

## **I still haven't found what I'm looking for: Triangulation for interpreting data**

*Stephen Louw*

*King Mongkut's University of Technology Thonburi*

### **Abstract**

Triangulation is traditionally associated with *corroboration*, or the convergence of results, as an indication of the strength of the research findings. To investigate supervisors' observation and feedback practices with in-service teachers in Cambodia, self-report data was collected from both teachers and supervisors. Inconsistencies in the data from the different sources meant the results did not corroborate, complicating the interpretation of the results and calling into question the veracity of the data. However, triangulation can serve researchers in ways other than corroboration. This paper presents an interpretation of the data from the perspective of triangulation as *elaboration*, *development*, *dissonance*, and *validation* (Watson Todd, 2016). Using triangulation for these purposes allows for a more meaningful interpretation of the findings, and serves to identify avenues for further research by highlighting weaknesses in the assumptions underlying the research.

### **1. Introduction**

Our modern smartphones' impressive ability to pinpoint the phone's location with accuracy has made the concept of triangulation commonplace. Following principles from surveying, signals from at least two sources (such as phone towers or satellites) are used to calculate the exact location of the phone. As a metaphor for increasing accuracy using multiple sources, triangulation in applied linguistics research is the process of exploring data from a variety of perspectives (Brown, 2001). Doing so may involve data collection from multiple sources (data triangulation), multiple investigators (investigator triangulation), multiple methods (methodological triangulation), multiple theoretical perspectives (theory triangulation), or multiple locations or times (location/time triangulation) (Freeman, 1998). The use of multiple perspectives in triangulation has been argued to improve the confirmability, trustworthiness, credibility, dependability, internal validity, and objectivity of the research (Brown & Rodgers, 2002; Wallace, 1998). As such, triangulation seems to represent an extraordinary tool for researchers.

The impressive utility of triangulation has its basis in the purpose of 'demonstrating the same findings through different sources' (Seligar & Shohamy, 1989). The use of triangulation to confirm findings through multiple sources serves the purpose of *corroboration*, or convergence. With findings from different sources corroborating, the conclusions made by the research are strengthened. However, triangulation can serve the researcher in ways other than corroboration. Watson Todd (2016) proposes that, in addition to corroboration, triangulation can be used for *elaboration*, *development*, *initiation*, and *validation* (see Table 1).

The aim of this paper is to demonstrate the use of triangulation across all five purposes and thus show that triangulation is a powerful tool, not only to corroborate findings, but also for uncovering unexpected results, making more meaningful interpretations, identifying areas for further study, and highlighting weaknesses in the assumptions underlying the research. I draw on data from a study of supervisors' practice with classroom observations of in-service teachers in Cambodia (Louw & Billsborrow, forthcoming). In this study, data on classroom observations and feedback was collected from both teachers and supervisors, allowing for triangulation of data from the different sources. The original intent of the triangulation was to achieve corroboration of the findings. As the study developed, however, triangulation for its

other purposes helped to make greater sense of the phenomenon of observations and feedback in these schools. First, I outline the research study and the data, and then illustrate each of the five approaches to triangulation using the findings from the study.

**Table 1.** Purposes of triangulation (taken from Watson Todd, 2016: 154)

Corroboration (or convergence)	Data from multiple sources serves to confirm findings to produce a single, valid finding.
Elaboration (or complementarity)	Data from multiple sources highlight the different perspectives simultaneously held
Development	Findings from one source may inform interpretation from another source
Initiation (or dissonance)	Contradictions in the data serve as the basis for drawing current theoretical perspectives into question.
Validation	The goal is to identify which source of data is most valid.

## 2. Teacher observation and feedback

Classroom observations are an integral part of teachers' professional lives. In-service teachers, for example, may be observed by supervisors as part of a teacher development program. In spite of the fact that observations are part of a teacher's professional reality, the evaluative element and the disruption to the regular classroom routine make them a source of anxiety for teachers. For this reason, the way in which observations are conducted is worth consideration (Keegan, 2014).

