technological evolutions that can make it possible to answer the demands for quality formation in the process of working in the health area.¹⁴

In this study, the analysis was focused specifically on the 11 groups formed by nursing professionals. Each group in the research had its own tutor and a syllabus including six subjects. For their completion, the access and participation of the students in the thematic discussion forum, which were one of the instruments of evaluation, was mandatory. In some of these subjects two or more forums targeted at themes of interest to the course were found to exist. Therefore, one forum of each subject was chosen. If there was more than one, the forum with the most participants was selected. At the end of the selection, samples from 66 thematic discussion forums had been gathered.

The forums of the following subjects were analyzed: Primary Health Care and Family Health Strategies; Primary Health Care Clinic I: approaches focused on individuals; Practical Module of the Primary Health Care Clinic I; Primary Health Care

clinic II: community approach; Central axes in the process of working in the primary health care; and Primary Health Care clinic III: actions of health in the cycle of life.

The groups were identified with numbers from one to eleven, and the numbers do not correspond to those used in the platform of the course. This was done to preserve the identity of the tutors, as well as the working process adopted by them. The number attributed to each group that participated in this research was random, as was the number attributed to the students who participated.

To interpret the interaction between the subjects of the thematic forums, a specific methodology called social network analysis (SNA) was used. The SNA is an analytical methodology that allows one to identify the interactions that take place within the same social network, bringing forth the patterns of relationships between subjects, according to interactive exchanges. The first stage in the development of a research that makes use of the SNA methodology is the objective description of all relations that exist in the network. In a second stage, it is necessary to use mathematical tools of analysis, such as matrixes and graphical analyses.¹⁵

Complying with the logical working of the SNA methodology, texts published in the forums by each student were previously verified and registered in spreadsheets within Microsoft Excel, as well as the number and frequency of posts of each one. Two types of post were observed: the first was the simple post, in which the student says something in the forums; the second was the reply, in which the subject emits a comment as a result of a previous post, thus starting a dialogical process whose objective is the shared construction of knowledge about the proposed themes.

The second stage of analysis was the elaboration of matrices in the software Ucinet, version 6.523. This software allows for the analysis of a certain social network, as well for the obtention of statistical data related to the methodology of social network analysis.

After the creation of the analytical matrices, the third step was a graphical visualization of data. The software NetDraw, version 2.139 was used to this end. It articulates the built analytical matrix to its graphical representation, allowing for the attribution of characteristics to the subjects, such as sex, whether the subject is a tutor, and whether the student has or not concluded the course.

It should be highlighted that data were quantified, tabulated and analyzed after the Research Ethics Committee gave its approval under protocol 579.747, as per the requirements of Resolution number 466/12 of the National Council of Health.

RESULTS

The analysis of forums indicated that in 4.5% of the cases there was no communication between the participants, and the posts were restricted to those required. It was also found

that in 57% of the forums there were bi-directional relations, that is, posts with replies. These are the forums that express processes of shared construction of knowledge.

The mean number of interactions per forum was 1.2, with a remarkable variation from group to group. While some groups had no records of interactive relations, others had nearly 20. Although the means of interactive relations was low when compared to the number of communicative relations, it is important to understand that this is due to the complexity of the communicational process. In Image 1 there is a graphic representation of a subject offered in the middle of the course.

On Figure 1, one of the highest numbers of interactive relations among the analyzed forums can be observed. It is possible to identify that the bi-directional connections were made, mostly, by students who were about to finish the course. In addition, there is a high number of students who wrote posts in the forum but did not establish any interactive-relational link with the other participants.

In this study, it was not possible to notice any type of quantitative-time pattern in the interactions among the stu-

dents in the subjects of the course. However, there was a lot of variety in the presentation of the social web of the analyzed forums. Figure 2 is an example of this.

In this case, a complex social network can be observed. There is no focus on one specific participant, although the students who had abandoned the course had a marginal role - 42% of them did not talk with other participants, 42% established some connection but did not interact, and only 16% were involved in any sort of interactive processes.

In this context, it can be state that there was not, in any forum, interactive relations between two individuals who, later, abandoned the course, indicating that an active participation in the course might be indicative that the student will finish the course.

Based on the existence of interactive processes in the virtual settings, it is possible to articulate the process of shared construction of knowledge under the light of post-modern science thought and of the existing logic in cooperative relations, an articulation from which a complex mechanism emerges, as indicated in Figure 3.

