

VIDEOCONFERENCING TOOLS AS MEDIATING ARTEFACTS IN ENGLISH LANGUAGE TEACHER DEVELOPMENT IN CHALLENGING CONTEXTS

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ABSTRACT

This article considers the creation of online materials and a set of online processes for language teacher education at a distance in challenging contexts. The tool we used to mediate the processes was Skype. We used a Cultural Historical Activity Theory (CHAT) analysis to show how our activity system “expanded” as the materials and online processes were created and modified as they were used with groups of teacher educators in Pakistan. It shows how the “secondary contradictions” that emerged while we developed the materials and processes were managed developmentally as the project progressed. The article also shows how the project took account of the cultural-history of videoconferencing in similar projects elsewhere, while not ignoring the specific sociocultural conditions that existed in Pakistan at the time. The project outcome was a shared object that might be made use of in other contexts as the basis for the provision of similar teacher development courses in a range of differing settings.

Keywords: videoconferencing; Skype; language teacher education; development; Pakistan; Activity Theory

INTRODUCTION

The debate about the roles that digital technologies can and might play in education is on going and complex. This debate becomes even more involved when we start focusing on technological mediation of teacher education in challenging contexts. This article argues that the use of widely available and “free” videoconferencing systems like Skype can provide a variety of teacher-education opportunities for large groups of teachers in places where no other opportunities would otherwise exist. The article focuses on the early stages of the creation of a teacher-education course for primary school teachers in the Punjab region of Pakistan. It shows that a technology like Skype might make a real difference in overcoming some of the constraints of working with large numbers

of teachers at a distance with very limited funding. The exemplar set of materials and practices that were used in this project can easily be adapted and modified for use in a wide range of other contexts where teacher development is an important part of providing quality education as a part of Sustainable Development Goal 4 (SDG) (United Nations, 2015).

The study makes use of aspects of a CHAT theoretical framework within the Vygotskian tradition (DeVane & Squire, 2012; Stetsenko & Arievitch, 2010) to frame the methodology and discussion. It treats the activity system in this case as a “dialectic” (Roth & Lee, 2007) and explores how the activity system is transformed (Engeström, 2001, p. 137) by exploring “secondary contradictions” (Engeström, 2001) within the system and how these were handled. The study

uses CHAT to explore this particular example of the practice in the sociocultural reality of teacher education for English Language Teaching (ELT) in modern day Pakistan. It then links its findings to the more general discussion on the utility of digital technology in teacher education with particular reference to the developing world, thus showing the impact of this research.

BACKGROUND

Teacher education in ELT has been a significant area of research for some time, but until recently less emphasis has been put on the use of technology to provide courses, even though distance teacher education is not a new educational practice. Even as distance education has grown, there has been very little focus on the mediating role of technology in supporting teacher development in contexts where there is a significant need but access is problematic for a variety of reasons. A recent exception is Anwaruddin & Pervin (2015), who explores the much discussed and written about English in Action project in Bangladesh (Li et al., 2014; Power et al., 2012). His critique is based on analyzing reports and documents from the project and making use of Hargreaves and Fullan's (1992) three integrated approaches to teacher development. Anwaruddin & Pervin (2015) argues that this project places too much emphasis on knowledge and skills development and self-understanding and not enough on teacher development as ecological change:

. . . teachers are not likely to learn from each other if they work in isolation. Furthermore, development initiatives may not be effective if they are imposed on teachers by outside forces. Examples of other ecological factors that may impede teacher development included shortage of planning time, lack of resources, poor teacher salary, misallocation of resources, and authoritarian leadership. (Anwaruddin & Pervin, 2015, p. 33)

Teacher development should, where possible, be a social activity where teachers work together to engage with ideas and explore solutions or learn about new ideas. It is a people-based profession. In many developing world contexts, there may be opportunities for teachers to get together, but there are few resources for them to use and limited

access to new ideas for them to consider and debate. English in Action aimed to provide access to materials, as well as opportunities for teachers to discuss their practice. It attempted to take into account teacher development as “ecological change” as Anwaruddin & Pervin characterize it, but it made use of CHAT for analysis rather than a particular ecological framework.