Observed lessons may be followed by a feedback conference between the teacher and observing supervisor. Freeman (1982) argues that these conferences can serve both training and development purposes. Fulfilling its training purpose, the feedback is an opportunity for the supervisor to enact remediation of problems identified with the teacher's classroom practice. This requires the supervisor to evaluate the lesson and provide the teacher with meaningful direction through advice or suggestions. Fulfilling a development purpose, the feedback has as its starting point the teacher's personal beliefs about classroom practice, and explores these as part of long-term professional growth through the process of reflection.

The concept of reflection has become an important focus in teacher development. Reflective teachers are thought to carefully consider their actions and actively explore ways to improve their practice (Richards & Lockhart, 1994). Through reflection, teachers can account for the idiosyncratic nature of individual classrooms and the unique challenges they present (Akbari, Behzadpoor & Dadvand, 2009). The feedback conference following an observed lesson is the ideal opportunity for supervisors to engage teachers in reflective talk by exploring aspects of practice that are of concern or interest to the teacher. Such reflective talk following observed lesson validates the teacher's experience, gives them a sense of ownership, and develops tools for continued professional development (Borg, 2011; Farr, 2011).

Observation of in-service teachers, then, is an opportunity for the supervisor to evaluate the teacher, for the teacher to access useful feedback on their classrooms and practice, and also to encourage professional development through reflective talk. Achieving the right balance between the training and development goals is the challenge that supervising observers face, and is the focus in the literature on supervisory styles (Gebhard, 1990). Given the complexity of the observation and feedback process, and the different possible foci, my colleague and I decided to investigate in-service teacher supervision in private schools in Cambodia (Louw & Billsborrow, forthcoming). The overarching question framing our study was, 'What happens

with observations and feedback in Cambodian schools?

### 3. Data collection

Data was collected at four private English-medium primary schools: two in Phnom Penh, and two in Siem Reap. Questionnaires were distributed to the Cambodian teachers of English. Of a total of 56 teachers in these schools, 38 completed forms were returned. The questionnaire addressed the three broad issues relating to observations and feedback: their organization, their purpose, and teachers' feelings about them. These topics were addressed in each of three sections: first, a series of multiple choice questions; second, a rating scale; and third, dichotomous questions requiring an agree/disagree response. The questionnaire data was analyzed quantitatively.

With only four schools in the study, it was decided that in-depth data from the supervisors could be collected using semi-structured interviews. Two supervisors were interviewed, one in Phnom Penh, and another in Siem Reap. Each interview lasted around 20 minutes, and was conducted in English during school time. The interviews with the supervisors were transcribed and analyzed for themes in the same focus areas as the questionnaires.

The data collection made possible the use of triangulation in two ways. Firstly, the questionnaire approached issues of observation and feedback in each of the three sections. Therefore, multiple items addressed each area of interest, and the responses across items could be triangulated to check consistency (Dörnyei, 2007). Secondly, by collecting data from both teachers and supervisors, their respective responses could be triangulated.

### 4. Triangulation for corroboration – searching for the truth

Traditional approaches to research, influenced by a positivist philosophy, view research as the collection of data to uncover an objective reality that exists separate from human experience (Williams & Burden, 2004). Taking this positivist lens, a *corroborative* approach to triangulation assumes such a single truth exists, and can be identified through agreement of multiple perspectives in the research. To identify this truth, data triangulation was employed in two ways: triangulation of items within the questionnaire, and triangulation of the teacher and supervisor data.

