

CHAPTER 8

Researching online dialogues: Introducing the 'Chiasm' methodology

Rupert Wegerif

Introduction

Whenever I have a question about almost anything now I do not just ask the people around me but I find myself typing, or speaking, into Google in order to see what comes back to me. This works really well for many practical problems like how to change the LED lights in my new home or finding simple new HTML code to improve my personal website. Where there is a single correct answer this kind of learning is not obviously dialogic, but often my questions lead me into vicarious participation in online dialogues, questions like 'what is the best pub in Cambridge?' and 'what is the significance of the speed of light being a constant?' Asking about this last one, for example, led me to an interesting debate on a website called 'Quora' where each utterance in the dialogue was about one year apart. A participant, PG, posed a similar question to mine in 2015, HK put forward a considered response in 2016 and JL challenged this with an alternative view in 2017. This is clearly a dialogue but it is different in many ways from more familiar face-to-face dialogues. When PG posed the question, he was not speaking to anyone in particular or even to a particular community of people but to anyone and everyone who was interested enough to read his question. Indeed, he was not just speaking out to people. Many bots or non-human agents will have read his message and decided, through their programming, whether to respond or not. I do not think that either HK or JL were bots pretending to be humans but it is always possible. From PG's point of view the 'interlocutor' or other voice in the dialogue that is being addressed is not so much a person, or a defined group of people, but more of an indefinite horizon of otherness with no clear boundaries either in space or in time. An analysis of this educational dialogue in terms only of the recorded utterances of PG, JL and HK would miss this experiential aspect, the experience of being in dialogue not with a person but with an unknown horizon. It would also miss the role of the many listeners to the dialogue. Quora shows that several hundred people have read PG's question and the answering posts. Each reader of this dialogue will have had to interpret it in relation to their own context and their own motives and so, implicitly at least, they will have formed a response which

continues the dialogue. These 'lurkers' or 'read-only participants such as myself, might therefore, be thought of as vicarious learners.

It is clear that the Internet supports new kinds of dialogue very different from the more familiar face-to-face type of dialogue. There is the now very common new kind of dialogue described above in which someone throws a question out, an answer comes back, and the dialogue grows without it ever being possible to completely define the participants and so to draw a boundary around the space and the time of the dialogue. Bots or automatic agents can participate in online dialogues in ways that cannot always be easily distinguished from the contribution of human embodied voices. Further, images, music and videos can be part of Internet-mediated dialogues. It is easy to find on YouTube apparent dialogues in which the spoken or written word, if it is present at all, is subservient to the multimedia nature of the utterances; threads of videos linked by titles such as 'Yoga Challenge' or 'Silly Salmon Challenge' for example. Bakhtin defines dialogues as interactions where the answers give rise to further questions (Bakhtin, 1986, p. 168). In that sense these YouTube threads can be viewed as dialogues. Many such threads have an educational intent and educational consequences. Another more embodied form of dialogue with educational intent that is worth mentioning is online concept mapping (e.g. <https://hcie.cmu.edu/research/lasad>). Here the dialogue is not only verbal but also spatial since the positioning of utterances in relation to other utterances is a key part of the dialogue (Wegerif et al., 2010).

By contrast to these new online forms of dialogue, face-to-face dialogues might appear much easier to grasp. If, for example, you want to research three children talking in a classroom, you can record the event and treat it as something with a boundary, a location and a clear content which is limited to the audible talk, all of which can be transcribed. But perhaps this apparent obviousness of face-to-face dialogues is misleading. Christine Howe and colleagues reported research in which it seemed that children learnt something about science issues from engaging in challenging small group dialogues but only after quite a long time had elapsed (Howe, Tolmie & Rogers, 1992; Howe, 2009). It seems from this that even the educational implications of face-to-face dialogues cannot be so easily bounded within space and time. Perhaps the fact that dialogues are taking on new forms on the Internet might help us to go beyond the apparent obviousness of the image of dialogue as consisting of face-to-face 'talk' in order to explore that which is most essential to the educational nature of educational dialogues.

Research often tries to pin things down and reduce events to their 'objective' outside view. This approach is not a good idea in the case of research on dialogues. A general feature of all dialogues is that they have both an 'outside' and an 'inside'. On the outside: all dialogues are mediated in some way and so must take on form and leave traces in 'objective' space-time: talk in classrooms can be recorded and analysed; the digital code of any form of online dialogue can be downloaded and analysed for patterns. However, on the inside: the educational impact of participating in an online dialogue is not reducible to the talk or the traces left behind on the servers. It takes the form of insights and expanded perspectives.

As we discussed in Chapter 2 of this book, understanding in a dialogue involves the inextricable combination of two perspectives: being outside and being inside, being objective and being subjective both at the same time. On the one hand I understand your feelings in a dialogue by participating with you as if I was you. However, on the other hand, at exactly the same time, I am in fact not you, but I am outside of you observing you and I find that I automatically make sense of and understand your feelings by locating them within a larger map or vision of the world. Being inside and being outside are both required for understanding within a dialogue, but they cannot be reduced into one single composite perspective. There is an unbridgeable and irreducible gap between them. This is what I have elsewhere referred to as 'the dialogic gap'; the gap between perspectives in a dialogue around which it is possible to switch in perspectives from being on the inside speaking outwards to being on the outside listening inwards (Wegerif, 2013). The experience of understanding is a product of the creative tension between these two perspectives. It is always a risky achievement. The experience of not understanding is also common. Understanding is a creative response. Volosinov suggested that insight is like a spark that occurs out of the tension of the charge between two different terminals (Volosinov, 1973, p. 102). But I think we need to go a little further with this metaphor and say that insight is a fire ignited in kindling by a spark. Given the tension between two terminals sparks will always occur but if the kindling is damp or too chunky or for many other reasons then a fire will not always spark into life. Sometimes, for many reasons, a creative response does not arise out of the tension of a dialogue and all we are left with is the often uncomfortable feeling of the tension.