Part of the cultural history of this study is the increasing interest throughout the world in the teaching of additional languages in schools with English being one of the commonly taught (Braine, 2005; Crystal, 2003; Hamid, 2010; Sayer, 2015). There is also a rapidly growing interest in starting language learning in primary and nursery schools and also language as a medium of instruction (Hamid, 2010; Rixon, 2013; Sayer, 2015). When referring to the teaching of other subjects through English, it is called English Medium Instruction (EMI), and this can occur in any phase of education from nursery school to higher education. English for Specific Purposes (ESP) and Content Language Integrated Learning (CLIL) are terms in the field that have been used in the past to describe this process. The reasons offered for starting earlier are part of an on-going debate, but one of the more convincing reasons is the idea that what is increasingly of interest to employers is people who have a high level of English, at least C1 on the Common European Framework of Reference for Languages (CEFR) scale (the European scale for measuring languages—C1 equates to what in other systems is upper-intermediate or an all-round level of language proficiency). With the time available for teaching languages in schools, it simply takes a long time to get to the required levels (Graddol, 2014). As a result there is pressure on primary school teachers to develop the necessary language and methodology skills to meet this growing need so that by the end of school children can reach much higher levels than they currently do. Many high school graduates struggle to reach A2 on the CEFR English language scale (A2 equates to an elementary level), and these students are based in countries where there is a high level of investment in English language education.

Many of the countries where there is a new interest in developing English Language Teaching in the primary school context are in the global south, and these are often countries where there

is already a significant lack of resources and a limited education budget. Teachers in the primary level often have a very basic education themselves, sometimes even moving almost directly from their secondary schools straight back into teaching without any kind of preservice training. “According to UIS data, in 31 of the 96 countries with data after 2012, less than 80% of primary school teachers were reportedly trained according to national standards in 2014” (UNESCO, 2016). When it comes to training in a foreign language, they often have limited or no English language skills. As part of a baseline survey that was conducted by the British Council in Lahore (Pakistan) with 2000 teachers, 30% were A0 (no language), 35% A1 (beginner), 30% A2, and only 5% reaching a B1 level (personal communication). This could mean that a significant proportion of primary teachers in Pakistan who are expected to teach English have no English at all.

The expectation behind EMI that the majority of primary school teachers in low resourced countries will begin to work through the medium of English and teach other school subjects through English is currently not even close to reality. Teachers struggle to work through an English course book and most of the “language teaching” is in the mother tongue (Hamid, 2010; Sayer, 2015).

This brings us to the core project studied in this article, which may offer a potential solution: using Skype (a basic videoconferencing tool) to support the training of primary school teachers to enable them to develop both their English language and pedagogical skills. Besides having a low level of English, many of these teachers have had no basic teacher training. This article focuses on the very early stages of this process and is about working with trainers.

VIDEOCONFERENCING

Videoconferencing has been used in online teacher development for some time (Maher & Prescott, 2017; Simonson, Smaldino, & Zvacek, 2015; Yamagata-Lynch, 2014). Starting with the use of fixed videoconferencing systems with fixed line connections between two points, through the use of locally created dedicated online videoconferencing systems (e.g., at the UK Open University) or commercial tools like Adobe Connect or GoToMeeting, and generic tools, like Skype, that are readily available in most parts of the world

where there is a stable Internet connection.

The case study this article focuses on is the Punjab Education and English Language Initiative (PEELI) in Pakistan, which uses a variety of tools to support the development of English language, and other, teachers. The British Council in the Punjab, in conjunction with the local Ministry of Education, initiated this project. Even in an area like the Punjab, the potential number of teachers is very high, over 400,000. However, in the world, we are talking about many millions of teachers who are in similar circumstances, so an initiative like this one has the potential to have a wide-reaching impact.

This study is the result of work undertaken by the author as an external consultant to this project from 2013 to 2015. The study sits in the broader framework of technology supported teacher development, which has been a growing field and one that is becoming of increasing importance with the role that digital technologies are playing in people’s lives and in education.

While it might be possible to make use of a number of different technologies to offer courses and to provide on-going support, Skype was chosen because it is widely available, is reliable for low bandwidth, is easy to use, has a range of useful features, and is free, and because it was specifically suggested by the then head of the education department that Skype would be a viable tool for teachers in Pakistan.

METHODOLOGY

Vygotskian sociocultural theory (SCT) and its development into Cultural Historical Activity Theory (CHAT) (Cole, 1996; Engeström, 1987; Leont’ev, 1981) have been used regularly to explore ways technology-supported activity can be better understood and evaluated in order to move technology use in education away from the deterministic perspective that technology as the answer to all of education’s ills (DeVane & Squire, 2012; Kaptelinin & Nardi, 2006). It also answers the criticisms of Anwaruddin & Pervin (2015) by looking at the whole sociocultural domain. CHAT is often described as an ecological, or holistic, approach, and an activity system that encompasses the different missing elements discussed above. However, it has been used very little to explore technological use for teacher education, particularly

with reference to ELT. It has been used in some instances to analyze technological use in projects in the global south, e.g., Bagarukayo, Ssentamu, Mayisela, & Brown (2016), Gedera (2014), and Lee and Sparks (2014).

