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Evaluation Analysis During Discursive Interactions in Nursing Courses through SDIS-GSEQ.

Edgardo Ruiz Carrillo
Universidad Nacional Autónoma de México
Facultad de Estudios Superiores – Iztacala

Luisa Bravo Sánchez
Universidad Nacional Autónoma de México
Facultad de Estudios Superiores – Iztacala

Samuel Meraz Martínez
Universidad Nacional Autónoma de México
Facultad de Estudios Superiores – Iztacala

Cruz González José Luis
Universidad Nacional Autónoma de México
Facultad de Estudios Superiores – Iztacala

Abstract

Background: Discourse in the field of education is structured in IRE/F patterns, which give the teacher the ability to lead interaction in the classroom. The objective of the study was to identify discourse patterns present in practical nursing courses, with a focus on the evaluation of the teacher and assistants. Method: The participants of the study were videotaped and the data obtained was recorded and categorized using the SDIS-GSEQ software in order to obtain discursive sequences. Results: The teacher and assistants used divergent IRE/F structures: the teacher gave an explanation after conducting an evaluation of the student in order to impart knowledge, and the assistants evaluated repeatedly and sought for evidence of knowledge in the students by asking them to give examples. Conclusion: The occupied roles will be defined as "guide/ primary expert" and "instigator/supervisor", and these roles will persist even if the knowledge of the practice is or is not negotiated. It is recommended to take the discourse to conditions of greater negotiation of knowledge in order to improve teaching.

Keywords: mentors, patient simulation, discourse analysis, learning processes, teacher-student interaction

INTRODUCTION

Discourse is what is formed in a conversation between two individuals, it is part of social life, both an instrument that creates it and a creation of the same; discourse consists of a set of interactions that lay down guidelines in speech and performance of certain contexts. The IRE/F structure is probably the element that symbolizes the interaction in the classroom by being a form of common discourse in the teaching-learning process [11, 19, 18, 26]. The IRE/F sequence is vital to the academic discourse and it is a 3-stepstructure where I stands for initiation, R for response and E for evaluation, or follow-up/feedback (F). Cazden [11] calls it IRE, whereas Nassaji & Wells [19] call it IRF as to not restrict the nature of the third step, because it is not only an evaluation, but also a feedback to the student responses.

This IRE/F pattern is designed for education: the first and third parts of the sequence are carried out by the professor, where he obtains the response of the student and subsequently evaluates it, provides a follow-up or feedback; this is based on the traditional view of the teacher as "primary expert", which allows the teacher to make an evaluation based on his own knowledge, by considering that his experience is the one the student needs to learn. Evaluation in discourse is formative; that is, it is carried out in the school setting. In this form of interaction, the IRE/F pattern gives the impression of leading the student to respond with information that is already known and expected by the professor [19], and it also gives the impression of allowing the teacher to maintain control and direction of conversational interaction in the classroom by reserving the right to ask and demand a response from the student [17]. This shows a relationship of power in which the teacher and student participate, despite the fact that evaluation itself needs to be a resource for training and an opportunity for learning.

Power in the classroom is explained by two different approaches: The first one explains that power relationships are determined, to a certain extent, by the institutional arrangements in the classroom [11, 26] since it gives the teacher certain rights to ensure the student's learning. The second one says that power relationships in the classroom are constantly negotiated in the interaction between individuals and the context of the classroom [16, 28]. For Saikko [26], power is a linguistic and interactional phenomenon; therefore, it is necessary to explore institutional power relationships from both perspectives, giving importance to the interrelation between the established by the institution and what was negotiated by the participants of the teaching-learning process.

According to Fairclough [13], discourse is based on the institutional conventions of the situation, and it is structured by a number of social norms and beliefs about power relationships. Then, power in the classroom discourse can be seen as something that is restricted by rules generated by the context, the teacher and the students, and it is also executed under the belief that it is the best way to teach. School as an institution gives the teacher a position where it has more power than students in the classroom and the teacher can decide the syllabus to be taught. In this way, the superior institutional position of the teacher is established to ensure the learning process for the students through determined discursive structures [26].