In the remainder of this chapter I develop this insight about the dialogic nature of understanding into a methodology for researching online dialogues and dialogues in general. In the next section I show what is gained and what is lost by taking a more outside-in stance towards online dialogues. Then I look at

what is gained and also what is lost by taking the less common inside-out or 'online ethnography' approach which attempts to get inside the experience of participants in online dialogue. Finally I argue for the value of a new 'chiasm' approach that combines an outside-in approach with an inside-out approach in a principled way, holding them both together in tension in the hope that this tension will spark insight and understanding in the reader. This chiasm approach is then illustrated using content from a recent research project that involved online blogging between schools around the world.

Outside-in and inside-out studies of online learning

The large majority of research papers published about educational dialogues online take an outside-in approach confining the data they use to what I think of as the electronic traces left behind by a dialogue. This is true not only of learning analytics approaches to studying interactions on MOOCs (Massive Open Online Courses) and other online courses (Ferguson, 2012) but also to so-called 'qualitative' analyses of the 'social construction on knowledge' in online '**communities of inquiry**' which code and count online utterances and do statistics on the results (Gunawardena, Flor, Gómez, & Sánchez, 2016).

It is common to ask of a research method 'what is it good for?' But sometimes a more perspicuous question is 'who is it good for?' Whose interests does it serve? Outside-in perspectives are about comparing different things. 'Does Course A or Course B lead to higher scores?' is a classic outside-in sort of question, for instance. This sort of finding is very valuable to policy makers who have to make decisions on whether to invest the limited time and resources available to them in Course A or Course B. Learning analytics can be used to look at the impact of specific features of an online course design: 'Do learners show better understanding in the feedback exercise after they have looked at the video or after they read the text?' is the sort of question an outside-in approach could answer. This is very useful to educational designers.

The curious thing is that the one group of people this sort of 'outside-in' approach, if applied on its own, does not serve very well is educational researchers. Evaluating if a course works well or if a design feature functions properly is a normal part of the development in every area of enterprise and does not, on its own, count as research (<http://www.oecd.org/sti/inno/Frascati-Manual.htm>). I know this because, when I was in charge of research in a university faculty I had to make the case for whether or not

funding we received should be coded as 'D' for development or 'R' for research. Evaluating if things work or not is 'D' for development. Researchers are more interested in why they work. While policy makers often seem content to know that Course A worked better than Course B in getting the result they wanted, educational researchers also want to know why Course A worked better. Similarly while education designers might find it useful to know that their video feature worked better than their text feature in promoting a specific learning objective, an educational researcher would want to unpack this to find out exactly why this was happening. Evaluations of the impact of design features can be part of research but only in the context of applying a rigorous and thought through Design-Based Research (DBR) strategy (see Chapter 2). In DBR, evaluation of whether a design feature worked is part of investigating the theory of learning behind that design feature (Bakker, 2018).

The danger in applying a pre-established code to data is that you must already assume that you know what is important and what is not. If you code every utterance in terms of a theory you are unlikely to learn something new about learning because the data that would enable you do that are filtered out by your coding procedure. In the field of education there are many questions of such uncertainty and debate about causation or the question of what is important to learning, and, indeed, what is learning, that it is probably more useful to focus on good theory generation than on theory testing.

By 'theory generation' here I mean trying to understand how learning occurs in groups over time. On the whole most outside-in research approaches such as applying a pre-prepared coding scheme are not able to be sensitive to the temporal developmental processes that are at the heart of learning (Mercer, 2010). To give an obvious example, the meaning participants give to the term 'spin' at the beginning of a course on quantum mechanics might be very different from the meaning given to the same term at the end. That developmental or emerging change in meaning of one word might be key to analysing the learning on the course. It is hard to capture that sort of change over time through coding and counting or other outside-in research approaches.

The solution to the problems with outside-in research approaches might appear to be inside-out approaches such as online ethnography. An example of this is a study of 'the social dimension of asynchronous learning networks' (Wegerif, 1998). This claimed, on the basis of a few telephone interviews with participants on an online course, to have discovered educationally significant features of their shared experience such as a shift from feeling like an outsider to feeling like an insider, occurring

around a threshold experience which involved taking responsibility for some group learning online. There are many more recent examples of online ethnography which take an inside-out perspective focusing on students' experience of learning (see Varis, 2016, for a useful survey of this growing field).