Building on the work of Stetsenko and Arieievitch (2010), Flear (2016) presents an overview of how Vygotsky's genetic method was used as an analytical tool in a range of different studies. Her analysis is a useful way of describing how the genetic method can be applied to any study in education. She argues that fundamental to Vygotsky's methodology were the ideas of ". . . holistic research, the concept of development, the unit as the basis of analysis, and the embedded role of the researcher" (Flear, 2016, p. 5). Holistic research for Flear means not breaking the topic of study into different parts and exploring them individually and then trying to rebuild the holistic picture, but being interested in the lived experience of human development over time and taking into account the history of the development that has brought us to the particular process we are exploring. What Flear describes as holistic is what is termed elsewhere as dialectic. Roth & Lee (2007) explain that when:

. . . a relation is dialectical [it] is equivalent to saying that any part that one might heuristically isolate within a unit presupposes all other parts; a unit can be analyzed in terms of component parts, but none of these parts can be understood or theorized apart from the others that contribute to defining it . . . (p. 176)

Finally, the role of the researcher is not an external viewer looking on but a part of the development. Studies in this tradition try to "make visible the contradiction or tension that acts as a catalyst for development of that system" (Flear, 2016, p. 6). Essentially, this is an ethnographic approach with the writer as the participant observer.

In CHAT, contradictions are viewed differently than they are in everyday language. They are ". . . historically accumulating structural tensions within and between activity systems." (Engeström, 2001 p. 137). Contradictions are described by Engeström as being of different types, e.g., primary and secondary (Engeström, 2001). The primary contradiction for Engeström is the relationship between the "use value and exchange value of

commodities" (Engeström, 2001, p. 137). Secondary contradictions can occur when something new is introduced into an existing system and can be seen in reified practices that have become embedded into the activity system over time and are exposed when something new occurs and the relationship between different parts of the system brings about challenge. Contradictions should not necessarily be viewed as problematic, however, as they are an indication of a system in flux, and as Roth argues they never disappear, but "reappear in a new form" (2012, p. 271). The exploration of contradictions within the activity system can lead to transformation and change, and it is argued that is when learning has occurred (Murphy & Rodrigues-Manzanares, 2008). Engeström uses the term "expansive transformations" (2001, p. 137) to describe a point at which an activity system changes to accommodate change.

Engeström and Sannino (2010) argue, "Contradictions act as a driving force of change as they generate tensions, disturbances, and innovative attempts for development in social action" (p. 115). It is these "tensions, disturbances, and innovative attempts" for development that this explores.

THE STUDY

The study itself focuses on the introduction of *Skype* into teacher development in the Punjab region of Pakistan. It focuses on an initial pilot that worked with what are termed in the Pakistan system District Teacher Educators (DTEs—see below). The teaching materials and accompanying pedagogical approach used for the teaching process was also an important contributing factor to the way the project was developed. The project was undertaken as part of a consultancy that ran over a two-year period, with activity that the writer engaged in as a researcher being episodic rather than continuous.

The aim of the study was to discover if and how *Skype* would be a helpful tool for English language teacher development for this project and has implications for the developing world in general. There were three research questions:

RQ 1: What are the cultural historical factors that shaped this project?

RQ 2: What strategies did the stakeholders use to mitigate the contradictions in and between the activity systems?

RQ 3: What strategies did the stakeholders use to manage the contradictions and to bring about expansive learning?

DATA COLLECTION AND ANALYSIS

The data for this case study came from a number of sources and include documents and reports provided by the project team in Pakistan, others found online, field notes kept by the author, a number of fact-finding questionnaires, materials specifically designed for the pilot, observation of the pilot activities, interviews and feedback from the project team and teacher educators at various stages of the process. Where data is quoted in the text, a reference to the data source is provided.

The data set has been analysed using an activity theory lens exploring the interplay between the different parts of the activity system and the tensions and contradictions that were discovered and managed (where possible) as the project developed.

The core lens presented here is a 2nd generation Cultural Historical Activity heuristic as represented by Engeström (1987), building on the work of Vygotsky (1978) and Leont'ev (1981). The different parts of the activity system include the Subject, the Object and the Outcome, the Instruments (semiotic and physical) used, the Rules, the Divisions of Labor, and the Community (see Figure 1).