First, items in the questionnaire focusing on the same content were compared for their consistency. For example, item 47 ('I disagree with the observer about the comments') scored 21%, while the matching positive question, item 41 ('I agree with the observer's comments'), scored 63%. Findings like this were promising, but some troubling contradictions emerged with teachers' reports on their affective response to observations. Teachers indicated that they 'liked' being observed (item 13, 100%), but also indicated they would like fewer observations (question 14, 71%). This was viewed as problematic since teachers who 'liked' observations would, arguably, want to be observed more, not less. Additionally, teachers reported feeling 'normal' (61%) or 'confident' (42%) (item 11), but also reported needing to 'prepare carefully' for observed lessons (item 12, 61%). These findings seemed to be contradictory since 'careful' planning would be indicative of nerves or anxiety rather than confidence. We also found contradictory responses in items focusing on reflection. Teachers indicated that the purpose of the feedback was to get advice or be evaluated (item 19, 100%). Feedback for evaluation or direction conforms to a training approach to supervision, which necessitates the supervisor taking an authoritative role (Farr, 2011; Louw, Watson Todd & Jimarkon, 2016). However, the teachers also reported that the observer elicited their ideas (item 45, 71%), wanted them to share their opinions (item 53, 76%), and encouraged self-assessment (item 36, 84%). The sharing of ideas and utilization of self-evaluation conforms to a development approach to feedback, in which the supervisor utilizes dialogic approaches (Louw et al., 2016). The questionnaire data, then, identified the purpose of the feedback to be both for evaluation by the

supervisor, and an opportunity to share ideas. What was problematic here was that the two purposes emerged from different items in the questionnaire, calling into question the consistency of teachers' response to the question of the purpose of feedback.

The second use of triangulation in the study was a comparison of the data from the teacher questionnaires and supervisor interviews. The interview data largely supported the findings from the questionnaires, but offered interesting new insights. For example, on the question of the purpose of the feedback the supervisors were less ambivalent than the teachers: *after the observation we will talk face to face to our teacher individually, we tell them what we recommend so they're happy*

*Supervisor 1, turn 24*

*teachers tend to have not many ideas so they don't participate ... so therefore I have to explain*

*Supervisor 2, turn 24*

The supervisors view feedback as an opportunity to address problems with the teachers' practice. The possibility that teachers have anything useful to offer in the observation feedback conference is unequivocally dismissed. This interview data corroborates the teachers' reports that feedback serves an evaluative purpose, but is divergent with teachers' views that their opinions are encouraged.

This failure of corroboration has the potential to call into question the validity of the findings of the study: perhaps a fault of the questionnaire design, or dishonesty from the teachers in their responses. More likely, we concluded, was the possibility of response bias, and in particular social desirability bias, which is the tendency for responses to conform to what is considered to be socially acceptable (Louw et al., 2016). Teachers may have felt it desirable to 'like' being observed, and therefore responded to these items accordingly. However, a social desirability argument does not adequately explain teachers' contradictory responses to questions relating to the sharing of their own ideas in the feedback. If the sharing of ideas and opinions is not standard practice in the feedback process in their school, there would no social desirability pressure to admit to doing so.

A *corroboration* approach to triangulation has highlighted areas of congruence and divergence in the data, and while the convergence indicates research validity, the reasons for the divergence are not clear. To investigate this lack of corroboration, further data needs to be collected. Guiding this search for new insights, we can take a *development* approach to triangulation.

## **5. Triangulation for development – informing further study**

This study of observation and feedback took a mixed-methods approach in which data was collected and analyzed both quantitatively (the questionnaires from the teachers), and qualitatively (the interviews of the supervisors). For triangulation, mixed-methods approaches allow for the systematic combination of methods so that results from one source can be used to inform the other (Hanson, Creswell, Plano Clark, Petska & Creswell, 2004). A *development* approach to triangulation involves the sequential collection or analysis of data so that findings from one set of data can inform the collection or analysis of the next (Watson Todd, 2012).

Taking a *development* approach, the areas of divergence in the data analyzed so far served to inform further data collection. Teachers at two of the schools were interviewed with the aim of clarifying contradictory findings from the initial findings: firstly, the lack of corroboration between questionnaire items relating to teachers' affective reactions to observations and feedback; and secondly, the divergence of the findings from the questionnaires and supervisor interviews on the purpose of the feedback.

With regard to the contradictions from the questionnaire items, the teacher interviews

offered surprising insights. We had initially interpreted the teachers' report that they 'like' observations as contradictory to their report that they would prefer to be observed 'less often'. However, our view of this as a contradiction was dispelled in the interviews:

- 47        S        *Do you think it's good for [the head teacher] to come to your class?*
- 48        N        *If it's not often it's helpful, but when it's often it's not good.*
- 49        S        *Why?*
- 50        N        *Because when for example the head teacher comes to the class maybe everyday or usually, I think it's something wrong in the class.*

*Teacher interview 2*

That frequent visits to your class by the head teacher are an indication of an unwanted problem was not made evident in the questionnaires, and an interpretation our analysis of the findings had clearly missed.