Just as outside-in research can be criticised, so can inside-out research. One possible criticism, applied commonly to much ethnography, is that of bias and cherry picking. In any presentation of an online ethnography particular bits of discourse will be selected and focused upon but how were these selected? How can the reader of the research trust that they offer a true reflection of what happened online and not something concocted by the researcher? Back in 1994, before most online dialogic education research, the linguist Stubbs made some criticisms of Douglas Barnes' work which are still relevant to online ethnographies. Douglas Barnes's seminal research reported and commented upon episodes of talk in classrooms. He used this research to introduce the idea of 'Exploratory Talk' (Barnes, 1976) which influenced later dialogic education reported upon in this book. While studies based on the presentation of fragments of recorded dialogue can be insightful and plausible, they raise 'problems of evidence and generalisation' (Stubbs, 1994). It is often not clear, Stubbs continues, how such studies could be replicated and compared, or how they could lead to cumulative progress in the field. Qualitative discourse analysis, in the tradition of Barnes, must rely on presenting short selected texts. Yet educational research often seeks generalisations, and evaluative comparisons, which cannot rest only on these samples. This is why, as Hammersley has argued, qualitative analysis can be effective for generating theories but not so effective for testing them (Hammersley, 1992). In contrast, the quasi-experimental research designs which are often associated with the use of coding schemes and other quantitative measures can offer explicit tests of hypotheses and systematic comparisons. This is particularly evident in studies that show the link between dialogic talk in classrooms and educational attainment (Nystrand et al., 2003).

Dynamic-Inverted-Pyramid (DIP) analysis in the context of classroom talk

As a very early career researcher visiting Mexico in 1997 I was given a problem to solve. Professor Sylvia Rojas-Drummond and her team had collected data in two different classrooms, recording and transcribing the talk in the classroom at regular intervals over a term. The classrooms were comparable in every way except that one had been using the 'High-Scope' approach which emphasises active

learning through problem solving. This target class had performed better in examinations. Sylvia asked me to help her analyse the data in order to understand why the High-Scope class did better. Given two largish sets of transcripts ('corpora' in the jargon of linguistics) in a language that I was only just beginning to be able to read, the first thing I did was turn to concordance text analysis software in order to compare them with each. I looked at the total amount of talk over time, the amount of student turns at talk versus teacher turns at talk and the patterns of key words and phrases. This comparative analysis revealed strong differences in patterns of language use but, of course, did not indicate how these differences related to the difference in exam results. To understand the learning in the different classrooms we switch the process of text analysis from a top-down to a bottom-up approach. Just using the evidence of the transcript, as that is all we had, and reading them as if we were vicarious participants, we searched for apparent learning episodes and tried to understand them. We found student utterances indicative of breakthroughs in understanding shown, for example, in utterances where they explained things to the teacher or to each other and then we explored the linguistic context meaning simply the words used around this incident. We found features of language that seemed relevant, for example people asking open questions such as 'porque?' (why?) or the teacher saying 'vamos a ver' ('let us see'). We then saw if each feature seemed correlated to learning episodes or not. The point here was not to simply count the occurrences of types of language but to explore the contextualised use of language. For example, the same phrase, 'vamos a ver' that apparently led to learning in the High-Scope data was only used in the official classroom data to turn students' eyes to the blackboard where the answer was written for them. This dynamic combination of top-down and bottom-up analysis of the data, facilitated by electronic text analysis with the use of concordance software, was presented as the 'Dynamic Inverted Pyramid' or 'DIP' method (Wegerif, Mercer and Rojas-Drummond, 1999; Wegerif and Mercer 1997b).

I mentioned briefly above how Hammersley noted a research cycle in which exploratory bottom up research sometimes led to theories which could be tested in a second stage of top-down research. This is what we realised that we were doing with the DIP method only the cycles of theory generation and theory testing were very rapid. Exploring the data from the point of view of the learners we came up with conjectures such as that the teacher saying 'vamos a ver' was relevant to later learning experiences and we tested this conjecture out by looking at all the contexts of 'vamos a ver' across all the data. This did not only show us that it was relevant, yes or no, but also why it was relevant, showing, for example, how it worked differently in the High-Scope class from in the normal class. In this way, using electronic

text analysis, we brought the context of theory generation much closer to theory testing. We called this method 'dynamic' precisely because it involved a rapid iteration between bottom-up theory generation and top-down theory testing.

Each micro-study incorporated the following five steps:

- 1) An episode of talk that is 'of interest' as it indicates learning
- 2) Language features selected as being potentially significant in this episode, features such as 'vamos a ver' or students initiating talk in a way that is picked up by others or even the length of utterances
- 3) All instances of the use of this feature, usually a word or phrase, in all the data are examined in their immediate linguistic context.
- 4) The educational context of the use of these features is explored in more detail in all data
- 5) Quantitative differences in use between the two sets of data are abstracted from the full transcript data ending up for example with a simple comparison of how many times different terms were used in the data.

The result of this was not just a simple figure of the statistical difference in language use between Group A and Group B but that headline figure closely correlated to a narrative story explaining why this was educationally significant. In the High-Scope data statistically significantly more 'vamos a ver' occurred from the teacher than in the normal class and we could show how and why that correlated to moments when students appeared to understand things and expressed their understanding.

We presented the DIP method using a triangle (Figure 8.1) as a way to integrate several levels of abstraction in the data. The most concrete data available to us in these examples was the full video and audio recording. Abstraction is the process of pulling selected features out of this most concrete level. Making an annotated transcription, for example, is the first level of abstraction from the full recording. Pulling lists of Key Words in Context (KWIC) out of this transcript is a further level of abstraction and pulling just a count of words out of that KWIC list goes further still. The DIP method moves from a focus on the qualitative event, the point of the pyramid, out to more general and abstract measures such a count of words or other features of language in use, via a series of stages of the analysis of words in context (see Figure 8.1). Looking at the use of key words in context and exploring their collocations (the other words they occur with or the company that they keep) can be done quickly with computer-based concordancers using electronic transcripts.