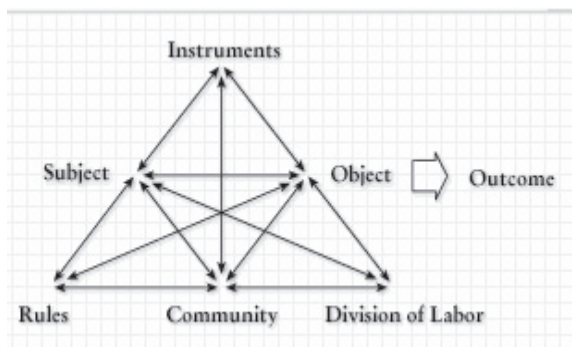


Figure 1: Parts of the Cultural Historical Activity System.

Image retrieved from: <http://www.edu.helsinki.fi/activity/pages/chatanddwr/chat/>

In this analysis of the professional development activity, the Subjects can be identified as the project team members, including the British Council project officers, the local Pakistani teacher developers who worked as a part of the project, and myself. The Object of the project was to create a set of teacher

development materials and practices. The outcome at this stage of the project was the development of the District Teacher Educators' (DTEs) pedagogical skills, which would then be passed on directly to teachers working in the primary schools. The process of learning was mediated through the use of Skype and the materials that were created for use of the project by the author. The community consisted of the DTEs who worked with the project team in the Skype sessions and senior managers and officials at the education ministry. The focus of the analysis was the Skype-mediated communication between these District Teacher Educators (DTEs) and project team members as they engaged in the Skype-delivered sessions and later in the process of training a new cadre of Skype teacher educators, who would take this project on to working directly with teachers in the local communities.

The expected outcome at the beginning of the project was to recommend a teaching process with accompanying materials that could be used again in a number of different contexts. The instruments were the specific technical tool Skype, the materials that had been developed, and the process that had been created to support the materials and the training that had taken place. The rules included the constraints of the context, including the security situation that prevented people visiting the target communities, the Department for School Development (DSD) in Lahore who had their own development processes in operation, and the rules that the British Council project managers had to work under in terms of how projects should be conducted. The community consisted of teachers, teacher educators, various members of the DSD, colleagues in the project team, and the community of the organization running projects all over the world. Although I developed the concept and wrote the materials, I was not in country, so I was not able to be as involved in the roll out of the project through all of its stages. I also had to rely on British Council project colleagues to gain access to the trainers and online sessions to collect data later in the project. This kind of remote data collection is typical of this sort of process, where you are employed as a consultant on a project, particularly one where there are significant risks for westerners taking part in such projects.

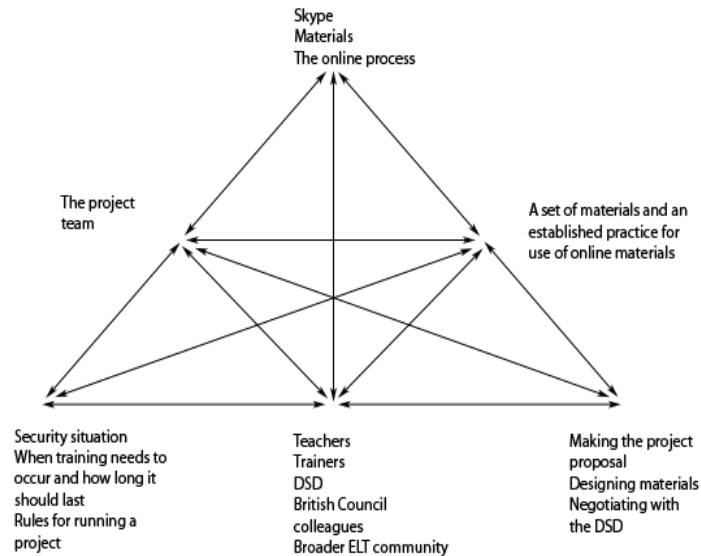


Figure 2. The Activity System at the Beginning of the Project

While this is represented as a second-generation activity system, the study recognizes, along with Engeström (2001), that in the modern world we cannot ignore the other activity systems that impact on this specific project. It is acknowledged in the analysis that there are several other activity systems that make a difference to how this project plays out, e.g., the managing organization, the Department for Schools Development (DSD), the broader political landscape in Pakistan that creates the lack of investment in the school system, and the broader regional security situation that limits travel in the country. These, along with other cultural historical factors that impacted the project as it was rolled out are discussed in the following section.