The interviews also provided useful insights into the contradictions about the teachers' feeling of 'confidence' in the observations.

- 3        S        *Can you describe what normally happens?*
- 4        N        *... And when the head teacher comes to my class sometimes I feel a little bit nervous for three or four minutes and then I am confident for my lesson*

*Teacher interview 2*

This teacher clarifies how he can be both nervous and confident in a single classroom observation, thus reconciling what we had previously interpreted as incongruent. What had first appeared to be inconsistency in the teachers' reports, or evidence of social desirability bias, was an accurate indication of teachers' response to observation and feedback. The nature of the questionnaire had not allowed for the teachers to express this clearly. Overall then, approaching the interviews from the perspective of the divergence in the data from the initial findings clarified the apparent contradictions in the teachers' affective responses to observations.

However, with regard to the contradictions between the questionnaires and supervisor data, new insights from the teacher interviews proved to be more illusive. The questionnaires reported teachers felt they could offer their ideas and opinions, while supervisors rejected the notion that teachers had anything to contribute. Aimed at investigating this contradiction, I decided to discuss the issue of reflection directly in the teacher interviews.

- 27        S        *In that conversation would you explain why or what's happening in your class.*
- 28        B        *Um. Yes, I did explain. And then he said 'Okay' he tried to reach the point what should be a good idea.*
- 29        S        *Part of the conversation between the teacher and the head teacher is something we call reflection when the teacher talks about their problems and the*
- 30        B        *There is some reflection too, of course, yes some, if, especially if they don't give sometimes they don't give us much power. We want to make*

*our teaching effective but especially if the student don't do their homework, okay.*

*Teacher interview 1*

The teacher's response here provides little insight into how reflection instantiates in the feedback. While he states there is 'some reflection', interrupting my question with the eagerness of it, the question of how exactly the reflection is instantiated in the feedback is not made clear.

The use of a *development* approach to triangulation, then, provided some useful insights into the nature of the observation and feedback. Using the initial findings to guide further investigation, the apparent contradictions in the questionnaire data was reconciled. However, teachers' views of reflection and how it works remained opaque. To achieve some understanding of the contradictory findings on reflection, we may find it useful to move away from the assumption of a single reality which has framed the approach to triangulation so far, and approach triangulation from the perspective of *elaboration*.

## **6. Triangulation for elaboration – multiple perspectives**

An *elaboration* perspective of triangulation identifies multiple possible accounts of reality, which the multiple sources of data can uncover, each of which are viewed as complementary. Non-convergent data is not seen to invalidate the data, but as an indication that the event is not experienced in the same way by all participants.

Observation and feedback are high-stakes events which are often emotionally charged and potentially complex. Given this complexity, it may be unwarranted to assume that all participants, or even that the same participants at different times, experience a single, consistent reality. Copland (2012) reports how a trainee teacher reacted defensively to corrective feedback during the feedback following teaching practice, but noted in her reflections at the end of the course that trainer feedback on observations had been unhelpfully indirect. This trainee experienced not a single reality of trainers' feedback, but one that changed markedly over time. Equally, different participants may hold contrary perspectives. Bitchener & Basturkmen (2006), for example, found that teachers and students have contradictory views on the learning processes. If different perspectives can be held by different participants, or even by a single participant under different circumstances, the assumption that a single reality can be identified through a triangulation of data is necessarily drawn into question.

In the context of this study, the complexity of reflection and its instantiation may make questionable the assumption of a single coherent reality for the construct. In dispensing with the assumption of a single reality that is held by all participants which the data collection procedures can uncover, a more complex means of interpreting the data is given by an *elaboration* view of triangulation.

To demonstrate an *elaboration* approach to triangulation, we turn back to the data on the purposes of the observation and feedback. The supervisors reported very specific views of the purposes of feedback on observations: an opportunity to uphold the standards of the school, and to correct problems with the teachers' classroom practice.

