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A Moment of Transformative Learning: Creating a Disorientating Dilemma for a Health Care Student Using Video Feedback

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Abstract

This study describes a moment during clinical supervision when a student speech and language therapist reported that she had a moment of illumination that changed her trajectory from failing her clinical placement to passing it. The student’s self-report of the moment is provided. The clinical supervision was conducted using video feedback where the student watched successful edited clips of herself interacting with a patient in the university clinic. The clinical supervision where the moment of illumination occurred was recorded and two short extracts of this moment were analysed for evidence of a transformative process using Mezirow’s theory. The content of the student’s speech during the moment of illumination followed the steps and sequence of the transformative learning model. An analysis of the way the speech sounded showed that the moment was characterised by slow speech rate and flat monotonous pitch in both speakers and preceded by the educator modelling stopping and thinking. The use of video footage in student clinical supervision may be used with differential effect. Footage of strengths may be an effective trigger for disorientation and especially when feelings of failure or weakness are most prominent. The way the discussion of the video footage is led by the clinical educator may also support deep reflection.

Keywords
disorientating dilemma, reflective practice, supervisor relationship, video

Introduction

For Dewey (1938), the educator’s duty is to identify the personal capacities of the learner and to shape the environment to cause an interaction between the endogenous and exogenous and create a quality educative experience that meets the needs of the learner. The educator’s role is to support continuity of knowledge gained through past and in present experience so that understanding can be integrated in the learner. He described thinking as a ‘‘postponement of immediate action, while it effects internal control of impulse through a union of observation and memory.’’ Dewey thought this union was ‘‘the heart of reflection.’’ Dewey’s continuity principle and his conceptualisation of thinking calls into question the polarisation of reflection as either ‘‘on-action’’ or ‘‘in-action’’ (Schön, 1983) that surfaces in the medical education literature. Epstein (2008) described the relationship between reflection, insight, behaviour change, and practical wisdom as obscure. However, the need to design

quality educative experiences in order to develop practitioners who show the ‘‘informed flexibility, ongoing learning and humility’’ that Epstein called for is real enough. So, if we were to return to the education philosophy of Dewey, quality educative experiences will be those that are crafted to help the learner see how his or her interactions in the environment can meet his or her needs and provide opportunities for the learner to integrate knowledge gained from past experience in the in-action experience.

Mann, Gordon, and MacLeod (2009) reviewed the literature on pedagogic interventions in the field of health professions education. Their review focused on interventions that aimed to enhance reflective practice. Of the 29 studies included, many had large numbers of participants (frequently over 100 participants), but none of the research studies included a randomised control. So based on a thematic review of the prior literature, six facets of educative interventions considered ‘‘most influential’’ in developing reflective practice were highlighted, these were, supportive intellectual and emotional environment, an authentic context, tailored to the individual learner’s learning style, mentoring, group discussion and support, and free expression of opinions. In addition, perceptions of relevance, time for reflection, and positive framing of past experiences were enabling factors. The review by Mann, Gordon, and MacLeod suggests that adult learners deepen their reflective thinking through externalising thought in a trusting relationship with others and that there is something important in the emotional context of those relationships and in the framing of past experiences in the learner. The review’s findings concur with the basic principles of Dewey’s philosophy (learner centred, relationally constructed learning situated in a relevant environment, impact of prior experience); however, the role of emotions both in the external environment (supportive emotional environment) and in the learner (the positive framing of past experiences) highlight that what people feel and whether or not they express their feelings, or the thoughts that they have in response to those feelings, plays a role in the development of reflection. This review, and other theory on learning (Bandura, 1982; Moon, 1999), suggests that there is a particular role for positive emotions in the development of reflection.

According to Dewey (1938), the deep integration or synthesis of thought, which is indicative of thinking that leads to reflection, comes from the inhibition of impulse. Subsequent theories of adult learning have also highlighted a role for stopping in thinking. Schön (1983) highlighted the role of surprises and Mezirow (1990) the role of dilemmas in triggering response to experience that effects

change in the learner. If the role of the dilemma or surprise is so important for reflection, then the design of quality educative experiences within the field of medical education should be highlighted and explored. The complex clinical environment can provide the authentic context for learning and portfolios can be used to capture these experiences so that the learner can use them as a basis of reflection (Pearson & Heywood, 2004; Snadden & Thomas, 1998). But, can we design educative interventions to create dilemmas or support awareness of dilemmas in the in-action experience to be used later for reflection on action? The use of video footage of students in real and simulated clinical experiences could provide a way to support the generation of true experience which, according to Dewey is ‘‘truly experience only when objective conditions are subordinated to what goes on within the individuals having the experience.’’ The widespread availability of video footage in medical education means that we should think about how we use video not only to capture the experience, but how to use the footage to help the student stop and think.