THE PROJECT PLAN (ITS GENESIS AND CULTURAL HISTORY)

A method for showing development in a project using the second-generation activity framework is to describe the cultural history at the start of the project and show what happened as the project developed by exploring the tensions and disturbances in it and how these relate to the contradictions. The final outcome is a new, transformed activity system, a new phase in development, and a new object of activity that can be taken to further activity systems. What follows is the lead into the project (the cultural history) that created the conditions represented in Figure

2. This is based on a thematic document analysis of reports, discussions, and interviews with the project team, the DSD, and meetings with the local teacher educators.

THE PROJECT'S CULTURAL HISTORY

In the primary sector in the global south we have seen significant developments in the school systems in many countries during the Millennium Development Goals (MDGs) period (2000–2015) with large increases in the overall numbers of children going to school (United Nations Summit, 2010), especially girls going to school (Glewwe & Kremer, 2006), and increased resources put into schooling, but the quality of educational outputs has often failed to rise.

Achieving high quality education involves effective teacher development (Glewwe & Kremer, 2006) and this is now represented in Sustainable Development Goal 4. However, this is a significant challenge for many countries, and although there have been a number of success stories in the global south of increased funds being put into education, many countries are struggling. Pakistan sits towards the bottom of the Human Development Index (HDI) at 147 out of 188 in 2015 (UNDP, 2015) with a public school expenditure currently falling from 2.7% of GDP in 2013 to 2.5% in 2015 and with approximately one third of the total school population of 29 million, 9.4 million children,

not in school (UNICEF, 2003). This is a primary contradiction between our attempts at teacher development and the reality of prospects for education in Pakistan.

At the same time, 87% of Pakistani households own mobile phones (Siddiqui, 2014). The difference between urban and rural phone ownership is not that significant (94.7% and 83%, respectively). The mobile network is mostly 2G, although 3G is rapidly becoming established in the bigger conurbations. In terms of Internet connectivity, the difference is 17.4% urban and 1.3% rural. Also, 60.2% of households countrywide own a television.

I have presented this contrast to highlight the obvious availability of a range of technologies in Pakistan, and then to link this to the increasing use of technology for the delivery of various kinds of education in the global south. I recognize that these developments can be viewed negatively and that providing technology to education may be viewed as a way of increasing the profits of large corporations (Thomas, 2012). However, we need to be careful not to deny access to possible solutions via technology to the global south that are in common use in the global north. This would risk being seen as a new form of colonial paternalism and would exacerbate an already broad digital divide. We would also be denying access to learning opportunities to people for whom there currently appears to be no other viable way forward. There is no doubt that technology should be seen as having potential dangers as well as rewards, but as long as projects try to work from the ground up and take into account the reality of teachers lives (Anwaruddin & Pervin, 2015), there is no need to avoid them per se.

One project that acted as a model for the introduction of Skype into the Punjab was Plan Ceiba en Inglés, which used videoconferencing to provide remote support for primary school language teachers (Banegas, 2013). The British Council in Uruguay manages this project and so members of the British Council team in Pakistan had some awareness of it. This is an important consideration for a consultant like myself working on a project of this type, because within the broader system of the British Council, the reuse of British Council intellectual property and materials helps to support the brand and is a key focus of many projects around the world. However, the Plan Ceibal en Inglés

project uses a dedicated system based on fiber-optic cables and videoconferencing systems linked with a language teacher development program using a Virtual Learning Environment. Remote English-language teachers based in various parts of the world work with the class teacher to discuss methodology and pedagogy, plan lessons, and then deliver them jointly. The remote teacher works as part of a larger team and makes use of agreed curriculum materials as the basis of prelesson discussions. What was proposed in the PEELI project took the same basic idea of providing remote support, but it was much more modest and was based on the existing infrastructure. The economic realities of education in Pakistan would not support the introduction of a dedicated videoconferencing system, and you could argue that using specialized systems to achieve the aim would go against the good practice advice for the introduction of technology into projects in the developing world (Power et al., 2009).

One other project in the British Council has made use of Skype in a similar way (Gray, 2016), and this was carried out in Libya, where they faced security challenges, logistical constraints, political instability, poor infrastructure and communications network, poor Internet connectivity (if any), deteriorating education systems, and limited capacity for local partners. This project aimed at working with local universities and involved training local facilitators for each university. This is currently a small project working with only seven local universities, but it is borne out of similar circumstances as the Pakistan project. The fact that this project exists adds legitimacy to the project being described here.