This position allows the teacher to mediate institutional interactions that occur in the classroom, which Drew & Heritage [12:49] defined as: "structured by roles, institutionalized, and of omni-relevant asymmetries among participants as to the differential knowledge distribution, knowledge rights, access to conversational resources and the right to participate in the interaction", which are characteristics of the "primary expert" and "supervisor" roles [19] that the teacher takes, allowing him to decide what counts as knowledge in the classroom, as well as the power to handle interaction events so that the teaching-learning process is carried out in a way that meets the desired criteria.

Therefore, the discursive interaction in the classroom becomes a predictable and automated relationship where the belief of "must be the primary expert" is internalized by teachers to such extent that it is difficult for them to acknowledge its very existence, and thus turn to their knowledge as a valid response and occasionally the valid reason to evaluate, especially when they face unknown or confusing situations [21]. Events in the classroom occur in such way that

they prevent teachers from looking for certainties, because teachers must respond and solve practical problems quickly and efficiently [15].

In this way, teacher's beliefs represent a social construction that takes place during the interaction with students and that define and alter the way they look at students and the teaching-learning process. Teachers with traditional beliefs on discursive structures regard them as a control instrument and a medium that provides objective information, so they favor right answers and the performance of simple tasks; on the other hand, teachers who believe that discourse is a co-construction instrument of knowledge favor the subjectivity of the student by choosing different forms of knowledge evaluation and negotiation [28]. This divergence in terms of beliefs alters the discursive product and process by establishing different ways to perform the IRE/F structure in the classroom, based on the intentions of imparting knowledge or leading the others to knowledge.

In fact, some students prove that when teachers seek to negotiate questions, students produce longer and more complex responses [19], and the third part of the structure is less likely to take the form of evaluation [14], and shows that teachers can change the interaction organization based on the needs of students and their own teaching strategies [20].

The intrinsic characteristics of the educational environment, where this teaching-learning process occurs, make the IRE/F pattern to occupy an important place since it mediates, organizes, and structures the discourse of the student under the leadership of the teacher; this situation produces conditions where the teacher, being the "primary expert", has control of the participation, co-construction, and negotiation of knowledge with the student that may have such an effect on the classroom discourse that it becomes mainly one-sided.

Discourse analysis makes it possible to analyze, categorize, and describe the relationship between teachers and students since it carries out a search of the ways in which context characters relate with each other by sharing knowledge. The purpose of this work is to analyze discursive structures of the teacher and assistants, in terms of the way they evaluate the students' knowledge.

METHOD

Participants

Thirty students from second semester of nursing school (7 men, 23 women, between 19 and 21 years of age), 5 assistants, students from eight semester of nursing school (1 man, 4 women, between 21 and 22 years of age), and a nursing school teacher who teaches Models and Theories of Nursing at the Facultad de Estudios Superiores Iztacala, of the Universidad Nacional Autónoma de México; all participants were Mexican.

Ethical considerations

The study was carried out according to the recommendations of the ethics code of the American Psychological Association [1], which advise to work with the consent of the participants, maintain their confidentiality by using pseudonyms to avoid the identification of the person, and to inform them when they are being recorded, as well as their right to obtain the transcription of the analyzed data.

Instruments for observation and categorization of data.

A Canon video-camera, model VIXIA HF-R50 with an external SHURE VF83microphone was used by a researcher in the classroom where the teacher taught her students about the assessment of the respiratory system with the help of eight semester assistants.

The instrument for the conversion of the observed data in analysis categories is a combination between a field format and categories systems, built by means of multiple and self-regulating codes from an informed theoretical framework [2]. The generated array sought to analyze the complexity of the information corresponding to the communicative flow and it also modulated the dichotomy between the qualitative and quantitative methodologies required by the study.

From the observation of the videotape recordings and depending on the purpose of the study, several lists of the interactions were drawn up until reaching the thoroughness and the mutual exclusivity (E/ME) of categories, so there is a category for every possible action and a possible action for each category of interest. Anguera & Izquierdo [2] proposed that with the identification of the speaker, the who-to-who structure in each oral interaction is established; in this way, the interactive characteristics of the activity in turn are encoded by taking into account the social functions (speech, relationship and task) they meet. Regardless of the length, each turn was coded as a "whole", according to the considered dimensions.