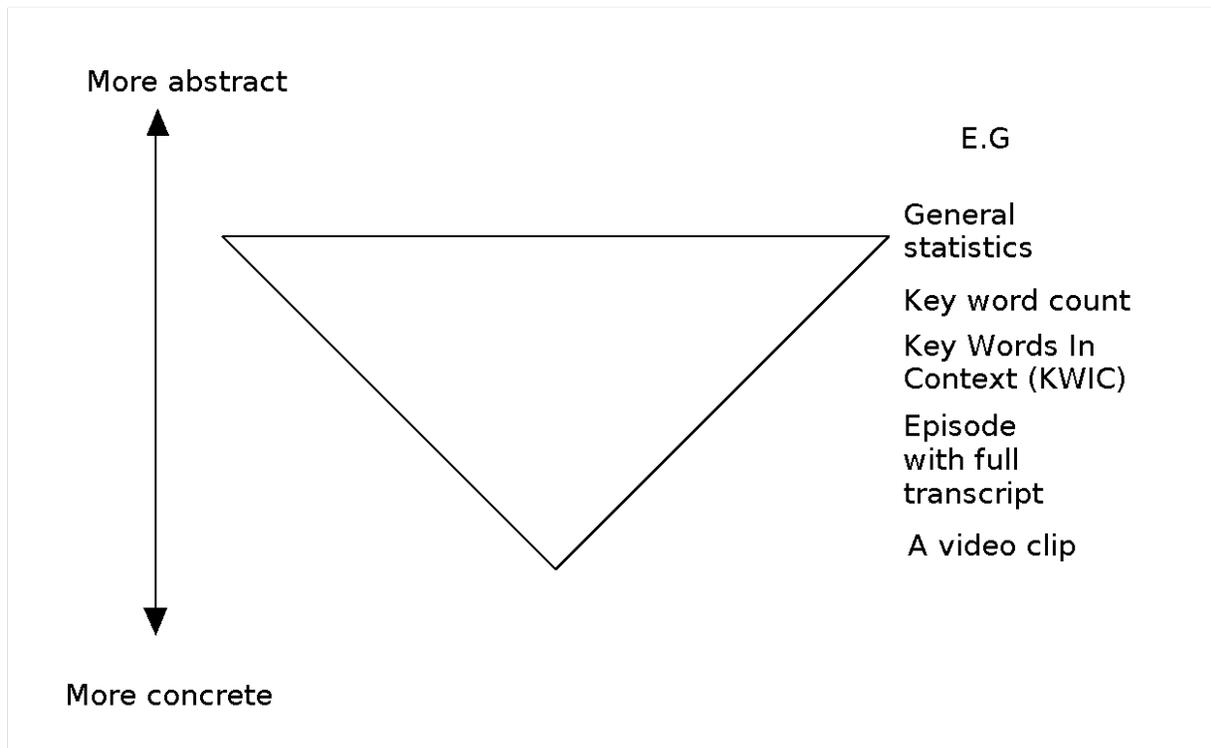


Figure 8.1 **Dynamic Inverted Pyramid methodology (DIP)**

This development and practice of the DIP method was influenced by procedures used to explore large amounts of language data in corpus linguistics (Pérez-Paredes, 2017; Durrant and Schmitt, 2010). This method works very well and we use it all the time. It was used and is still used, for example, to link talk in groups around specific questions in a non-verbal reasoning test with the overall test scores of groups such that we could not only say which groups were better at reasoning together but also why through an analysis of the talk moves and other factors that led them to be able to solve problems together (Wegerif, Mercer and Dawes, 1999; Wegerif, Doney et al., 2017). Recently we used it to explore the difference in language used in chat groups in a FutureLearn MOOC between Week 2 and Week 8. This as yet unpublished pilot work was done with the educational linguist Pascual Pérez-Paredes. Pascual was excited to find many changes in the language used over the 6-week period that indicated increased complexity of thought. These included increased modality such as using 'would', 'could' or 'might' more and increased use of adverbs, adjectives and prepositions. If we had time enough, funding and access we would be able to link these apparently abstract and general changes in language use to specific learning incidents.

Chiasm: a dialogic research methodology

People sometimes say 'it is all very good in theory but does it work in practice?' I have also heard the opposite asked as a joke 'OK so it works in practice but does it work in theory?' I think this joke has truth in it and is relevant here. The problem with the DIP methodology is not that it does not work in practice, it works very well in practice, the problem is that it does not work well in theory, at least not for me. That is the real reason why I refer here to the DIP method in the past tense above and feel the need to move on to a new theoretical formulation which I call the Chiasm method.

The idea of the DIP method is that we have a concrete learning event and then we abstract away key features from it, each level becoming more general as it becomes more abstract. For instance we observe a learning event happening then we abstract away just the video and sound with a video recording, then we get this transcribed by a secretary thereby abstracting away only the audible language used, then we use the transcripts to look at keywords in a context of, say, 10 words to either side to see if there are phrase and patterns, then we just count the keywords and perhaps correlate these keyword counts with exam results to say that the language in this class over a term or a year correlates with greater success on an examination. The trouble with this is that each level is not only an abstraction from the previous level, it is also a different view. Videos can show you things you did not notice as an observer. Looking at language features in transcripts can show you patterns of meaning that you would never notice in the different timescale of watching a video (Louw & Milojkovic, 2016). Exam results might be abstract and general in the same sort of way as word counts abstracted from classroom talk but each are very different ways of looking at work in a classroom over a term. If a student or teacher were to write a short poem about their learning experience over that term would that not also be an abstract and general account? The more I thought about it the more it did not work.