PAKISTAN TEACHER DEVELOPMENT SYSTEM

In the Punjab region, the Department for Schools Development (DSD) has charge over the management of teachers in the schools through a number of regional District Teacher Support Centres (DTSCs) and local Community Training Support Centres (CTSCs). Each DTSC has four Teacher Educators (TEs) who supervise the District Teacher Educators (DTEs) located in the CTSCs. CTSCs are usually part of a secondary school with one or two DTEs working there. When I discussed these issues with DSD in 2013, there were 144 Teacher-Educators and 3,300 DTEs. DTEs have a direct relationship with the school teachers,

acting as both monitors of their performance and trainers. The DTEs travel around the schools linked to their center, usually between 10 and 15 schools each. They observe teachers and collect data on issues like attendance, children's performance, and conditions in the classroom. They also collect ideas on what areas of teacher development they should focus on with their teachers.¹ (This description is assembled from interviews with the Director of School Development, colleagues at the British Council, and through analysis of reports. This is the case throughout this article.)

Although there had been a lot of successful face-to-face training as part of this project, the problem that remained for the British Council and DSD, which was trying to work to improve the English language skills and the methodology awareness of the teachers, was how to deliver training at scale, even if the scale was 3,300 DTEs rather than the 400,000 teachers, many of whom work in remote rural areas.

The DTEs from a district would gather together once a month and DSD allocated a slot for the project team to offer methodology updating. An initial tension in these early stages that had to be solved was how much time was going to be allowed by the DSD for these training sessions. Over the period of the project the British Council were also in the process of setting up resource centers in a number of district centers. These centers included both book- and computer-based resources. The computers were linked to the Internet and one of the computers was also linked via a projector to a screen and an external camera and microphone. This made using Skype a possibility. The head of DSD was also keen to promote training through technology, particularly with low-tech solutions that suited the context, and he had mentioned the possibility of Skype when we met to discuss the project.

The original materials that were created were aimed at single groups of 30–50 DTEs with a central remote trainer and a local leader who would manage the remote group. The idea was to work to train the local leader in their role. This would have mirrored the Plan Ceibal en Inglés project with a remote trainer working in conjunction with a primary school teacher. However, because of the need to operate at a greater scale, it was decided to

work with multiple groups, so during this trial year, sessions were run with as many as seven regional groups, potentially reaching as many as 200 DTEs and other teachers at a time. However, as a part of this process it was still envisaged that there would be a local teacher who would be trained to act as the link during the online sessions and manage the DTEs in the local setting. As seen in Table 1, this continued, but there were several further developments to the model.

Table 1: Project Timetable

| | |
|------------------|--|
| May 2013 | Initial fact-finding visit to Lahore. Initial report and proposal prepared. |
| May 2014 | The Skype element of the project was launched and included in the planning for the resource centers. |
| July–August 2014 | Worked on the training materials. |
| Nov 2014 | Training sessions underway and observations carried out. |
| Dec 2014 | Visited Pakistan and the Lahore Resource Centre. Interviewed a variety of stakeholders and discussed the use of the materials. |
| July 2015 | Interviewed key players and observed the use of materials with BC consultants. |

EXPLORING THE PROCESS, TENSIONS, CONTRADICTIONS, AND EXPANSIONS OF THE ACTIVITY SYSTEM

The process of using Skype for teaching was observed on four occasions (twice at the beginning and twice at the end), and changes were made to the original materials and how they were used. Initial adjustments were made because of a change in the amount of time available for the intervention to occur, which was due to a primary contradiction between ministry needs and the needs of the project. Other changes were a result of the technological limitations of the Internet and the team's knowledge of the tool and its potential. I was only a consultant and not a key part of the project team, so I could not follow up on a day-to-day basis. Further changes came from interventions and feedback from me based on my experiences of running the sessions with different groups at various stages.

Secondary contradictions arose between the project team and the community and between the project team and the rules and their impact on the Object of activity. The DTEs attended sessions in

the DTSCs one weekend every month throughout the academic year, and this was a part of the DSD's regular support sessions for the DTEs. Much of the weekend was taken up with administrative processes and the discussion of data that the DTEs collected from their school visits. It had initially been proposed that, between the British Council and the DSD, there would be two slots during these weekends where the teacher development materials could be worked with, and I had created a set of development materials that assumed that this would be the case. It had been planned that the DTEs would have time to work in small groups and reflect on their practice together and then meet online to discuss what they had talked about. The DSD eventually decided that they would only allot one hour during the weekend for the Skype training sessions. Adjustments had to be made to materials to reflect these changes, and, as a result, we lost elements of their interactive nature and the opportunity to support a more reflective practice approach.