In this way, the coding generated based on the theoretical framework and the observations was included in table 1:

Table1: Categories of the discursive sequence, with code and definition

Category	Subcategory	Code
Instructing: Action where an instructor (knowledge holder) gives information or knowledge concerning a subject to an apprentice (non-expert).	Explaining: To expose knowledge to make it more understandable through the speech.	Insexp
	Correcting: To rectify a mistake or error in the discourse of the other.	Inscorr
	Orienting: To lead the other towards the elements of the context necessary for the activity.	Insori
	Guiding: To direct tasks related to the topic.	Insgui
	Ordering: To demand the fulfillment of a task.	Insord
Ask: To request a response taking into account the desired data.	Ordering: To generate an action from the other.	Preord
	Evaluation of any participant: To calculate knowledge and skills from any member of the group.	Preeva
	Evaluation of a specific participant: To calculate knowledge and skills from someone in particular.	Predeva
Response: To answer a question with the intention of clarifying a doubt.	Doubting: To use knowledge that is not yet structured.	Redud
	Ordering: To demand the fulfillment of a task.	Reord
	Confirming: To corroborate information.	Reconf
	Reinterpreting: To use reconstructed knowledge from what was taught.	Rereint
	Explaining: To expose knowledge to make it more understandable.	Reexp
	Denying: To recognize the lack of knowledge. From student to student: To recognize the lack of knowledge of the other one.	Reneg
	Affirming: To validate knowledge.	Reafi
Evaluate: Action that calculates the validity of any topic or subject, in the educational discourse field of the validity of knowledge.	Qualifying: To rate the acceptance level of other's knowledge based on a value judgment.	Evacal
	Explaining: To expose knowledge to make it more understandable.	Evaexp

Each of the categories raised was considered with a probability of occurrence in any participant; therefore, in order to distinguish the participation of each individual in the category during the categorization, at the beginning of each category, an "M" was placed if it was presented by the teacher, a "P" if it was presented by the assistants, an "A" if it was by the students, and a "T" if more than half the group of students responded simultaneously (T > 15 A).

Once the recordings were transcribed, the categories of analysis were used in every discursive action performed by the participants, generating an encoded sequential grouping that became the database. The structural analysis technique was used and the translation into SDIS (Sequential Data Interchange Standard) language was performed in order to apply the GSEQ (Generalized Sequential Event Querier) software for sequential analysis [8]. The SDIS-GSEQ relies on an analytical technique developed by Bakeman [3,7] and by Sacket [23, 24, 25], taking into account the premises in the works of Bakeman and Dabbs [6] that remain relevant [10] to the analysis of sequential data and this investigation to observe IRE and IRF patterns carried out during the practice.

Analysis techniques

The identification of statistically significant patterns in the discourse flow was performed with the application of sequential analysis techniques in lags and temporary patterns (T-Patterns). The origins of the sequential analysis of lags, as a procedure for sequential data analysis, date back to studies by Sackett [24, 25], Bakeman [3, 4], Bakeman, Adamson & Strisik [5], Bakeman & Quera [8, 9, 10] and Quera [22]. This type of analysis is used for the detection of sequential patterns of behavior [22], which looks for sequential contingencies between the categories of analysis, in our case, sequential relationships in the discourse of the participants.

RESULTS

The information obtained by the sequential analysis of lags allows us to observe the probabilistic levels Z and P, with which discursive flow can be interpreted by selecting the adjusted remains and considering them as excitatory when they promote the emergence of a category (with a Z-value of >1.96) or inhibitory if the adjusted remains are negative (Z<-1.96), showing that they inhibit the emergence of a negative category in the sequence.

This data was divided into the most relevant elements, to show a comparison of categories established by the teacher and the assistants while evaluating, and thus observe the differences in their interaction with other participants of the practice; this data is shown in figures 1 through 6.

The teacher asks a question evaluating (Mpreeva, figure 1) after the student responded reinterpreting or the assistant responded doubting; the consequence of the evaluation by the teacher is that she will subsequently teach by explaining in order to make another question. The teacher avoids the evaluation two times in a row and seeks to give an explanation in order to evaluate, to the point where the student is able to give an answer.