Video Footage as Innovation in Education Practice

Video footage is commonly used to support training in health professionals prior to their professional qualification. Specific competencies are filmed, often during simulations, and these can be watched back by the student to support their reflection on a selected behaviour. Video feedback is also being effectively used with groups of post-qualified health professionals to develop clinical reflexivity amongst groups of health care professionals. This method of feedback, which provides space for clinicians to analyse and discuss a particular clinical scenario together, known as video-reflexive ethnography, has been demonstrated to produce practical outcomes that have significant impacts for patient care and patient safety during complex clinical environments where individuals collectively take responsibility for an outcome (Iedema, 2011). Video footage provides the opportunity for reflection on everyday actions for individuals and can also provide an opportunity for reflexivity, where outcomes are expected to extend beyond a specific targeted behaviour for an individual, into the realm of the social context where complex tasks are co-constructed. The use of video footage is fairly widespread in health care interventions, particularly in the context of parent training interventions in the allied health professions (James, 2011). Whilst we know that video is used differently and can generate different levels of reflection and outcome in different populations, the basic science to illuminate the mechanisms of change in video-based interventions is still developing. A particularly efficacious parent intervention programme that uses video (Fukkink, 2008) places strong emphasis on

the way that video footage is selected and shared back with parents. The intervention is known as Video Interaction Guidance (VIG; Kennedy, Landor, & Todd, 2011). The focus of VIG is on the interaction between participants and the aim is to create attuned interaction where initiatives made by the participants are acknowledged and responded to, and these initiatives form the basis of the interaction between participants. Attuned responses differ from discordant responses where the initiatives made are not actually perceived or responded to by the participants. The quality of the initiative and response, identified through close examination of the film. An indicator that an initiative has been received rather than ignored will be visible through verbal and nonverbal behaviour such as in eye gaze, nodding, speakers moving towards each other, speakers positively affirming by saying yes, and speakers repeating what was said in the prior speaker's turn. Attuned interaction between participants is typically preceded by attentiveness and expressions of positive affect. A set of contact principles, which delineate the features of attuned interaction, is used to select successful moments of interaction between the participants in the dyad. The positive moments are then showed back to the parent and the VIG educator uses a coaching style of communication to invite the parent to explain and explore his or her perception of the successful moments. The social constructivist foundation of VIG (Murray & Trevarthen, 1985; Vygotsky, 1978) means that it focuses on the relational aspects of communication rather than viewing communication as a competency of the individual.

One common question of VIG is how change is achieved when the focus of the intervention is on strengths. We are beginning to explore this question through a developmental theory of how children learn using binary oppositions to develop discrimination between concepts (Egan, 1993). According to Egan (1993), the binaries that are situated within the narratives/schemata of the individual are actively deployed during learning situations and used by the learner to make sense of new content. Egan suggests that the binary construction sets up parameters for conceptual development and this parameter setting prompts the emergence of a mediation concept that is the mechanism by which the learner develops new understanding. An application of Egan's theory to the VIG intervention might help explore the mechanisms of change in the intervention. If learning in adults is underpinned by a bias towards the binary/mediation model then the discussion of the binary opposite of strength (i.e., weakness) should occur as a natural response to the focus on strength/success. Therefore, the focus on strength serves to create a disorientating dilemma and perhaps an especially potent one where a binary opposite (failure or need for improvement) is prominent. This idea can be tested in part by

analysing the discourse that takes place at and subsequent to a moment of disorientation which should therefore happen after viewing a moment of strength or success. If viewing a strength disorientates, then we test the impact of that disorientation on deep thinking using the 10-step sequential framework of transformative learning proposed by Mezirow (1978, 1979). According to this theory, the disorientating dilemma is the first step in the sequence of perspective transformation. The intrapersonal cognitive modelling of change is important in illuminating the basic science of reflection; however, it is only one component of the equation. The relationship, and the conversations in which those relationships are embedded and developed, also need to be explored if, as the research evidence from medical education suggests, the role of relationships and the expression of thoughts support reflection in students. How can the conversation in which video footage is discussed support the free expression of thoughts and feelings? At least in part, we can explore this question by examining the facets of nonverbal communication that are known as conversational oil. This oil contains the elements that may be spoken or unspoken that keep the conversation alive—for example, the use of ‘‘aha’’ whilst smiling and nodding by one speaker whilst the other speaker is talking can encourage the speaker to continue, deepen, or expand the talk in his turn. The prosodic aspects of voice, characterised in the tone of voice, the musicality of the voice, and its loudness can be seen as a kind of affectual marker in interactional contexts; together with facial expression, the prosodic features of voice give clues to the emotions of the speaker. Several studies have established the links between particular prosodic features and emotions, such as boredom, fear, anger, and excitement (Cosmides, 1983; Frick, 1985; Ladd, Silverman, Tolkmitt, Bergmann, & Schere, 1985). However, other emotive and mental states have received less attention as far as investigation of their prosodic features is concerned. In medical education, there has been no reported study of the affectual markers in conversation during educative supervision, but the expression of positive emotion was identified as a feature that supports reflection in a review of pedagogic studies.

In preparing this single case, we aimed to explore the relevance of transformative learning theory to the context of clinical supervision of a student of speech and language therapy. This article describes how VIG was used with a student who was failing her clinical practice placement. This case was considered a suitable focus for the study because the student had a moment of deep realisation that she said radically changed her clinical performance and set the foundation for her subsequent success in qualifying as a competent clinician (see Appendix A). In this article, we describe and

explore the moment that she reported transformed her trajectory from failure to success in clinic. This moment happened during a clinical supervision using VIG.