My carefully crafted lessons that were supposed to work between an online tutor and a group of about 30 local teachers have turned into sessions run with multicentres because of the need to deliver the project at scale (Field note diary entry 26 November 2014)

These contradictions related to the Subject's relationship to part of the Community and led to a change in the Rules. The primary contradiction between the DSD and our project led to a secondary contradiction between the Subject and the Community, and this led to changes in the final outcome for the project in Pakistan. These materials have been reified in a certain form in Pakistan, but there is no reason why they could not be implemented elsewhere as they were originally intended.

Secondary contradictions based on observations of early Skype sessions in November 2014 led to developments in the online teaching process. In the early training sessions, I observed a number of secondary contradictions that I highlighted for the team. Some of these were between the Tools and the Object and some were between the Subject and the Tools, and they were concerned with the management of the training groups and the online

methodology.

Contradiction between the Tools and the Object. An inevitable tension when using videoconferencing was the quality of the sound, which varied with the number of groups involved, how skilled the participants were in using the Skype technology, and the sound we were focused on.

Field notes reveal that while some of the sound was of good quality, other aspects were problematic:

"The sound from (the remote tutor) is very good, as is the video."

"We need to think more about the sound in the demonstration classroom, as it is not so great. I can't hear X." (Field note diary entries 27 November 2014)

These technological problems are issues that are regularly reported in the literature when it comes to the use of videoconferencing (e.g., Hampel & Stickler, 2012). The project was attempting to work with large groups to fulfil the need to reach out to as many of the DTEs as possible. Following the discussion, it was eventually decided that no more than three groups would be worked with at any one time, but this did not always prove possible to implement, as will be seen later. This reduced the potential reach of the project over the long-term; however, it did seem like a sensible, practical recommendation. There was no point in running the sessions if the local participants were not engaging with the process. Economies of scale are not economies if they do not work.

It was also suggested that the sessions include the use of feedback channels, like text, or a mobile phone number for questions or comments (Warden, Stanworth, Ren, & Warden, 2013). This would be a good way to bring all the groups into the ongoing discussion. It could be argued that this is a secondary contradiction between members of the project team and the tools, specifically the online process, because the first tutors were new to this kind of activity and did not receive any formal training on how to conduct such online sessions. It is often the case that people who set up and run these activities do not necessarily have the background and experience in online learning to be able to conduct successful sessions, so training would have been a good solution.

Contradiction between the Subject and the Tools (Skype management). Following observations of the early Skype sessions, I made a number of recommendations about the management of the sessions and the groups in the regional centers:

Encouraging the teachers in the centres to stand up when they are talking to others, or feeding back to the remote tutor, so that the microphone, which was positioned at the front along with the camera, would be able to pick up the sound more effectively; making sure that the regional centre seminar leaders remain conscious of who they are speaking to and consciously direct attention either to the audience in the room, or the speaker on the screen; that the remote teacher be more involved in the process, feeding questions via the regional centre seminar leader, or getting the local teachers to do the task. (Field note diary entry 28 November 2014, which was passed on to the tutoring team.)

These recommendations helped to develop the understanding of the online process and became a core part of this kind of activity as the project developed. These recommendations supported the development process of the materials and the tutors gained a good range of skills from this formative stage. They would also be a good set of guideline recommendations for the final materials and could be passed on to other people trying to do similar work.

Contradiction between the Subject and the Tools (Online methodology). The remote tutor was asked to think more about eye contact and where they were looking at the screen so that the participants in the room get the sense that they are being looked at.

It was observed that, generally, there were good comments from the DTEs and good answers to the questions. One of the groups engaged much more than the others, but the other groups needed to be better included in the process.

These sessions continued to be a part of the regular training meetings at DTSCs throughout the remainder of the academic year (2014-2015) and as the project continued, ideas continued to develop. Feedback from the participants that was collected by the British Council was positive.

As a part of the on-going project I made a second trip to the Punjab in December 2014, which gave me an opportunity to visit the resource center in Lahore and communicate from there with a regional center via Skype. This gave me further insights into the technological landscape and the teachers and DTEs' experiences of the resource centers. The feedback from both centers was generally positive about the introduction of the resource centers and online training that they had experienced thus far.