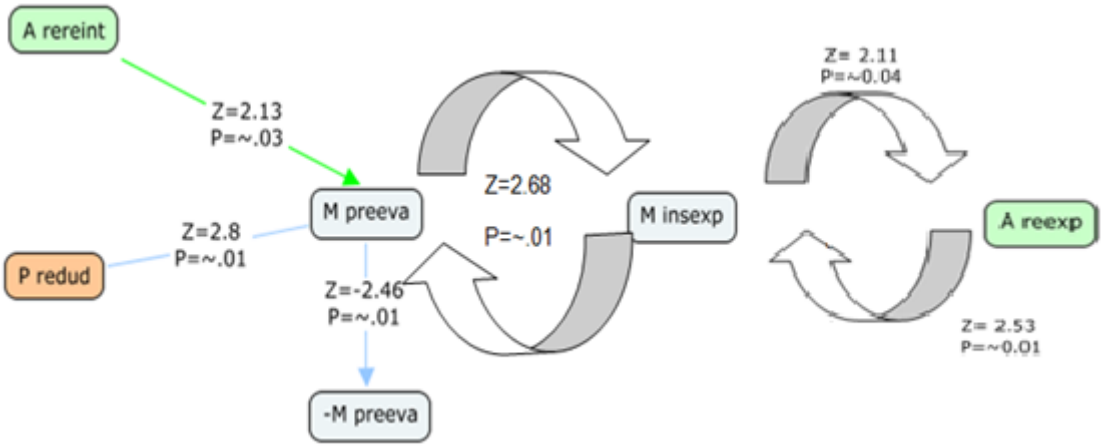

Figure 1: Discourse flows where the teacher asks while evaluating

In the case of the assistants, they ask while evaluating (Ppreeva, figure 2) after the student responds with a doubt or when the teacher gives an order or when the same assistant or another one instruct while guiding or ask while giving an order; once the assistant makes a question while evaluating, he continues making questions until himself or another assistant responds with an affirmation of the explanation of another assistant; should these situations not occur, the assistant then decides to ask a student in particular. The fact that the assistant makes a question while evaluating prevents the students from responding with doubt or denying in the next part of the sequence.

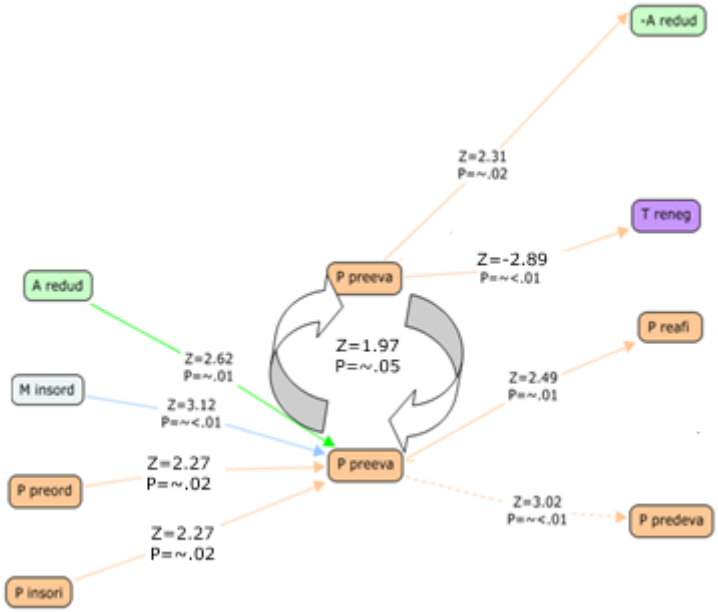

Figure 2: Discourse flows where the assistant asks while evaluating

The situation where the teacher chooses a student in particular instead of the whole group (Mpredeva, Figure 3) happens when she answers with a confirmation or when the assistant makes a question or responds by giving an order, or makes a question while evaluating a student in particular and said student did not give an answer. When the teacher evaluates in

this way, there are no significant categories that precede it, showing that this category is not conditional to any other.