*I observe ... to correct our school want to correct our student learning want to correct our teacher teaching*

*Supervisor 1, turn 28*

*...we tell the weak areas and the strong areas, we tell them right away*

*Supervisor 2, turn 18*

We have already seen that supervisors consider teachers to 'have not many ideas' (Supervisor 2, turn 24 quoted above). For the supervisors, then, the purpose of observation and feedback is to correct problems, especially teachers' 'weak points'. By virtue of the fact that they have made these mistakes and require explanations about a 'correct' way of teaching, the possibility of teachers' contributing to solving these problems is not a consideration.

In contrast, teachers enter the feedback with an understanding that its purpose is to get advice or help with weaknesses (item 19, 100%), but also feel encouraged to express their own ideas, share their opinions and, therefore, contribute productively to the feedback dialogue.

45. The observer wants me to give my own ideas	71.00%
53. The observer wants me to share my opinions	86.00%

Interestingly, this is true for teachers even in the schools from which the supervisors' interview data is sourced.

The teachers and supervisors, then, can be seen to have directly contradictory perspectives on the purpose of feedback. An *elaboration* approach to triangulation does not interpret these findings as contradictory, but rather as a window into the complexity of the experience of feedback, and the different realities of this event for each of the participants. The supervisors' focus is on the institutional need to correct teachers' poor teaching practice, and so feedback is a phenomenon involving suggestions and highlighting weaknesses. The teachers view feedback as serving to get advice, but is also a discussion about their lesson, and so they perhaps experience it in a more interactive sense. In researching what happens in observations and feedback in Cambodian schools, then, an *elaboration* approach to triangulation proposes that multiple perspectives are associated with the complex nature of reflection, and explains the divergent findings in the data.

There are, however, problems with taking this elaboration view. First, in distinguishing two realities, that of the supervisors and the teachers, it must be conceded that there may be other realities held by other groups of participants. For example, it might hold that teachers from each of the four schools hold distinct versions of the reality of feedback, or perhaps that the realities of novice teachers are distinct from those of experienced teachers. Taken to its extreme, it may be argued that distinct realities of the nature of feedback exist for each participant. Such an approach to the data, however, would make it difficult to get any sense of the event under investigation, or indeed to answer the research question at all. Second, an elaboration approach does not account for the teachers' apparent inability in the interviews to describe in any detail how the sharing of ideas and opinions is instantiated in the feedback. If the teachers experience the feedback as an opportunity to share, such sharing would form part of their description of the events of the feedback, but this was not the case.

An *elaboration* approach has been useful in offering an explanation for the contradictory evidence in the feedback through an understanding of the participants' individual experience of the feedback following an observed lesson. What is missing, however, is clarity on what exactly the teachers understand by 'sharing' of ideas in the feedback, as they report it, and why this sharing is not reported by the supervisors. The search for insights into this element of the data is the basis for taking an *initiation* approach to triangulation to look more carefully at the theory on reflection underlying this research.

## 7. Triangulation for initiation – reviewing the theory

The underlying principle in an *initiation* approach to triangulation is that contradictory data forms the basis for a revision of the underlying theory of the research. The findings so far have indicated that supervisors reject the idea that teachers have anything to contribute, while teachers reported that they were encouraged to self-assess and share their ideas and opinions. Using an *initiation* approach, these contradictions serve to question whether the theory on which the research is based matches the context of the data under consideration.

This study into observation and feedback was informed by views of reflection in current academic literature, including Schön's (1987) idea of reflection-on-action as the framing and

reframing of an individual teacher's knowledge through an exploration of their experience, and Richards & Lockhart's (1994) description of reflection as the examining of attitudes and practices. How exactly this reframing is instantiated in the feedback discourse is a source of some debate (Akbari et al, 2009). It was using Richards and Lockhart's definition of reflection that items in the questionnaire were designed focusing on teachers' sharing of ideas, and an orientation towards self-evaluation.