One of the aims of the currently study was to describe the prosody of the participants during the moment of transformation to explore the impact of expressed emotion that accompanied the transformative moment. We sought to address two main research questions.
Research Question 1: Is Mezirow's 10-step sequence of transformative learning observed in the student's expressed thoughts during the moment that she described as illuminating?
Research Question 2: Is there evidence of emotion playing a part in triggering or developing the student's moment of realisation?

Method

Participants

The participants in the study were the first author of this article who took the position of VIG educator in this interaction and a first year master's speech and language therapy student.

Procedure

The student was referred for VIG because the standard clinical supervision model was not enabling her to achieve clinical competency. At the point of her referral for VIG she had received seven individual 40-min feedback sessions with an experienced clinical educator. In the standard model, all clinical practice that took place in the University clinic was videotaped. The student was given copies of her video and she was asked to use the recording to review her clinical skills and identify areas of strength and areas for development. The student's review of her performance was used as a basis for discussion in the 1:1 clinical supervisions with the clinical educator. The video footage itself was not played back during the standard supervision sessions. The clinical competencies for the placement formed a benchmark against which success and areas for development were identified. The student was aware that she was on a failing trajectory and that there were only a limited number of sessions in which she could demonstrate the clinical competencies needed to pass the placement. The chronology of events is outlined below.

- Student in clinical placement receiving normal supervision was reported to be failing.
- Student agreed to have a new supervision model (VIG).

- Student provided videotape of her clinical session with a patient, a little boy who was struggling to make himself understood.
- Educator reviewed videotape, selected two short extracts that showed attuned interaction and positive impact of the student on the boy.
- Student attended VIG supervision where two short extracts were played back to the student and discussed by student and educator. This supervision session was video recorded.
- Student experienced deep realisation during the VIG supervision.
- Moment of transformation was identified on the VIG supervision recording.

Recording Procedures and Material for Study

The VIG clinical supervision session lasted 35 min. During this session, the participants watched two short clips that were edited from the video recording of the student in clinical practice in the University clinic. The two clips were selected by the educator because they showed moments of attuned interaction between the student and her patient (a little boy). The segments were short, not lasting longer than 90 s, and clearly showed moments when the student had a positive impact on the child (e.g., where the student had been able to help the child name a picture with minimal prompting). The VIG supervision session was held in an office in the University. It was recorded using a handheld Sony camcorder in the office room among the general level of ambient noise. The session was recorded because the educator was in the initial training in the VIG approach and the video was taken to support her own reflective practice in the principles of VIG.

The extracts used for analysis in this article were taken from the 35-min long VIG supervision session between the VIG educator and the student. One extract contained the moment reported to be transformative (Transcript A in Appendix B) and another extract contained episodes of deep thinking where the student was making propositions about her own learning (Transcript B in Appendix B). The second extract was subsequent to the first in the discussion. Two extracts that were chosen for the analysis were approximately 1-min, 10-s, and 2-min long, respectively. Both extracts were used in the analysis of the prosodic elements of speech during the conversation.

Methods for Acoustic Analysis of Prosody

In order to explore the impact of expressed emotion within the supervision, the prosodic features of the speakers were examined. The prosodic features included pitch, loudness, and speech rate. Pitch

is the perceptual correlate of the fundamental frequency of vocal fold vibration (f0), and could be described as the musical note of the speaker's voice. Perceived loudness correlates with the intensity of the signal. Acoustic analysis of prosody was performed using Praat software, version 4.6.12 (Boersma & Weenink, 2010).

The extracts were divided into intonation phrases. These are the stretches of speech that contained one main pitch contour, which is the main change in the musical note of the voice (e.g., going from low pitch to high pitch). There are a number of frequent patterns in the changes of the voice's pitch. The prominent tone of each intonation phrase was identified by listening to the voices. This was completed by the third author. The location of the precise place where the change in the pitch took place was confirmed through inspection of spectrograms. The strongest peak of intensity that carried the change in the musical note of the voice was considered the nuclear syllable (the prominent peak of pitch and intensity).

The following measurements were obtained for each intonation phrase: mean f0, standard deviation (SD) f0, maximum f0, minimum f0, f0 range, mean intensity, SD intensity, maximum intensity, minimum intensity, intensity range, and speech rate (including pauses). The same measurements with the exception of speech rate were obtained for each nuclear syllable.

The pitch contour of each nuclear syllable was identified on the basis of the f0 contour detection performed by Praat. The system of tones used follows that proposed by Crystal (1982), which distinguishes between simple unidirectional tones—for example, falling, rising, and level—and complex tones that involve the change in the direction of movement, for example, falling–rising and rising–falling. The type of tone was classified on the basis of simultaneous auditory and spectrographic analysis.

Not every intonation phrase identified from both extracts was subsequently used for measurements. If two intonation phrases from the turn-taking moments of the dialogue overlapped for more than one syllable, they were automatically excluded as no reliable f0 or intensity tracking can be performed when two voices are speaking simultaneously.