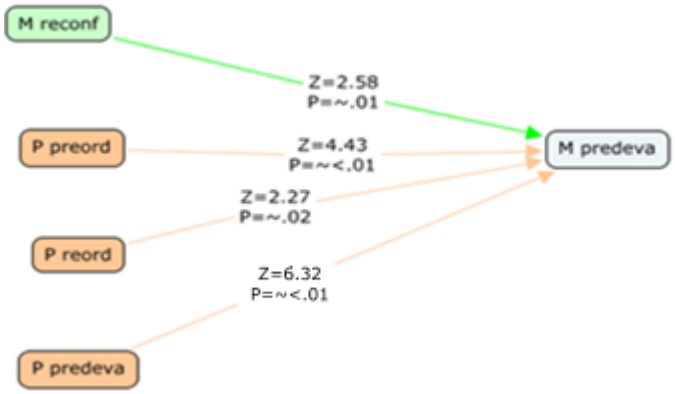

Figure 3: Discourse flows where the teacher asks while evaluating someone specific

The situation where assistants ask while evaluating someone specific (Ppredeva, figure 4) happen after they ask a question while evaluating all students in general, or after an assistant responded confirming the knowledge of a student; when faced with an evaluative question, students can respond by confirming a knowledge or denying that they know what was asked. This produces a loop where the assistant asks the same student or another one the answer of what they want to evaluate. In case there is no answer from the student, the assistant can ask the students to come forward and carry out an activity or the teacher may ask while evaluating a student in particular, in order to support the evaluation process of the assistant.

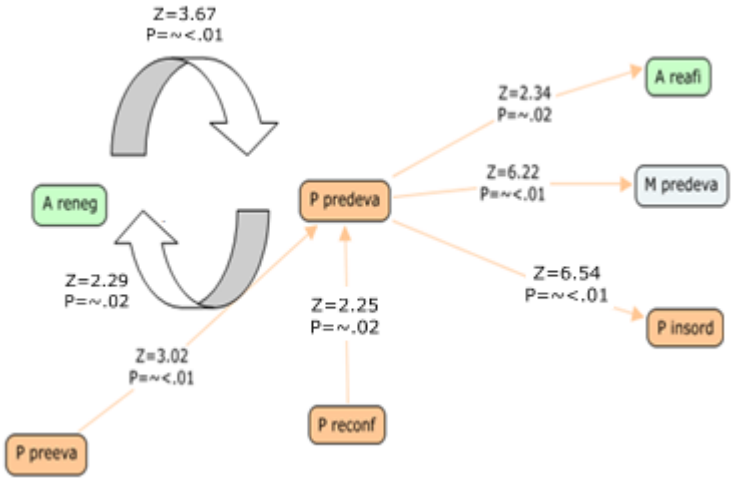

Figure 4: Discourse flows where the assistant asks while evaluating a student in particular

Finally, the teacher evaluates and gives a grade (Mevacal, figure 5) after she has given an explanation or after all students said they know about the subject; subsequently she continues with the teaching process still evaluating but giving additional details. This differs from the correction in that the student discourse is not taken as a reference framework to the teacher's explanation, but as a reference to the main subject of the class.

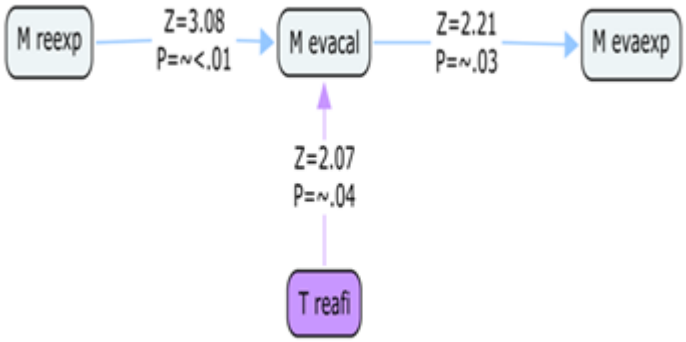

Figure 5: Discourse flows where the teacher evaluates while grading

In the case of assistants, they evaluate while grading (Pevacal, figure 6) after a student explains while guiding about how to perform a procedure, or if an assistant instructed while correcting a wrong or incomplete answer from the students; then the assistants can continue teaching while giving orders or the teacher can continue the class teaching with explanations.