Under this notion of reflection, there findings from the questionnaires, teacher interviews and supervisor interviews are opaque. In turn 30 of teacher interview 1 (above), the teacher is sure that there is 'some reflection too, of course', a finding congruent with questionnaire data that teachers are encouraged to share ideas and opinions. We have seen that the supervisors reject this. What is the exact nature of this 'reflection' as seen by the teachers, and why do supervisors reject it?

Taking an *initiation* approach, a new theoretical perspective is sought that is concordant with data. Framing this new perspective requires a fresh look at the data. We have seen from the findings of the teacher interviews that there is dialogue between teacher and supervisor during the feedback. However, we have also identified observation and feedback to be hierarchical in their implementation: supervisors arrive unannounced, stay only a few minutes, and treat the feedback as an opportunity to focus on areas of weakness. In the light of feedback as a highly evaluative event, we need to investigate the nature of the dialogue as seen by the teachers. Revisiting the data, the idea of the supervisor's identification of 'mistakes' emerges as a theme through both teacher interviews:

- |    |   |   |
|----|---|---|
| 27 | S | <i>Okay so he tells you this is your mistake and be careful with that. Do you say anything?</i>   |
| 28 | N | <i>Sometimes you know it's um the mistakes happen in accidentally yeah and like sometimes when you speak and then you wrote different sentences words</i> |
| 29 | S | <i>And then what does he say?</i>   |
| 30 | N | <i>He says okay.</i>  |

*Teacher interview 2*

This exchange between teacher and supervisor involves the identification of 'mistakes', and the attempt by the teacher to exonerate himself. This is not the dialogue in pursuit of professional development as represented in the literature on reflection. Rather, it is a hierarchically structured lunge and parry, an exchange of blame and attempts at mitigation. Though inconsistent with formal definitions of reflection, this dialogue may constitute teachers' conception of the sharing and exchanging of opinions in the feedback.

An exploration of the data from this fresh perspective highlights a second theme. Much of the teachers' description of the interaction between the teacher and head teacher revolves around the solving of the specific problems they face in their classrooms:

*...after the class he doesn't meet me, but when we have a problem so we come to talk together ... to find a solution*

*Teacher interview 2, turn 21*

*But we want to make our teaching effective. ... So we meet and solve the problem and make it better*

*Teacher interview 1, turn 30*

This theme of feedback as a platform for problem solving pervades the teachers' interviews and adds a useful new conception to what teachers may consider to be the sharing of ideas and



opinions. This new conception of the purpose of dialogue in feedback allows for a reinterpretation of the data from the supervisor interviews:

*...I want to correct our school, to correct our student learning, to correct our teacher teaching. We just want to improve you and the student learning*

*Supervisor 1, turn 28*

A view of feedback as a platform for solving immediate and pressing problems serves the goals of both the teachers and the supervisors. However, this conception of the purpose of feedback is inconsistent with the theory of reflective feedback which formed the basis of the research. With hindsight, a formal conception of reflection as the foundation for the teacher development is not necessarily a good fit with the Cambodian context. In these private schools, teachers are given tight schedules with minimal planning or administration time, and supervisors are under pressure from their administrative duties. Under these conditions, observations (and feedback) are carried out in response to crisis, under circumstances of necessity. Traditional views of reflection for long term teacher development may, therefore, be misplaced.

Overall, then, the feedback dialogue in the context of these schools is not an exploration of teachers' beliefs or the generation of long term developmental strategies, but rather the teacher's attempt at exoneration in response to the supervisor's evaluation of a 'mistake', and the search for immediate and workable solutions to everyday classroom problems. The dissonance highlighted in the triangulated data calls into question the importance of reflection as a defining characteristic of teacher supervision. Instead, we see teacher-supervisor dialogue in the feedback as taking a tight, time-bound problem-solution approach which favors teachers' immediate needs over questions of long-term development.

An *initiation* approach to triangulation has led to a re-evaluation of the theoretical foundations of the study based on the contradictory findings in the data. So far, then, we have used triangulation to corroborate the different data, develop areas for further data collection, and elaborate on the theoretical foundations of the study. At this point, can we be sure that we have adequately covered the ground for our research question? If so, which source of data has provided the greatest insights? To find out we can use triangulation for *validation*.

