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# Exploring the methodological breadth of research on educational interactions: introduction to the special issue

Tom Koole <sup>a,b</sup>, Elisa Kupers <sup>c</sup> and Mayra Mascareño Lara <sup>c</sup>

<sup>a</sup>Faculty of Arts, University of Groningen, Groningen, The Netherlands; <sup>b</sup>School of Human and Community Development, University of the Witwatersrand, Johannesburg, South Africa; <sup>c</sup>Faculty of Behavioural and Social Sciences, University of Groningen, Groningen, The Netherlands

## ABSTRACT

The study of how discourse, learning and classroom activity are shaped in interaction, can be approached through various theoretical and methodological lenses. Different families of approaches have their unique affordances and limitations, and they shed light on distinct dimensions of educational interactions. However, since these methods are rooted in different epistemological traditions, they are often not discussed together, limiting opportunities for cross-disciplinary collaboration and understanding. This special issue brings together a diverse – yet far from exhaustive – set of methodological approaches, illustrating their affordances in elucidating classroom interactional processes as they take place on a moment-to-moment basis. With this special issue, we invite the readers of Classroom Discourse to explore beyond disciplinary boundaries and discover new methodological perspectives, as a way to expand our shared understanding of classroom interactions.

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## 1. Introduction

Educational interactions are socially and culturally situated, dynamic processes in which knowledge and skills are built over the course of time. Human interactions are at the core of learning, as the person who learns often does so in the context of help from or in mutual co-construction of knowledge with others around them. In other words, knowledge and (social) skills are co-constructed in a mutual process that takes place over time (Granott 2002; Mercer and Littleton 2007; Sorsana 2008). In classroom settings, this process usually takes place in the interaction and discourse among teachers and students, or among peers (Littleton and Howe 2010; Markee 2015).

The analysis of how discourse, learning and classroom activity are shaped in these interactional processes, can be approached from different theoretical and methodological perspectives. For an overview of theoretical traditions in the study of classroom interactions since the 1930s, the reader is invited to read Rex, Steadman, and Graciano (2006).

**CONTACT** Mayra Mascareño Lara  [m.n.mascareno.lara@rug.nl](mailto:m.n.mascareno.lara@rug.nl)  Faculty of Behavioural and Social Sciences, University of Groningen, Grote Kruisstraat 2/1, Groningen 9712 TS, The Netherlands

Authors' note: Names in alphabetical order; the three authors equally shared the guest editor tasks and the authorship of this introduction.

One very raw methodological distinction is described by Mercer and Dawes (2014), when referring to qualitative and quantitative approaches to the study of classroom discourse. Loyal to their different paradigmatic traditions, these families of approaches shed light on different aspects and levels of the classroom discursive activity. Qualitative traditions, usually employing ethnographic or sociolinguistic methods (Mercer 2010), have shed light on how social discourse itself is constructed on a moment-to-moment basis by the participants of the interaction. These approaches '*make visible* the role that language plays in the construction of everyday social and educational worlds' (Markee 2015, 24. emphasis in original). Approaches in the quantitative spectrum use systematic observation based on a predominantly deductive categorisation or quantification of verbalisations and/or non-verbal behaviours (Mercer and Dawes 2014). These approaches usually aim to infer patterns of classroom activity and understand or evaluate relations between sub-processes in classroom activity (e.g. teacher scaffolding and students' uptake) (Howe and Abedin 2013; Long 2015).

These different approaches have affordances and limitations, and are able to shed light on diverse facets of the complex and multifaceted phenomenon of educational interactions (Skukauskaite et al. 2015). Due to their anchors on different epistemological traditions, research produced using these approaches is typically published in different outlets, increasing the fundamental paradigmatic separation that becomes more difficult to resolve (Howe and Abedin 2013). As a result, there are insufficient opportunities to cross-pollinate our analytic lenses. This special issue aims to showcase a diverse set of methodological approaches and to demonstrate their unique affordances in elucidating how discourse, learning and classroom activity unfold in educational settings.

The contributions to this special issue concentrate on the moment-by-moment processes as they unfold in classroom interactions. The scope of methodological lenses includes qualitative, quantitative and mixed-methods approaches. The different contributions share an analytical focus on authentic data recorded in a school setting. The recordings may vary from plenary classroom interactions, peer interactions and dyadic interactions within the classroom, to interactions taking place outside the classroom.