The idea that everything can be mapped on a scale from the situated and concrete to the abstract and general is quite widespread. It is clearly articulated, for example, by Vygotsky in 'Thought and Speech' where he writes:

Imagine that all concepts are distributed at certain longitudes like the points of the earth's surface between the North and South Poles. The longitude of a concept designates the place it occupies between the poles of extremely graphic and extremely abstract thought about an object. Imagine further that the globe symbolizes for us all reality which is represented in concepts. We

can then use the concept's latitude to designate the place it occupies among other concepts of the same longitude – concepts that correspond to other points of reality.' (Vygotsky, 1934/1987, p 228)

Vygotsky argued that education moved the student from the concrete and situated to the abstract and the general (Wertsch, 2013). I had read Vygotsky in the early 1990s as a PhD student and so this is perhaps where the idea for the DIP method came from. But although it appeared to work well in practice it clearly did not work well for me in theory because it was impossible to make sense of the many contradictions that it generated when I tried to think it through. Reading Buber, Bakhtin and Merleau-Ponty offered an alternative way of looking at what was going on that enabled me to understand why the DIP methodology worked so well in practice but within a very different theoretical framing (Wegerif, 2008). This alternative way of thinking about the methodology was not as a data pyramid but as a living dialogue between two incommensurate or irreducibly different perspectives; the perspective of the experience of students going outwards and the view from the outside trying to define and locate that experience moving inwards. This combination of an inside view looking out and an outside view looking in corresponds to Merleau-Ponty's concept of the 'chiasm'. Chiasm is a term Merleau-Ponty borrowed from rhetoric where it refers to the reversibility of a subject and object in a sentence. The sentence, 'I see the world: the world sees me', is an example of a chiasm. Merleau-Ponty applied this to his understanding of the nature of perceptual events.

Chiasm describes the essence of a dialogic relation as one in which two or more perspectives mutually envelope each other and reverse about each other without merging. In a living dialogue the 'other' voice is not only a located individual within my field of consciousness but also an outside point of view – the other's gaze - that encompasses me and locates me. What we get in dialogue then is not just two separated and located voices interacting but an outside perspective looking in – as you look at me and locate me within your gaze - and an inside perspective looking out – as I look out at you and try to express my truth. These two dynamic perspectives reverse around each other as now I speak, perhaps defining you as a small part of my world, and then you speak, locating me as a small part of your world (Wegerif, 2013, p.31).

Applied to the issue of research methodology this is the theme sometimes found in social science of the tension between an 'etic' or outside point of view defining the people who are subject to study and an 'emic' or inside point of view of the subjects of the study and how they experience the world.

Occasionally ethnographers seem to realise that an interpretation of a culture only ever exists as an emergent phenomenon at the boundary between an outside 'etic' point of view, that of the researcher and reader, brought into relationship with an inside 'emic' point of view, that of the participants in a culture (Pelto and Pelto, 1978). In dialogic terms the 'outside' or 'etic' perspective represents what Buber referred to as the objectifying stance of 'Ich-Es' or 'I to It relationship' that tries to locate and understand as if from the outside seeking, but never fully attaining, the ideal of an unsituated or universal overview. The 'inside' or 'emic' stance, by contrast, stems from Buber's 'Ich-Du' or 'I to Thou relationship' (Buber, 1923/1958) that reveals contingent local meanings that can only be understood from within a dialogue (see Chapter 2). This insight is where the Chiasm methodology begins. It is an attempt to rigorously and coherently map the links between stages of the inside-out perspective in relation to the outside-in perspective. If exam results and word counts say something about the course as a whole over a term it would be interesting to juxtapose this with interview with students or perhaps creative writing or multimedia expressions from students which attempted to express their experience of the course as a whole. If the claim is that particular phrases like 'vamos a ver' prompted learning activities then it might be worth juxtaposing that with how the students felt about it using a technique like key event stimulated recall, as described in Chapter 7.

In the example above of the Mexican classroom data there were no interview data. Nonetheless the chiasm methodology can be applied. The inside voice here should be understood as the unique meaning of learning events discovered in the transcripts or the 'ideographic' and the outside voice as the patterned and universal aspect of events or the 'nomothetic' (Larsen, 2012). The claim is that understanding comes from the dialogic juxtaposition of these two aspects held together in the creative tension of a dialogue where there can be no reduction to one side or to the other. Research in social science has frequently tried to reduce findings either to an outside view as in statistical correlation research for example, or to an inside view as in some 'deep description' or phenomenological studies. In reality we can only make meaning of these studies through an often implicit dialogue between outside and inside perspectives. If the meaning we seek in research is only to be found as something that emerges in the dialogic creative tension between an inside and an outside perspective then it follows that we should try to design empirical research in such a way as to bring these two perspectives into a fruitful or mutually illuminative relationship without allowing the generative tension to collapse into one sole perspective. In practice in this proposed methodology, as with the DIP methodology that it builds

on, the findings of statistical measures are used to help focus in on those key events which need to be interpreted in order to understand where the measures come from and what they really mean, whilst at the same time, insofar as this is possible, the statistical measures are based upon and drawn out from those features of communicative events that interpretative analysis suggests carry causal significance.