## **8. Triangulation for validation – identifying the sources of data to use**

The research aimed to find out 'What happens in observation and feedback in Cambodian schools'. Through the use of triangulation of data from teacher questionnaires and interviews, and supervisor interviews, we have arrived at an answer to this question. However, which of these data sources can we trust to most effectively answer the question? The goal of a *validation* approach to triangulation is to identify the most valid data source with regard to the research question (Watson Todd, 2003). In a study with multiple data sources, validation identifies the source which is most valid in representing the findings.

In the context of observation and feedback in Cambodian schools, three sources of data were used, each providing valuable, but limited, insights. The responses in the questionnaires were contradictory, both internally between items in different sections, and to the supervisors' perspectives. The supervisor interviews gave only limited insights into teachers' perspectives. The teacher interviews were valuable in responding specifically to the contradictions highlighted in the earlier data but were limited with regard to the nature of reflection.

The findings in the study reported so far come from self-report data. In both the questionnaires and interviews, the respondents were asked to report on their experience with observation and feedback. Such self-report data, while easy to collect, represents only what respondents report about the event, but not necessarily what actually happens (Donaldson & Grant-Vallone, 2002; Dörnyei, 2007). Therefore, with regard to the question of the teachers' contributions during the feedback, we remain unclear whether the supervisors ignore them (as reported in the supervisor interviews), or accept them (as given by the teacher interviews).

Without evidence of the actual events that take place in the feedback, we can rely only on the reports of the participants involved. The nature of the data limits what can be known.

Overcome this shortcoming would require the collection of recordings of the teacher-supervisor dialogue as they take place. These recordings of the interaction can then be subject to careful analysis using strategies from discourse analysis such as dialogicity (Louw et al., 2016). This additional data may serve to reveal the single reality of teacher-supervisor discourse in this context. Through corroboration, the self-report data that most closely matches the recorded data can then be identified as most believable, a finding that can guide later researchers wishing to gather valid data quickly and effectively.

The identification of a data source as most valid relies on a positivist view of the research as having a single reality that can be uncovered through data collection. However, a deeper and more nuanced view is given if we follow the assumptions taken by an elaboration approach in which the personal perspectives of each participant is considered equally valid (Clarke, 2013). Such a constructivist epistemology to the data would not prioritize one view of the other, and the data from recordings would, therefore, be no more valid an indicator of the reality of the feedback than the participants' individual perspectives. For the purposes of investigating observation and feedback, then, recordings of the feedback event may not prove to be more valid, but would offer even greater perspectives on what happens, and how the stakeholders involved make sense of it. While a *validation* approach to triangulation aims to identify the most valid source of data, it must be concluded that the various sources of data in this study all contribute to an understanding of the individuals' personal perspective of feedback.

## 9. Conclusion

Triangulation is traditionally viewed as a means of validating findings through the use of multiple perspectives, perhaps through different sources of data, methods, theories or researchers. The congruence of these different perspectives to strengthen research findings conforms to a *corroboration* view of triangulation. In this paper, I have demonstrated how triangulation may also be useful for understanding divergence in the data. First, through *development*, in which early insights inform later data collection or analysis. Second, through *elaboration*, in which multiple perspectives of the various participants involved in the study provide a meaningful understanding of the complexities of the phenomenon under consideration. Third, through *initiation*, in which the contradictions in the data provide an opportunity to review the theoretical framework of the study. Finally, through *validation*, which seeks to identify the most valid source of data.

In this study, taking a *corroboration* approach, triangulation highlighted weaknesses in the design and application of the initial data collection procedures, and triangulation for *development* served to guide further data collection. Triangulation for *elaboration* helped gain a deeper and more nuanced view of the data and the different perspectives involved, triangulation for *initiation* highlighted weaknesses in the theoretical foundations underlying the study, and finally, triangulation for *validation* provided an avenue for resolving data collection procedures in further research on the topic. As a tool for researchers, then, triangulation is much more than a tool for strengthening research validity.