The different papers pay explicit attention to the specific affordances of the methods employed to the study of interactional processes, from identifying recurring patterns to elucidating how actions provide affordances to teachers and/or students.

## 2. The contributions to this special issue

The contributions to the special issue feature different methodological approaches. In the first group of papers (Gosen, Willemsen, and Hiddink 2024; Sert, Gynne, and Larsson 2024), the focus is on how social discourse itself is constructed on a moment-to-moment basis. The methods described in the papers stay as close as possible to the discourse. These papers use methods that are more traditionally represented in the journal *Classroom Discourse*.

In the first paper, Gosen, Willemsen, and Hiddink (2024) use Conversation Analysis to analyse the use of the student receipt token 'oh' in response to teacher explanations. Their use of Conversation Analytic methodology entails that they started with video-recorded, naturally occurring classroom interaction. Next, they assembled from these data a 'collection' of teacher explanations to individual students and made detailed

transcriptions of these explanations. They then analysed the explanation sequences for their structural characteristics: how do teachers organise their explanations and where do these structures leave room for, or even require, the student to show receipt? This enables Gosen et al. to analyse when students' 'oh'- receipts are treated by teachers as insufficient and when as sufficient evidence of the students' learning.

Sert, Gynne, and Larsson (2024) also use Conversation Analysis and combine it with the analysis of post-observation conferences and teacher portfolios in a method they call 'Discursive Timeline Analysis'. Their concern is not with the learning over time of students but with the learning of teachers-in-training, in particular with increasing teachers' awareness of how they evaluate student answers and thereby enabling teachers to change their evaluation practices. As in the paper of Gosen et al., Sert et al. assembled a 'collection' of teacher evaluations and provided teachers-in-training with digitally enhanced videos of their evaluation practices. This enabled teachers to change their overtly negative evaluation practices through cycles of watching these videos, reflecting on their evaluations of student answers, adapting these practices in subsequent lessons and sessions of peer-feedback with other teachers-in-training.

Another methodological approach is systematically coding the observational data and performing analyses on the coded data. The first step in this approach is the development of a valid and reliable coding scheme that captures the essence of what happens in interaction. In the article of Hennessy (2024), a newly developed coding scheme for analysing multimodal interactions with technology is discussed: Tech-SEDA. The Tech-SEDA builds upon a rich tradition of research on analysing the emergence of dialogue in educational settings. Hennessy discusses the theoretical underpinnings of the instrument, and describes the development and application of the Tech-SEDA. While there is a large body of work on coding schemes for teacher–student interactions in various settings and with different foci, the added value of Tech-SEDA is that it helps to better understand how technology plays a role in learning, through analysis of how particular forms of technology are part of the unfolding educational dialogue.

The three remaining papers of Pennings et al. (2024), Hendriks et al. (2024), and De Ruiter and Mascareño Lara (2025) relate to the second step. These papers represent different methods that use momentary coded data as input and demonstrate different analytic methods for discovering patterns over time in these coded data.

Pennings, Hendricks, Thurlings and den Brok (2024) use Orbital Decomposition Analysis to identify non-random patterns of communication in the interactions between members of two teacher professional learning communities. Orbital Decomposition analysis allows for the exploration of group dynamics by detecting strings in nominal time series data that recur over time. These patterns can be interpreted as the manner in which participants of the interaction act and react to each other, forming non-random patterns of coordination. The data the authors explored corresponded to teacher–teacher interactions in two professional learning communities in prevocational education. The analysis showed how the recurrence of different types of patterns in the studied communities can be interpreted as evidence of different degrees of coordination among the participants.

Hendriks et al. (2024) discuss the use of State Space Grids (SSG) as a method to capture the temporal dynamics of classroom interactions. SSGs in general can be used as a way to visualise the temporal dynamics of coded classroom interactions on two

dimensions (usually teacher and student(s) behaviour or verbalisations). Next to visualisation also to extract quantitative measures summarising these dynamics. Hendriks et al. apply SSGs to teacher–student interactions in music lessons, more specifically to the dynamics of students' expressions of musical creativity and the degree of autonomy support provided by the teacher. The paper also illustrates how SSGs can be used to visualise the link between the short-term dynamics of classroom interactions (real time, within a lesson) and long-term changes (over several lessons, during the course of an intervention).