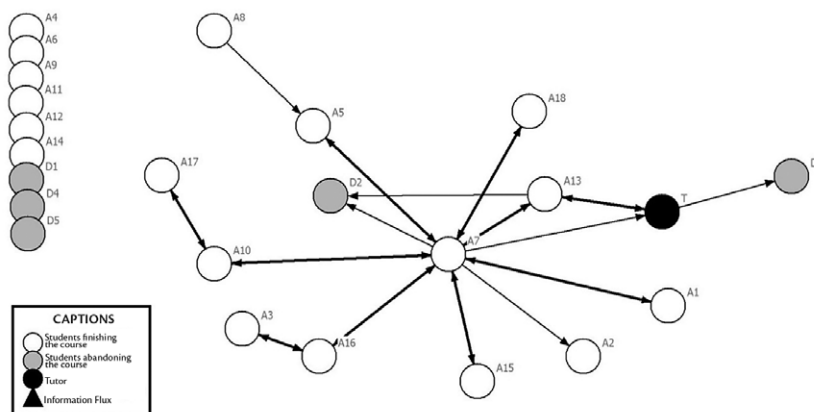


Figure 1 - Representation of the social network of the forum of subject 4 – Group 6 – UnASUS-UERJ.

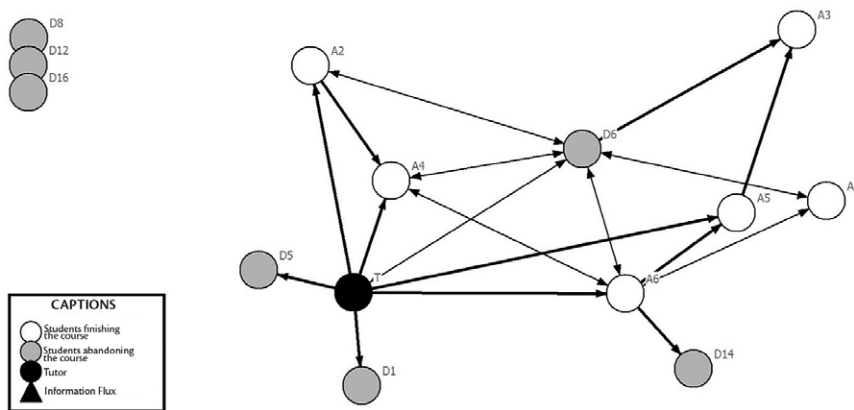


Figure 2 - Representation of the social network of the forum of subject 4 – Group 7 – UnASUS-UERJ.

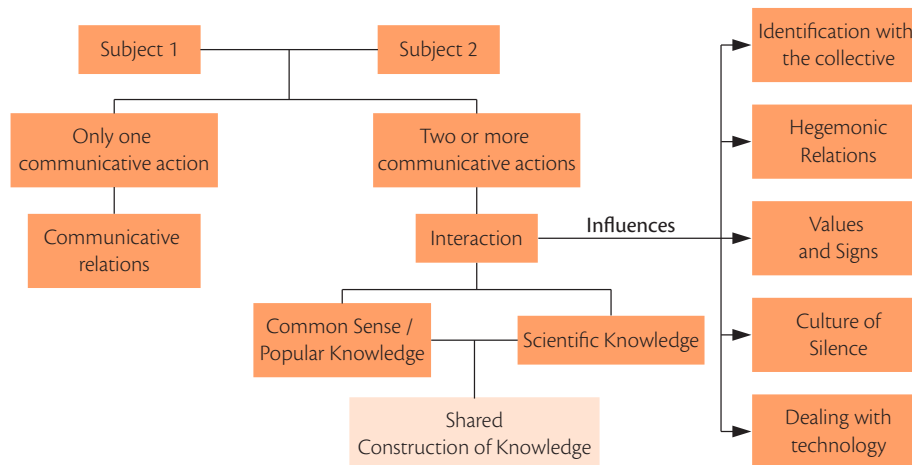


Figure 3 - Representation of the process of shared construction of knowledge as mediated by interactive devices of long-distance education. Source: the authors, 2017.

DISCUSSION

The new educational strategies that emerge from the cyberspace can only be positively evaluated if the communicational logic breaks with some aspects of traditional education, such as its unidirectional focus.¹⁶ To this end, three interactive bases can be identified in distance education: student-professor, student-student and student-content.¹⁷ The absence of these interactive bases may lead one to not reach the objectives and activities required by the course.

The lack of interactive processes in the forums is pondered upon, signaling an imbalance between the evolution of the use of cyberspace and the preparation of the protagonists for the use of this digital tool. This preparation is not only in regard to the technical capabilities of dealing with the tools of a virtual environment, but, especially, to the comprehension of the relevance of the social moments in education, independently of the educational level and of the subjects the students are going to study.

The main justification for the behavior found is the idea that the student may not be used to the dialogic pedagogical propositions of the course, and may try, involuntarily, to treat an activity created within constructivist and question-raising pedagogy as if it were a traditional educational strategy.

The use of forums in virtual learning environments in health is not well documented as of yet, despite being an important instrument of interaction and bonding between professors and students.¹¹⁻¹³ The use of the forum in long-distance courses helps to deal with the need of humanizing the relations between the actors, this diminishing the distance between them.