Corpus linguistics on online blogging combined with interviews

We applied this ontological dialogical research methodology to the issue of designing an evaluation of the Generation Global (GG) programme¹. The GG programme is intended to build resilience against the narratives of violent extremism. Operating for more than seven years in more than 20 countries, it has reached over 200,000 students aged 12 to 17. After a compulsory module teaching ‘the essentials of dialogue,’ classes engage either in team blogging or in facilitated video-conferencing with classes in other regions of the world, discussing issues that are central to religious and cultural differences. The team blogging involves placing students into teams in the GG online learning community. In these teams, they talk with peers from other countries by creating short blog posts in response to pre-determined prompts (or questions), and by commenting on each other's posts.

On the one hand we sought to provide an evaluation of the impact of the programme that was rigorous and convincing as possible; on the other hand we also sought to understand the processes whereby individual young people develop and change their attitudes towards others who are different from them. These twin aims require that we combined together in one methodology, two very different perspectives; one perspective looks at the experiences of young people in the programme as if from the outside, seeking to measure change objectively, the other perspective explores the same experiences as if from the inside, trying to understand how each encounter feels for the young people involved and what it means for them in the context of their lives.

In the overall study (https://institute.global/sites/default/files/inline-files/Measuring%20Open-mindedness_29.06.17.pdf) the external objectively rigorous view was provided by a measure of dialogic open-mindedness, an instrument with 36 questions that we developed specifically for the project. The

¹ This research was funded by the Tony Blair Institute for Global Change. I have to thank my collaborators, Jonathan Doney, Phillip Durrant, Ian Jamison, Andrew Richards, Nasser Mansour and Shirley Larkin.

results of this evaluation enabled us to focus in on schools where the GG programme seemed to be having a strong positive effect and schools where it seemed to be having little if any effect. Six schools in three countries were followed up with case studies including interviews with teachers and some students on their experience of the programme. Our ideal was to link the abstract scores on the measure with actual incidents that led to increased dialogic open-mindedness or decreased dialogic open-mindedness. However, because the focus of this chapter is on online research we will focus on the evaluation of the impact of the online blogging which was just one aspect of the GG programme.

In the GG programme there are two main options for dialogue between schools. One is video-conferencing and the other is 'team blogging'. In team blogging, groups of four schools from different countries discuss world issues together. Before taking part in team blogging, students were asked to reflect on how they 'feel about people from those countries, communities, cultures and faiths you expect to meet when team blogging?' They were also asked to reflect on why they feel this way; 'write about things in your experience that have shaped your views'. Similar questions were posed after the team-blogging event. Quantitative data on how many blogs were written, read, and responded to, were also gathered.

1140 reflections were filled in in total by individual students from more than 100 different schools. These were labelled as either 'pre' blogging experience or 'post'. Matching pairs of pre and post reflections had been made by 45 individuals, enabling us to explore changes in attitudes through changes in language use. Analysis of this data using a combination of discourse analysis and corpus linguistic statistical techniques showed clear patterns of change in the way that language was being used.

The keyword technique enables the comparison of two sets of texts (corpora) to see how similar or different they are. **Log-likelihood** is a statistical measure of how surprising it is to see patterns of language in one set of data in the context of the language use in another set of data. In this case we looked at the difference in word use in the 'post' data as compared to the 'pre' data. The log-likelihood measure tells us how likely that difference could have occurred by chance. A log-likelihood of 10.83, for example, translates as an event that is only likely to occur one time in a thousand by chance alone ($p < 0.001$) and a log-likelihood of 15.13 refers to a one in ten thousand chance ($p < 0.0001$) of being random. The differences in key word use that we display in Tables 8.1 and 8.2 below are therefore all

statistically significant which simply means that they almost certainly occurred as a result of the team-blogging experience rather than representing random changes (Dunning, 1993; Rayson and Garside, 2000).

We lemmatised the text data when comparing the post results for the ‘how’ question (outlined above) with the pre-results. To **lemmatise** means to reduce words to their base form. For example, the verb ‘to be’ might appear in several different forms as ‘is’, ‘was’, ‘am’ or ‘are’ but when lemmatised all these forms are reduced to the single form ‘be’. Once lemmatised the comparison of the pre-reflection and the post-reflection texts written in response to the question ‘how do you feel about ...’ showed a clear pattern of development.

Frequenc	Log-likelihood	Word
21	74.728	faith
18	43.085	country
40	33.939	different
19	29.138	view
35	25.581	culture
29	23.826	very
11	23.331	tradition
43	19.644	we
26	19.469	other
22	18.764	like
		experienc
11	18.073	e
18	14.763	good

Table 8.1 Difference in the post blog reflection for ‘how’ question

Table 8.1 shows the top twelve most significant changes in word use in the post data compared to the pre data with a word frequency greater than 10 out of a dataset of 1923 words in the post data (very

similar to the size of the pre-data set which was 2033 words). Exploring further, looking at these keywords in context and then at the full texts, it is clear that several of these key terms expressed positive affect. 'Very' for example was collocated most often with 'interesting', 'good' and 'nice'. In the language of corpus linguistics, the use of 'very' shows positive semantic prosody. Words such as 'faith', 'culture' and 'community' reflected the content of the team-blogging exercise. What is perhaps most striking in this list is the appearance of the word 'we'. This draws attention to a shift in personal pronoun use. Personal pronoun use is often central to analyses of dialogicity and also to studies of identity change (Sanderson, 2008).