De Ruiter & Mascareño Lara (2025) illustrate the application of T-pattern analysis to identify recurring patterns of verbal interaction between teachers and students in the context of maths lessons in Dutch primary schools. Their application focuses on understanding how learning orientations (i.e. learning orientation or performance orientation) are co-constructed in the classroom discourse by means of recurrent verbalisation patterns of teachers and students. The paper shows how the flexibility of T-pattern analysis allows to unveil regularities in the interactional data that are not limited to predetermined lags in the turn-taking. Finally, the authors reflect on how a data-mining approach such as T-pattern analysis, can be embedded in a purposeful inquiry that considers both inductive and deductive processes.

### 3. Dimensions of the different methodologies

The research methods that are discussed in this special issue can be compared along a number of dimensions. They all share the aim of making sequences (or 'patterns') of interaction (or 'dialogue') in the classroom visible. As a result, they all provide outcomes in terms of the interactional implications of particular interactional moves: when a teacher or student performs a certain move, how can the interaction be expected to continue? This again, provides grounds for counselling and training teachers on their design of interaction in the classroom and their role in it, which is the expressed applied aim of all contributions to this special issue.

The methods in this special issue and their applications may also vary in granularity, i.e. the unit of analysis that is investigated for its interactional implications may range from the use of a specific word or gesture to the production of entire turns or even larger units. Of the methods presented in this special issue, both the quantitative methods that work with coding schemes and the qualitative methods allow for the analysis of different levels of granularity.

And this brings us to a final dimension on which the methods in this special issue can be differentiated, which is the etic-emic distinction. This distinction was originally made in anthropology by Kenneth Pike (1954) and refers to the difference between, on the one hand, approaching an object of social research with the 'emic' aim of understanding this object in terms of what is relevant for the participants themselves, and, on the other hand, the 'etic' aim to understand this object in terms of categories that the researcher brings to the object. Given the fact that form and meaning are not mapped one-on-one, the emic/etic distinction comes down to the question whether researchers establish the meaning of observable linguistic or embodied classroom acts by a close analysis of each individual occurrence of the act (emic), or by relying on the researcher's competence (often with other 'raters') in applying pre-conceived codes to

the interactional data (etic). In the discussion paper of this special issue, Berenst & Deunk will discuss how each of the perspectives relate to the papers in this special issue.

#### 4. Conclusion

The aim of this special issue is to present a variety of methods for the analysis of classroom discourse, more in particular, to present a variety of methods that is not usually presented in unison. This aim arose from the personal and academic experience of the editors of this special issue and our colleagues when we discovered that we shared an interest in classroom interaction as a context for learning and yet used very different methods to analyse this interaction. We started to tell each other about our approaches, and we started to appreciate the possibilities of approaches other than ours. With this special issue, we aim to let the readers of Classroom Discourse take part in this journey of discovery and share the insights we have come to cherish.

The collection of methods presented in this special issue does not aim to be and certainly is not complete. Yet, the aim to place methodologies for classroom interaction analysis next to each other that have until now belonged to different and mutually ill-connected communities of interaction researcher, does not require an exhaustive display of methods. What it requires is a set of authors from different academic backgrounds such as education, pedagogy, psychology and linguistics, who are willing to look across disciplinary boundaries and have an interest in methods not encountered before. And what is true for the authors of this special issue, is certainly true for its readers. On the one hand, regular readers of Classroom Discourse will see in this special issue methodologies that are new to the journal, while on the other hand we hope that this special issue will draw new readers to the journal who so far were perhaps not even aware of its existence.

In an epilogue paper to this special issue, Berenst and Deunk (2025) present a systematic comparison of the methods in the different papers, but we invite our readers, both researchers and educational professionals, to bring together and compare these different methodologies.

#### Disclosure statement

No potential conflict of interest was reported by the authors.

#### ORCID

Tom Koole  <http://orcid.org/0000-0002-8237-211X>

Elisa Kupers  <http://orcid.org/0000-0002-4016-0709>

Mayra Mascareño Lara  <http://orcid.org/0000-0002-9195-7152>

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