However, although it is by itself a guarantee of approximation between the subjects, it does not fatally determine the existence of the dialogic and interactive processes needed for the process of construction of shared knowledge. For that to take place, subjects must be willing to communicate with the "so-

cial self"¹⁸ of the other participants. Therefore, this setting may be seen as enabling of the construction of shared knowledge as long as interactive processes effectively take place.

Interactive processes are understood to depend more on the subjects involved than on whether the process takes place face-to-face or in long-distance communication. Additionally, said processes are social phenomena, in which two objectives and two actions simultaneously exist.¹⁹ Therefore, an interactive process can only be concluded from the existence of a mechanism that reverts back to an encouragement of communication. The inexistence of discussions between the subjects leads, thus, to the inexistence of any indication of the construction of shared knowledge.

Nonetheless, other factions may be determinant in the participation of the student in interactive forums. In a traditional classroom there is a great variety of students with different characteristics and behavior, and in the virtual classroom the same is true. Introversion and extroversion are characteristics that culminate in an evident behavioral difference.

In this context, the existence of a silent type of interaction can be observed, which is known as makeshift interaction. This possibility of interaction is one in which the student observes the exchanges between other students and the tutor but do not actively participate in them.²⁰ Although makeshift interactions work as an explanatory concept when it comes to interactive processes, they do not justify their inexistence, since for this type of interaction to take place, it is necessary for at least one interactive process to happen.

The studies which identified students' reasons to abandon long-distance courses do not always consider social issues as important factors for the permanence of the student, but sometimes they are also connected to institutional issues. The main reasons mentioned for abandoning the courses are financial problems, lack of time, and too much activities.²¹

As it can be noticed, the process of shared construction of knowledge that takes place in this type of teaching has many influences related to subject-subject associations and also to subject-object relations. For the shared construction of knowledge to happen, an interactive relation is not the only factor necessary, as it needs to be coupled with the incorporation or neutralization of the previously described influences.

Running parallel to this discussion, the concept of knowledge trees also needs to be mentioned.²² The representation of a tree in the construction of knowledge means the following: the trunk is the most solid part of a tree and represents the previous knowledge of the individuals - their culture, ideology, the way in which they see life. The leaves represent more specialized knowledge and the branches are the links between the previous knowledge and the specialized knowledge.

In post-modern science, the mechanism of shared construction of knowledge is proposed as an engine, the branch of this tree of knowledge. For that to happen, an understanding of the relevance of all dimensions of this tree is necessary, as they all need to be valued as parts that make up an entirety, that do not live one separated from the other.

The construction of knowledge that is linked to what is called post-modern science is not believed to support the verticalization of knowledge, especially when it is articulated with the hierarchization of the knowledge of the subjects involved. On the contrary, relations of love, cooperation and trust are established through cooperation, which is not a characteristic anymore, but a method, in which the subject "I" is replaced by "us".

The construction of knowledge, considering this, takes place from successive interactions between object and environment, in a perfect symbiosis between the biological and social human.^{8,9,23} Thus, as the presuppositions of post-modern science are articulated with the needs of social development through interaction, it is possible to verify that there is an interdependency between processes of shared construction of knowledge and communicational and interactional relations inherent to human socialization.

The interactive devices of long-distance educations transform this engine in something possible, that is, it ceases from being a potential action, becoming a real mechanism.²⁴ It should be highlighted that the thematic discussion forums in long-distance education synthesize the democratic character of the activity, in which the horizontal nature of the different types of knowledge must be expressed, coupled with the awareness of the subjects in order for them to effectively participate.

The use of digital interfaces enables a type of learning which composes, simultaneously, devices of formation and enhancing of dialogue, of collective authorship and sharing of meaning in multiple languages and media, through new methodological processes in the field of education.²⁵

CONCLUSION

The construction of knowledge should be more than the mere sum of different content placed in a hierarchy. It should be a process that proposes an interaction between the different dimensions of the same problem, a process whose dynamics is based on the articulation between scientific knowledge and common sense under the light of post-modernity.

It is worth highlighting that the shared construction of knowledge, independently from the setting where it is articulated, can be considered a potential situation, brought into effect by the dialogue between at least two subjects with different sets of knowledge.

The use of interactive resources such as thematic discussion forums showed itself to be a catalyst for the construction of dialogic experiences and the sharing of knowledge.

Although the study was conducted with a group of nursing professionals, its findings are not restricted to said group. Long-distance education reaffirms its importance in professional qualification, since its resources allow not only for the socialization of scientific knowledge, but also instigate the genesis of knowledge built collectively.

Additionally, the need for further studies stands out, especially comparative ones, that may identify the impact of these virtual dialogic relations in the practice of the health professional.

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