Short intonation phrases that consisted of four or fewer syllables were not excluded initially and the measurements were obtained for all of them; however, it was necessary to treat them separately

when looking for trends as all measures of variability such as SDs and ranges were predictably lower for very short intonation phrases when compared to longer ones.

Results

First, we sought to test the face validity of the transformative moment by showing video footage of the moment that the student experienced as transformative that took place in the VIG supervision. The video footage that corresponded to the transcripts in Appendix B was shown to a range of academics and clinicians in data workshops and seminars. The order in which the clips were shown varied. We showed a video clip to a community of academics and postgraduate students in applied linguistics at Newcastle University during a micro-analytic research group meeting (Newcastle, October 2007), a group of academics in a different field of research (psychology and psychiatry) in Institute of Child Health (London, June 2009), a group of experienced VIG practitioners (Dundee, 2010), groups of NHS practitioners allied health professionals (North East of England, June 2007 to October 2009) and student speech and language therapists (Newcastle, March 2009). The video clips were shown and the participants were then asked an open question, ‘‘What do you see here?’’ and then a specific question ‘‘Is there any particular moment that stands out to you?’’ In all cases, the groups identified something significant was going on the place in the video that corresponds to Line 10 to Line 20 of the Transcript A in Appendix B. This corresponded with the student’s own identification of the moment of illumination that changed her practice.

Research Question 1

To test the relevance of the transformative learning theory to a moment of deep realization, the student’s speaking turns in both the portions of the video footage in Appendix B were analysed by the second author of this article. The content of the student’s speech was mapped on to the 10 stages of transformative learning (Mezirow, 1990). The results of the mapping are in column 3 in Appendix B. Identification of 10 stages were found in these short extracts. We were then particularly interested to test the idea that the presentation of a strength acted as a trigger for deep realisation in the student whose main concern was that she was failing her clinical placement and failing to make progress in clinical skills.

One facet of the transcript which stands out is the emphasis and certainty with which the student takes on the idea of not talking so much. Following a pause [A.7], there is discord between the proposition, which is seen to be ‘‘hitting the nail on the head,’’ ‘‘obvious’’ by the clip, and the student’s

reported behaviour of continually prompting the student. The student then reiterates this point through repetition: ‘‘I ask too many questions in clinic,’’ ‘‘I can cut out (...) talking so much,’’ ‘‘I don’t need to talk so much,’’ ‘‘I talk too much in clinic,’’ ‘‘I don’t need to really,’’ ‘‘No I don’t need to talk as much as I do’’ [Lines A.13–41]. It seems to be the case that the student has engaged with the transformative learning process through this disorientating dilemma, moving on to self-examination [Lines A.10– 22] and is seen to be critical of the assumptions that led to her original behaviour [Line A.43]. In the subsequent extract when the proposition is reintroduced, it is no longer disorientating as the participant has had a chance to process the idea and is now able to experience the next phases of the transformative learning process. The student is once again reflective of her behaviour and the reasons for it, before engaging with the new proposition and considering its positive effects. From Line B.37, the student has integrated the proposition into her own way of thinking, it now ‘‘makes sense’’ and she is able to retrospectively reason for her own discomfort in the sessions based on this proposition, from which she anticipates not only a personally physical benefit but also an emotional one. Finally, the moment of illumination of the student was preceded by the educator taking time to think and making the time for thinking explicit in her own expression. This is evidenced both in the amount and length of the pauses in the educator’s speech [Lines 3–4] and in the content of her speech ‘‘I had another thought there’’ which was followed by more pauses and hesitations. This space for thinking was authentic on the part of the educator. She was taking time to recall her thoughts about the positive moment on the video footage.

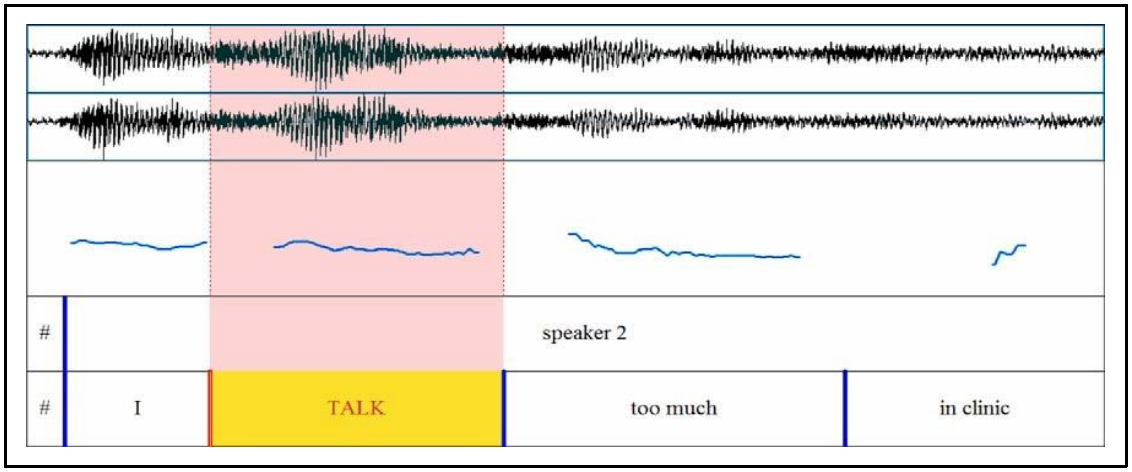

Figure 1. Waveform and pitch tracing of the phrase ‘‘I talk too much in clinic’’ produced by student. The shaded area represents word carrying nuclear tone.