Table 8.2 Change in pronoun use from pre to post reflection for 'how' question

Pronoun	Pre frequency	As %	Post frequency	As %
I	122	6%	105	5.46%
We	32	1.6%	43	2.2%
They	45	2.2%	65	3.3%

Table 8.2 shows that both the use of 'we' and 'they' increase significantly between the pre and the post reflection while the use of 'I' declines. What is more interesting is the way in which the use of 'we' and 'they' changes.

Before the blogging experience 'we' refers most commonly to the home group as in the following two typical uses:

'when i heard from my teacher that we were going to team blog . I was very excited'

In addition 'we' is also sometimes used to refer to a very abstract notion of the unity of the human race: 'we all made from the same mud which is God create us from'.

After the team-blogging experience the way in which 'we' is used changes to refer to a much more concrete sense of shared identity:

'It was a wonderful experience. As i blogged and they commented on my blog, i found out that somehow we share similar beliefs and all of us wants to spend our life loving each other. Also i got to

know that there are some common problems we face and its time we should find a solution to these problems and should stand up for each other.'

'We could easily find common ground and it was good to splash up my views and recive comments of what they think of my thoughts '.

At the same time the use of 'They' to refer to the other also changed. Before the team-blogging experience 'they' were clearly simply 'other'. The following statement is typical:

'I feel curious to know about the lifestyle they live, also the kind of problem they face in the society'

After the team-blogging experience the 'other' took on a much more concrete form and was seen as 'like us,' perhaps even as part of an extended sense of 'us'.

'after the team blogging I feel that they are also like us . they also enjoy singing , dancing , act , ect'

'All of them where extremelly different. Each has their own opinion and worldview. Some of them differ from me and some are quite similar'

On qualitative examination the change in the use of pronouns to refer to self and other between the pre-team-blogging reflection and the post-team-blogging reflection indicates a shift in identity from a relatively closed sense of 'us' defined against an abstract sense of 'them' towards a more dialogic identity which can best be described as identification not with 'us' against 'them' but with the dialogue that unites the two terms.

The corpus-linguistics inspired discourse analysis of changes in the use of language in online reflections by young people both before and after team-blogging experiences of online dialogue with other schools showed clear evidence of changes in the way in which they identified themselves and others. These changes were in the direction of increased dialogic open-mindedness promoted by the GG programme. This method showed one way in which the inside perspective of reflections by individuals can be combined with the outside perspective of statistical rigour in describing a general change. The changes

in each individual's attitudes towards others and otherness were reflected in changes in the use of pronouns such as 'we' and 'they' that could be picked up by a general corpus-linguistics analysis of the difference between two corpora. At the same time that general difference helped the analysis focus in on the individual utterances that led to it. This illustration shows the potential of a dynamic circular dialogic interaction between inside and outside perspectives in which neither aspect is reduced to the other and yet there is no synthesis because it is the juxtaposition of inside and outside views that the reader is led to understand both the significance of the statistical changes (outside view) and the causal processes that led to those statistically significant changes (inside view).

Discussion and conclusion

The online context offers new possibilities for dialogue and new forms of dialogue. Developing a methodology for researching online dialogue pushes us to identify that which is most essential to educational dialogue. Online dialogue is often multimodal so a focus on 'talk' is no longer possible. In this chapter I argued that what is most essential to dialogic learning is the creative tension of bringing together an inside point of view with an outside point of view. Researching this dialogic phenomenon requires a dialogic methodology. This chapter presented the 'chiasm' methodology for research on dialogue that is itself a form of dialogic learning. This methodology is about the systematic inter-animation or inter-illumination of outside perspectives with inside perspectives such that they speak to each other in dialogue without either side being reduced to the other. In practice, as shown by an illustration, the application of this methodology can show how the lived experience of participants in any educational programme feed into the development of objective and rigorous measures of the impact of the programme while at the same time these more abstract quantitative measures are used to focus in on aspects of the lived experience of participants, revealing exactly how and why the programme worked or did not work. The ideal of this approach is to lead the reader into greater understanding of any educational programme through following the dynamic iteration of views from the outside and views from the inside.

In the commentary Beatrice Ligorio makes a connection between this chiasm approach to researching online dialogues and her online research in Italy looking at how experiences online develop a more dialogic sense of self.

Expert Commentary

Research online dialogues: Introducing the ‘Chiasm’ Methodology - a commentary

M. Beatrice Ligorio, University of Bari, Italy

Introduction

In this chapter, three interconnected and interesting questions are examined. First of all, Rupert Wegerif raises the concept of learning. Secondly, he points out a methodological problem. Thirdly, he reflects on the role of technology. In this commentary, I will try to outline the main points raised in the chapter for each question and I will add a few personal comments.

What is learning?