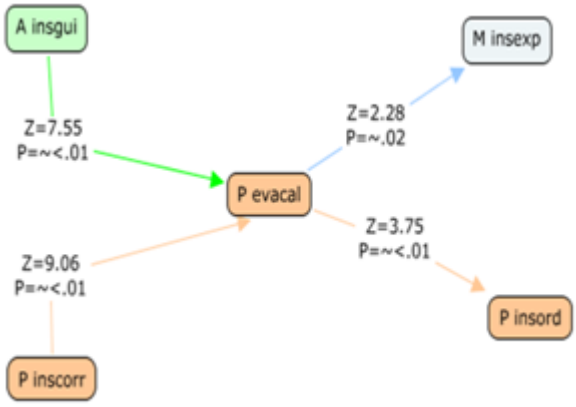

Figure 6: Discourse flows where the assistant evaluates while grading

CONCLUSIONS

In the results, we can see that the teacher and the assistants still play the role of "primary expert" by asking evaluative questions and grading the answers of students based on their own knowledge, in accordance with the events described by Markee [17] where teachers maintain the control and direction of the interaction in the classroom; nevertheless, the way in which they mediate their interaction with students varies significantly.

In the case of the teacher, she leads the students to an approximation of knowledge by asking while evaluating, and once she has evaluated, she then gives an explanation in order to maintain the student in the process of developing knowledge from what she says. On the other hand, the assistant evaluates the student cyclically and when the student does not have the answer, the assistant seeks the answer in another student until one has the answer and if no one does, the assistant tries to keep the student in touch with the dynamics of the class by asking them to come forward and carry out a presentation using the available resources.

Note that after making an evaluation while grading, the assistant chooses to ask the students to come forward as the teacher continues giving an explanation; this shows that the teacher

favors the teaching process with an explanation, whereas the assistant looks for evidence of knowledge in students by commanding them and evaluating them constantly; therefore, they can receive the roles of tutor (primary expert) and instigator (supervisor) respectively, as stated by Nassaji &Wells [19] regarding the roles that teachers, and in this case assistants, play in classrooms.

This interpretation can clarify what is observed when the teacher and assistant make questions to a particular student while evaluating them; here we can see that the teacher does not produce concrete answers but the assistant can lead students to reinforce knowledge. This can be caused by the characteristics given to the roles they play in the interaction of institutional power [26]. In this regard, the assistant can be placed in a traditional role, where he becomes a "hunter" of concrete answers; this way the students find it easier to have predictable interactions since they are already familiarized with the properties of the assistant's role. Contrary to the teacher who, in her role of primary expert/guide, has an interaction with the students using explanations and the approach to knowledge, like a teacher who believes that discourse is more an instrument of co-construction than a control instrument. This was explained by Ozemir [20], who states that the teaching approach of the teacher, and in this case assistant, defines the participation of the students and their learning style.

Furthermore, during the interaction, students adopt the roles and attitudes of the teacher and assistants; on the one hand, when students are on the side of the teacher, they become agents that need to be lead to knowledge and on the other hand, when in the assistants' side, they become agents that need to demonstrate the knowledge that they are acquiring. Students seem to differentiate the qualities that both academic authority figures possess and act based upon these distinctions; they allow the teacher to impart knowledge and respond the evaluative questions asked by the assistant.

These observations show that in the educational environment, the IRE/F structure occurs even when there are 2 dominant roles, in this case teacher and assistant, and in the interaction held between participants, where differential role adoption is generated, defining the discursive structures that will be carried out. It also shows that there are different ways of exercising power as primary expert regarding this discourse structure and that depending on the belief and intention of the participant, the role occupied generates advantages that can be used to keep the discourse with each other, even if the structure is more a unidirectional tool than a negotiation tool; this is because the student adapts to the requirements for this type of structured discourse.

From these styles of participation, it would be desirable to take students to a discursive negotiation in order to create spaces for dialogue that generate more clear and concrete answers allowing to consider student's own knowledge produced from a new learning structure where the student has a greater participation in the discursive management of the classroom; this implies that professionals must have a greater intention for negotiation and mediation.

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