Research Question 2

Prosodic Analysis. As the data for the analysis came from an uncontrolled single case study sample containing a relatively small number of utterances, it was not deemed feasible to conduct the quantitative statistical analysis. Instead, an attempt was made to provide a description of main trends in prosodic features comparing the two audio extracts. The aim was to compare the descriptive findings from the sound file from the first transcript which we think contained the disorientating dilemma and moment of illumination (Transcript A, Appendix B) with the second transcript which we think contained the later sequences of transformative learning, but not including the moment of illumination.

First of all, it was noticed from analysis of the first transcript that the measurements of the extent of student's pitch variation, namely pitch SD and range, were lower in the intonation phrases than those which occurred in the second transcript.

The tones of these phrases are level or flat, for example, low or high, rather than contoured. They would not be described as ''musical,'' but flat in pitch. Figure 1 demonstrates such level tone on the nuclear syllable ''talk'' in the phrase ''I talk too much in clinic,'' which can be compared with a contour rise–fall tone in the phrase ''I was thinking about it actually'' in Figure 2 that occurred in the beginning of the interaction before the light bulb moment.

Overall, there was a tendency for pitch variation to be reduced which would give the perceptual impression that speech was more monotonous during the moment of illumination. At the same time the growing number of pauses, hesitations, and repetitions leads to a decrease in speech rate.
The second audio extract represents the period of VIG supervision session after the light bulb moment occurred. It shares certain prosodic characteristics with the second half of the first extract, namely the speech rate remains low as a result of numerous repetitions and hesitations, which seem to indicate the internalised thought processes on the part of the student. However, the pitch patterns change once again and resemble the tendencies exhibited in the first part of the first extract before the light bulb moment happened. The student's mean pitch shows a trend for increase, and the variation in pitch is also on the rise as evidenced by higher pitch SD and range values. It is also interesting to note that the flat or level tones which were characteristic of the student's speech in the second half of the first extract are less frequent in the second extract.

Overall, the student's speech during the light bulb moment has a clear tendency for more monotonous utterances with little variation in pitch and flatter pitch accents. The moment is also characterised by an increase in the number of hesitations and repetitions, which leads to a lower speech rate. The latter trend continues after the learning moment has occurred, which might be indicative of continuing internal learning. However, at the same time the pitch variation increases and the pitch accents become more variable, the features that distinguish the light bulb moment from its aftermath.

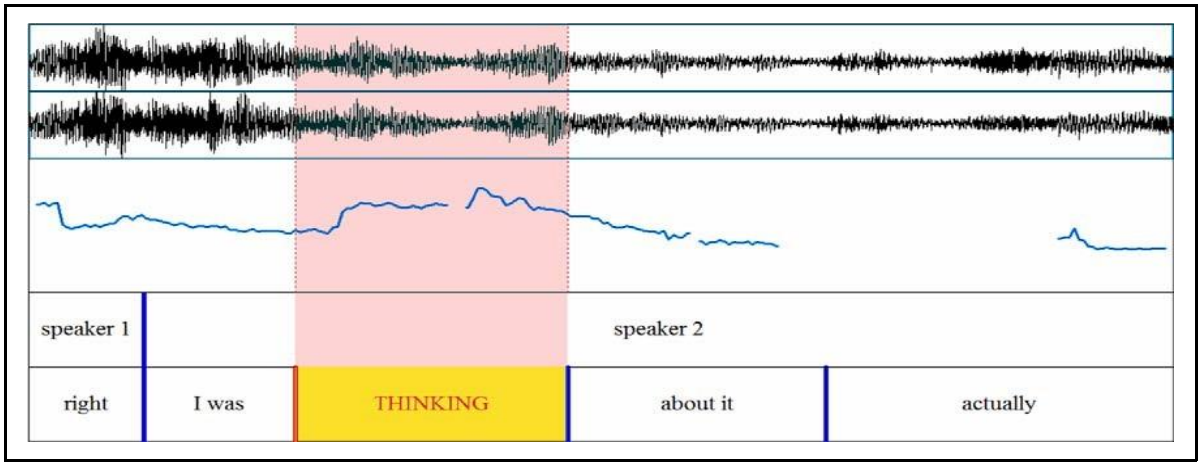

Figure 2. Waveform and pitch tracing of the phrase ''I was thinking about it actually'' produced by student. The shaded area represents word carrying nuclear tone.