## References

- Akbari, R., Behzadpoor, F. & Dadvand, B. (2010) Development of English language teaching reflection inventory. *System*, 38(2), 211-227. doi: 10.1016/j.system.2010.03.003
- Bitchener, J., & Basturkmen, H. (2006). Perceptions of the difficulties of postgraduate L2 thesis students writing the discussion section. *Journal of English for Academic Purposes*, 5(1), 4-18. doi: 10.1016/j.jeap.2005.10.002

- Borg, S. (2011) The impact of in-service teacher education on language teachers' beliefs. *System*, 39(3), 370-380. doi 10.1016/j.system.2011.07.009
- Brown, J. D. (2001) *Using Surveys in Language Programs*. Cambridge: Cambridge University Press.
- Brown, J. D., & Rodgers, T. S. (2002) *Doing second language research*. Oxford: Oxford University Press.
- Clarke, M. A. (2013) Individual and organizational learning. In J. Arnold and T. Murphey (Eds.), *Meaningful Action* (pp. 287-303), Cambridge: Cambridge University Press.
- Copland, F. (2012) Legitimate talk in feedback conferences. *Applied Linguistics*, 33(1), 1-20. doi: 10.1093/applin/amr040
- Donaldson, S. I., & Grant-Vallone, E. J. (2002). Understanding self-report bias in organizational behavior research. *Journal of Business and Psychology*, 17(2), 245-260. doi: 10.1023/A:1019637632584
- Dörnyei, Z. (2007) *Research Methods in Applied Linguistics*. Oxford: Oxford University Press.
- Farr, F. (2011) *The Discourse of Teaching Practice Feedback: A Corpus-based Investigation of Spoken and Written Modes*. New York NJ: Routledge.
- Freeman, D. (1982) Observing teachers: three approaches to in-service training and development. *TESOL Quarterly*, 18(1), 21-28. doi: 10.2307/3586560
- Freeman (1998) *Doing Teacher Research: From Inquiry to Understanding*. Pacific Grove, CA: Heinle & Heinle.
- Gebhard, J. G. (1990) Models of supervision: choices. In J. C. Richards & D. Nunan, *Second Language Teacher Education* (pp. 156-166). Cambridge: Cambridge University Press.
- Hanson, W.E., Creswell, J.W., Plano Clark, V.L., Petska, K.S. & Creswell, J. D. (2005) Mixed methods research design in counseling psychology. *Journal of Counseling Psychology*, 52(2), 224-235. doi: 10.1037/0022-0167.52.2.224
- Keegan, P (2014) The elephant in the classroom: Minimising the affect of the observer's presence during lesson observations. *The Teacher Trainer*, 28(1), 15-16.
- Louw & Billsborrow (forthcoming) "Let me tell you about your lesson": Classroom observations in Cambodian schools, *rEFLECTIONS*.
- Louw, S., Watson Todd, R. & Jimarkon, P. (2016) Teacher trainers' beliefs about feedback on teaching practice: Negotiating the tensions between authoritativeness and dialogic space. *Applied Linguistics*, 37(6), 745-764. doi: 10.1093/applin/amu062
- Richards, J. C. & Lockhart, C. (1994) *Reflective Teaching in Second Language Classrooms*. Cambridge: Cambridge University Press.
- Schön, D. A. (1987) *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions*. San Francisco CA: Jossey-Bass.
- Seliger, H. W. and Shahomy, E. (1989) *Second Language Research Methods*. Oxford: Oxford University Press.
- Wallace, M. J. (1998) *Action Research for Language Teachers*. Cambridge: Cambridge University Press.
- Watson Todd, R. (2003) Three purposes of triangulation in language teaching research. *Proceedings of International conference on research in ELT*, Bangkok, 9-11 April.
- Watson Todd, R. (2016) *Discourse Topics*. Amsterdam: John Benjamins Publishing.
- Watson Todd, R. (2012) Mixed methods data analysis in applied linguistics. *REFLECTIONS*, 15(1), 69-75.
- Williams, M., & Burden, R. L. (2004) *Psychology for language teachers*. Cambridge: Cambridge University Press.