One implicit question Wegerif seems to ponder is: What is learning? Surely, learning as simple accumulation of information is superseded by a more complex idea of learning, closely related to the capability of students to express themselves, to understand, recognize, and capitalize different points of view and, ultimately, to use differences as means to improve not only individual knowledge but also the concept of knowledge itself. This is very close to what Scardamalia and Bereiter (2006) define as “knowledge building” and it is related to the dialogical approach in education, of which Wegerif is an advocate. While Scardamalia and Bereiter remain mainly focused on what happens to knowledge, Wegerif and the dialogical perspective look at what happens to individuals and groups of individuals. In both cases, knowledge is not limited to what is in heads of learners but it is within an intersubjective space, established between people while interacting. I am aware that intersubjectivity is a complex theme. Many authors attempted to study it during collaborative learning tasks, coming to slightly different definitions. For instance, Wells (1993) considers the construction of intersubjectivity as occurring while participants are converging their attention to the joint task. Matusov (2001) includes in intersubjectivity the reciprocal understanding of what the partners have in mind. Crossley (1996) points to the concept of inter-world as a symbolic space emerging during interaction, filled up by meanings not

thinkable individually. Beside the differences in definitions, all these authors concur in considering learning as an intersubjective phenomena. Receiving and offering information, ideas, no matter the means used, is a process of recognizing the other as part of our learning process. Building intersubjectivity at a distance, with partners communicating over a computer screen, allows this process to be more visible and traceable. Deeper understanding of how intersubjectivity is initiated, how it evolves and how it is maintained, is required (Ligorio, Cesareni, & Schwartz, 2008; Ligorio & Talamo, 2005). I see a strong connection between this and the inside-out problem raised in Wegerif's chapter. The way the dialogical approach is implemented by Wegerif, implies that "you" and "I" are progressively confronted, combined, and, to some extent, reciprocally appropriated. Therefore, dialogism in learning is also a matter of intersubjectivity.

How to study learning?

The way Wegerif poses this question is much more complex than the opposition of quantitative versus qualitative, or idiographic versus nomothetic. His point is: How can we look at the same time into two different places, namely inside the students – in their minds, understanding, awareness – and outside them, considering the objects, the products, the outcomes? And how much will these latter represent what students learnt?

Wegerif describes an evolution of the Dynamic-Inverted-Pyramid (DIP) into the Chiasm method that "describes the essence of a dialogic relation as one in which two or more perspectives mutually envelop each other and reverse about each other without merging". Chiasm promises to keep the complexity of what we study, linking together the inside-out perspective and the outside-in perspective. Very challenging. Indeed, methodology is not just a question of coherence between research questions and instruments used to collect data; nor between theory and practice. Methodological innovation does not imply just a new technique to treat data but it should allow a better understanding of what it is that we observe.

What is the contribution of technology?

Technology is an artifact and “an artifact is an aspect of the material world that has been modified over the history of its incorporation into goal directed human action” (Cole, 1996). Therefore, artifacts contain the signs of the cultural within which they appear and are used. Current technology is changing the way we talk and discuss. Online dialogues are threaded (forum, chat), multimedia and hyperlinked (blog, personal web-pages), visual (YouTube; virtual worlds such as Second Life), networked (i.e. Facebook), multiple-layered and with nested space-time frames (Ligorio & Ritella, 2010).

According to Vygotsky (1962), there is a close relationship between language and thought; therefore, a new way of talking should imply an innovative way of thinking. Wegerif offers an attempt to show what happened to shared thinking on the Generation Global (GG) programme. He shows how students shift from a contraposition between ‘us’ and ‘them’ “towards a more dialogic identity which can best be described as identification not with ‘us’ against ‘them’ but with the dialogue that unites the two terms”.

I have also analysed data generated from the same GG program, in particular blogs connected to the topic of food, as a way to describe family habits, local traditions, and social, religious and personal values. Three dimensions were retrieved: (a) cross-generation interaction, (b) multi-layered space of dialogue, and (c) cultural identity (Ligorio & Barzanò, 2018). These dimensions included many identity positions; I as student, teenager, friend, member of a family, part of a culture. Many “voices” were raised from the past (i.e. parents and grandparents), intertwined with those in the present and in the future; and they were located into a multi-layered space-time emerging from the blogging activity itself, where other contexts (both online and face-to-face) were re-narrated and reiterated. We also understood that the space-time offered by the blog allowed students to express feelings and opinions otherwise silent. Furthermore, students shared parts of their identity through a network – constituted by the blogosphere of the project – where they could connect, reciprocally build on one another’s contributions and further discover and negotiate who they are and who they could be. This may be the added value of using technology in education: offering innovative spaces to talk and think in an innovative way.

In higher education I conducted a relevant study of a web-platform based course intended to support a progressive shift from self-positions that relate to the role of student toward more professional self-

positions (Ligorio & Sansone, 2014; Amenduni, & Ligorio, 2017). Digital environments here were a space where: i) links are made with companies; the course was on e-learning and companies from this field were invited to propose real professional activities to students attending the course; ii) different collaborative activities are engaged in with peers; iii) different roles are played as a simulation of the professional profiles the course aims to train and iv) the environment supports the role of “friend of zone of proximal development” (Impedovo, Ligorio & McLay, 2018). Clearly inspired by Vygotsky (1978), this ‘friend of ZPD’ role implies that each student nominates a friend, based on personal sympathy and trust, that should monitor the performance, give suggestions and offer advice to improve performance on the course. This role implies also self-reflection; in assessing someone else’s performance in order to give advice, it is unavoidable that one will have to reflect upon one’s own performance.

A very brief conclusion

Online dialogue is a new phenomenon, entering more and more into a range of educational contexts. This implies that methodological innovation is needed urgently. This chapter is taking up this task. New applications of Chiasm are encouraged, to exploit its limits and potentialities.