Discussion

This study shows that moments of illumination that lead to positive improvement in clinical skills can be triggered using video footage of students' strengths in clinical practice. The analysis presented here suggests that not only the selection of video footage but also the way in which the footage is discussed helped to support the student's reflection. In this article, the moment of illumination was preceded by the educator stopping and thinking. The disorientating dilemma was then expressed by the student and the significant moment of learning was characterised by a lot of pausing, non-grammatical utterances, hesitations, slow speech rate, short turns, latched turns, and overlapping turns. In our approach to the data, we tested the proposition that adults, like children, might be naturally orientated towards the building of binary oppositions in order to learn new concepts. There is an indication that the student built a binary opposition around her own conversational contributions in clinical practice (talking and not talking; asking and not asking questions) and that this led to new way of the student thinking about how her future clinical practice could change. For the student, the notion

of energy emerged as important. The allocation of her own energy resource could be described as an outcome of the development of a mediation variable. The video footage was used by the student to evidence her new understanding and she used the footage to support her new belief about her clinical competency and deeper thinking about her role in clinic in relation to the patients. The video recording of the conversation meant that it was possible to externally validate the impact of this moment. A wide range of naive observers identified some resonance with moment that the student identified as significant. We sought to explore the applicability of Mezirow's (1990) 10-step sequence of perspective transformation to a single moment in time that was attributed to the change of habitual behaviour. The application of perspective transformation to a single moment is perhaps a novel one and the exploratory analysis, which was informed by applied discourse analysis, has been used to indicate the learning process that the student experienced. The identification of the moment and the impact of the moment on the student's career was transforming. Our exploration of this moment was motivated by a proposition that if moments can transform trajectories, then as educators, we should pursue the knowledge that will help us create moments of transformation in the educative experiences that we construct. It was a deeper understanding of the co-construction of the transforming moment that led us to micro analyse the speech of both participants during the transforming moment.

The micro analytic study of the conversation in this study showed how hesitant the speech was during moments that led up to the light bulb moment. In the educator, stopping and thinking was characterised by hesitation, pausing, groping for words, and incomplete phrases and by her naming of the fact that she was thinking. It is possible that the educator's modelling of stopping and thinking acted as a trigger for the student to stop and think and then express her own thoughts. The prosodic exploration showed that the moment of illumination was characterised by an absence of expressed emotion. In contrast, the deeper exposition that occurred subsequently was accompanied by the type of musical changes in pitch that is indicative of expressed emotion. The contrast between the two segments and the ''flatness'' of the pitch in the first extract suggests that the moment of illumination was characterised by inhibition. Dewey (1938) considered that inhibition of an impulse as critically important in creating deep thinking. However, the prosodic analysis also showed that imitation or mirroring was evident in the conversational behaviour of the educator and the student. This mirroring might be indicative of an empathic relationship (Goldman, 2009; Goldman & Vignemont, 2009).

Drawing on basic science from pediatric psychology, Carr , Iacoboni, Dubeau, Mazziotta, and Lenzi (2003) suggest that the mirror motor neurones play a critical role in the neural circuitry that supports empathy and personal reflection in mothers. Mimicry of actions (in their study the action was facial expression related to emotional affect) supports representation of those actions and that understanding it is activated to a greater extent by expressions demanding mimicry which serve a social goal. Returning to Dewey, the findings of Mann et al. (2009) questions around reflection in action and on action (Schön, 1983) and we might synthesise the findings here in the following statements. Positive self-modelled video footage supports the continuity between past experience and in-present experience because the positive framing of past memories, which is achieved by the use of clips showing positive impact that is meaningful to the student, is shared in a supportive conversation where both the expression of thought and the inhibition of expressed emotion are modelled by the educator. During the viewing of the video the student's own neural circuitry for empathy is activated for herself; she shows self-empathy and this self-empathy might be strong enough to take her into an in-action state whilst watching the video. Her perception of the action viewed has strong positive emotional valence and is related to her own social goal (successful clinical practice). The educator modelling stopping and thinking helps the student to suspend her impulse and connect the past with the in present. In this model, the role of emotion, particularly positive emotion is theorised as having a multi-levelled contribution to enabling reflection in the student, but the inhibition of expressed emotion was evident during the moment that changed the student's trajectory.

Video of clinical practice can provide the type of experience that helps the student create the union of observation and memory that Dewey (1938) saw as critical for reflection. However, in this case, the student had used video footage of her practice for reflection, but this had not given rise to any improvement. There was something in the VIG approach that led to change which the standard use of video for reflective practice could not support. This article suggests that how video is used can give rise to different outcomes. However, the limitations of this single case study restrict the conclusions that can be made from it. One limitation lies in the fact that the clinical educators who delivered the different supervision interventions varied. The micro analysis of the data presented here, as well as previous research in the field prioritises the role of relationship and the conversations in which those relationships are built for the development of reflection (Mann et al., 2009; Pearson & Heywood, 2004). The potential contribution of this single case study can be demonstrated through the

application of the Medical Research Council's advice on designing and evaluating complex interventions (Medical Research Council, 2000). In the case of complex interventions such as this where there is more than one mechanism of change, detailed attention and theory building through single cases is advocated especially in the early stages of design. The main contribution of this study is a new theoretically founded proposition that other researchers can test. The proposition is articulated in two parts (a) that video evidence of successful moments can be used to create a disorientating dilemma for students and (b) video footage that is discussed in a way that helps the student express their thoughts freely will lead to deeper reflection in the student. In this case study, the combination of both successful video footage and the style of conversation led to deep reflection, but the independent contribution of each of these theorised mechanisms could be tested in future research.

Appendix A

Statement From the Speech and Language Therapy Student

I struggled in my first clinical placement, not with producing appropriate session plans or setting appropriate therapy targets but with interacting with Child—a delightful but highly distractible little boy who proved to be difficult to keep on task. My clinical supervisor brought it to my attention that my interaction with Child was affecting his performance on tasks and created an uncomfortable environment for both of us. This upset me because it was my priority to create an optimal learning environment for Child. My clinical supervisor at this point suggested I have a VIG session with Guide. She thought VIG could help me overcome the difficulties I was experiencing with my clinical interaction. The first VIG consultation highlighted two video clips demonstrating positive interaction with Child. Observing these clips allowed me to reflect collaboratively with Guide on why these pieces of interaction were successful. Guide noted that throughout these clips I displayed a slower speech rate, a softer voice and shorter conversational turns. It was clear these behaviours were having a stimulating effect on Child's performance and allowed me to control his attention more efficiently, putting me in control of the session and reducing my stress levels. I recall a ''light-bulb'' moment during this collaborative process of discovery when I realised exactly what behaviours I needed to change to create more successful moments of clinical interaction. It was exciting to be able to see so clearly the behaviours that had a positive effect on my client. Also, knowing I had been skilfully guided

to uncover these behaviours was both empowering and satisfying. It became blatantly obvious to me what I needed to do to recreate these successful moments. With these adjustments in mind I went to clinic the following week and was anxious to put them into practice and to observe the effect they would have on both mine and Child's performance. I modelled a softer voice, took shorter turns and spoke at a slower rate. These adjustments allowed me to modify my behaviour in response to his, giving rise to more instances of positive interaction.

Child was engaged right up to the end of the 50-minute session and we began sharing more positive experiences together. Such positive interaction created a happy learning environment, whereby Child could progress comfortably. My clinical supervisor's response filled me with pride and enormous sense of achievement—she commented on the transfixing nature of my performance and that the change she observed in the clinical interaction was remarkable. I couldn't wait to show Guide my video and feed back to her just how positive the session was for me. I cannot emphasise enough the impact VIG had on my professional development. I believe that if I had not benefited from this direction I would have struggled to progress at ease through my clinical placements. I am pleased to say that I achieved a distinction in my next placement and one of my video-recorded sessions post-VIG was used as a teaching aid for undergraduate student SLTs. VIG has increased my confidence in clinic—I am relaxed and enjoy my sessions. Most importantly, it has encouraged me to find my clinic identity, the capacity to feel comfortable as a practitioner and in control of my therapy sessions. It was a true turning-point in my professional development.

Appendix B

Transcripts A and B
Key to transcript symbols
G# Guide
P# Participant

(.number)	Timed pauses or silence. Times in seconds and fractions of a second.
=	This means that there's no overlap between turns and there is no pause between turns either—the turns are ''latched.''
[ ]	This shows where speakers overlapped their turns.
CAPS	Signifies emphasis on the word (increased amplitude, duration, intonation contour).
(nodding)	Nonverbal communication.
↑↓	Indicates a discernible change in pitch.
Xxx	Indiscernible or muffled.
name	Personal details are omitted.

Transcript A: ''Light-bulb'' Moment	Learning Phase

1 G# erm(.3) 2 P# mm(nods head)(3) 3 G# tut(.5)right(.5)I had I had another thought 4 there(.3)it's a (.3)it's a trial where(.3)	(1) Disorientating dilemma introduced
5 he (.3)doesn't need any PROMPting to label what's 6 on the picture(.5) 7 P# right(nods head)(.7) 8 G# and(.4)when I looked at the WHOLE tape that 9 was quite UNUSUAL TOO [yeah would that be right 10 P# [yeah yeah I was thinking that actually all I 11 need to do is say look at this 12 usually I would I would say can you SAY the word I 13 think I ask too many questions in clinic as 14 well= 15 G# =right(nodding)(.3) 16 P# I ask him can you say this or can[you tell me 17 what this is where it's just 18 G# [yeah (nodding)] 19 P# show him the picture and he knows at this stage what to do= 20 G# =yeah 21 P# it's like a cue you just tell him what it is so em tut(.5) 22 P# yeah I can cut out sp- you know(.7) talking 23 so much= 24 G# ---mmm(nodding)(.3) 25 P# I don't need to talk so [much 26 G# [yeah(nodding)(.4) 27 P# yeah(quiet)(.2) 28 G# cos it's worked so WELL the[re 29 P# [yeah(.8)yeah(.4)that really is hitting the 30 nail on the head I think(.2) I talk too much 31 in clinic(.8)it's obvious(.2)by this(.7)clip 32 (laughs intake of breath)(.5) 33 G# ok so although [you know that might be(.2)I 34 mean what you can see 35 P# [yeah 36 G# there is the effect of when you DON'T do[that 37 P# [yeah(.4) 38 G# gives you exactly the desired [effect 39 P# [I don't NEED to really (.3) 40 G# you don't NEED[to do it 41 P# [no I don't need talk as much as I do= 42 G# =no(.7) 43 P# yeah I think it's just a NERVES thing	(2) Self examination (1) Disorientating dilemma (3) Critical assessment of assumptions
Transcript B:	Learning Phase
1 G# giving more SPACE for him to think(.) 2 P# mm(.) 3 G# bringing the parents in Almost just by opening 4 the space up by you NOT talking or NOT[asking 5 questions= 6 P# [ok =yeah(.3)that that actually sounds great 7 because I'll t- tell you why emm because(.) 8 P# I find clinic quite STRESSful(.)	Proposition reintroduced: less 'disorientating' (2) Self-examination

9 G# mm=
10 P# =on a lot of occasions mostly MOST of the time
11 (.) because I'm I'm TALKing too much and I'm using
12 too much energy=
13 G# =↑yeah
14 P# to be honest and I think my background in
15 tennis coaching(.) doesn't help (laughs) because
16 I'm er we we were we were(.) erm (.) encour-
17 encouraged to to speak really loud obviously to
18 project your voice from one end of the [court to
the other
19 G# [mmhh(.)xxx(.)mm]
20 P# [mm(.)and and I'm constantly (.) SHOUTing and
stuff
21 P# so I need to just (.)
22 P# it's going to be a stress release for ME=
23 G# =↑Okay:
24 P# because it's going to let ME just sit back and
25 let HIM do more talking=
26 G# =yeah
27 P# and the PARents and and just just it it it's
28 more (1) yeah it'll it'll be (.) easier for me (.)
29 G# ↑ok=
30 P# =to be honest (.) yeah=
31 G# =great
32 P# =yeah(.)
33 G# cos what we want is for it to be an easy fun
34 environment for all of us don't [we (laughs)
35 P# [yeah (.) yeah exactly
36 G# [including you
37 P# yeah (.) and it makes sense as well because young
38 children they don't have the attention span
39 that adults do (.) so if I'm talking (.) too much
40 (.) he's going to get bored listening to me=
41 G# =emm=
42 P# =he's just going to look away=
43 G# =yeah=
44 P# =like he does [so (1.3)
45 G# [yeah
46 P# yeah(.)I don't need to do that
47 G# no
48 P# no
49 G# OK
50 P# yeah (.8)
51 G# so(.) that's great=
52 P# =yeah=
53 G# =I mean do you feel that that's been helpful=
54 P# =absolutely yeah (.) if if I didn't(.) I
55 really didn't (.) I knew at the back of
56 my mind that I talk too mu-(.) I knew at the back of
57 my mind ultimately that I was that I was
58 stressed in clinic (.)and I couldn't quite
59 figure out why (.) I thought I was using too much
60 energy (.)and this has just highlighted that the
61 energy is going in to my (.) speech xxxx(.)xx[xxx
62 (.)emm and if
63 G# [mmm

(3) Critical assessment of assumptions

(2) Self-examination

(6) Planning a course of action

(8) Provisional trying of new roles

(9) Building of competence and self-confidence in new roles and relationships

(10) A reintegration into one's life on the basis of condition's dictated by one's perspective

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64 P# I take that away then I will feel more relaxed
65    I think=
66 G# =mm=
67 P# =sure=
68 G# =mm=
69 P# =x(.)
70 G# OK (.8) well I(.) that's great [*name* if
71    that's working for you that's great
72 P# [yeah mm
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Explanation of the Transcript

In this extract, the participant is faced with a proposition that is seen to be an alternative behaviour to her current practice. The idea of 'not prompting' her student uncovers a more general behaviour of ''not talking so much,'' a behaviour that is shown to be ''disorientating'' by the certainty with which the participant takes on this idea. Following an initial pause [A.7] which invites the guide to elaborate, we find in the participant's speech a discord between the proposition, which is seen to be ''hitting the nail on the head,'' ''obvious'' by the clip, and the participant's reported behaviour of continually prompting the student. The participant then reiterates this point through repetition: ''I ask too many questions in clinic,'' ''I can cut out (...) talking so much,'' ''I don't need to talk so much,'' ''I talk too much in clinic,'' ''I don't need to really,'' ''No I don't need to talk as much as I do'' [Lines A.13–41]. The participant has engaged with the transformative learning process through this disorientating dilemma, moving on to self-examination [Lines A.10–22] and beginning to be critical of the assumptions that led to her original behaviour [Line A.43]. In the subsequent extract, when the proposition is reintroduced it is no longer disorientating as the participant has had a chance to process the idea and is now able to experience the next phases of the transformative learning process. The participant is once again reflective of her behaviour and the reasons for it, before engaging with the new proposition and considering its positive effects. From Line B.37 the participant has integrated the proposition into her own way of thinking, it now ''makes sense'' and the participant is able to retrospectively reason for her own discomfort in the sessions based on this proposition, from which she anticipates not only a personally physical benefit but also an emotional one.

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