At the end of the year, I interviewed one of the British Council project managers and observed a second manager working online with small groups of their local specialist trainers (training consultants) to begin rolling out Skype-based training more broadly. During this online session another manager described some of the developments that had occurred as part of the project and explained how new elements became embedded. What follows is a summary of the ideas presented and my own observations.

By July 2015, the original methodology had shifted to include the use of PowerPoints to both help manage the session and act as a support for the regional center participants who found it difficult to follow sessions that were only oral. The capability of Skype to "show the desktop" demonstrated a more confident approach to the use of the technology overall by the British Council colleagues who were running the online sessions. The remote tutors had also started to work with regional center coordinators acting in the role of seminar leaders who were supporting interaction from the seminar groups.

DTEs [would] pass questions to the coordinators who [would] type them into the [Skype] text chat [leading] to question and answer sessions. (Comment from an observation by the author of a Skype session 16 July 2015.)

These seminar leaders would support the process by translating ideas, repeating questions from the floor, and generally developing an effective working relationship with the remote teacher (division of labor). A new development in March 2015 had been to use Skype as a way to deliver orientations for training consultants who would be leading face-to-face sessions. This meant that training consultants did not need to travel to

Lahore to attend orientation sessions, saving both time and resources. Further consultant training was conducted in June (division of labor). These moves in the divisions of labor meant that the project was moving away from a reliance on the British Council towards local teachers taking a full roll in the teacher development activities, which led to a transformation of the activity system. We shifted from a reliance on external actors to a system that takes account of the local realities and enables the project to be sustainable as the British Council withdraws.

The broader roll out of the initial project focusing on the DTEs would lead to a significant increase in the number of sessions that could be run, and as one of the teachers commented, it would enable them to reach the teachers in the schools as well as the DTEs, perhaps getting access to remote teachers for the first time. This demonstrates an expansion of the initial object to include the local school-based language teachers, which was a very positive development.

PRIMARY CONTRADICTIONS ACROSS ACTIVITY SYSTEMS

Deteriorating Security Situation

My second visit coincided with the Peshawar School attack and subsequent riots in Lahore. The original intention had been for me, along with other project colleagues, to visit some of the more remote study centers, but it was decided that the security situation would not allow for this. The project partner had also reconsidered the security implications for their own staff and there were to be fewer visits to regional centers, making Skype the only real viable tool if such projects were to continue. This was the same for the project in Libya (Gray, 2016)

Project Changes

It was eventually decided that, as part of the continuation of the project, further changes and developments would be handled by the local project team and my consultancy stopped. However, it has been possible to keep in contact with the project and further interviews will be carried out in due course.

DISCUSSION

Following the Vygotskian methodology described earlier, “. . . holistic research, the concept

of development, the unit as the basis of analysis, and the embedded role of the researcher” (Fleer, 2016, p. 5), I have explored this activity system as a dialectic, using a CHAT analysis to assist in understanding how the project developed and how the activity system transformed. The use of this form of analysis allows a project to be revealed in detail and for the changes that have occurred to be clearly drawn. It allows for us to draw in the cultural history and see how this plays out in the new activity system and then make recommendations based on a realistic appraisal of the outcomes of the process. The overall project changed significantly over the two years I was involved in it, and it continues to develop as the different parts of the community become familiar with the process and the technologies and receive specialist training. Access to these kinds of technologies continues to improve as do their ability to work in very low resourced contexts. There are also other elements of the project, including the use of video to offer targeted training via mobile phones, that may also be added in later phases.

This small unit of analysis, this particular course, can be the basis for a range of other, similar endeavors that go on to have a significant impact. As I have described, I am not working as an individual here, and there are other similar projects that inevitably follow a similar pattern (e.g., Gray, 2016). Looking across these projects and seeing the different implementations and levels of success can help develop our overall agenda to better meet the needs of teachers in hard to reach circumstances and ultimately improve the learning outcomes of children in the global south. This method of analysis is proving a powerful tool in developing our understanding of this kind of educational process.

Let us now return to the research questions to see what we can learn from our analysis and how we can relate this to the broader field of technology supported teacher development.

RQ 1 – WHAT ARE THE CULTURAL AND HISTORICAL FACTORS THAT SHAPED THIS PROJECT?

Looking back at the genesis of this project and its cultural history, we can see that like similar projects, e.g., Plan Ceibal en Inglés and Gray (2016), this project was set up to unpack a number of primary contradictions across activity systems,

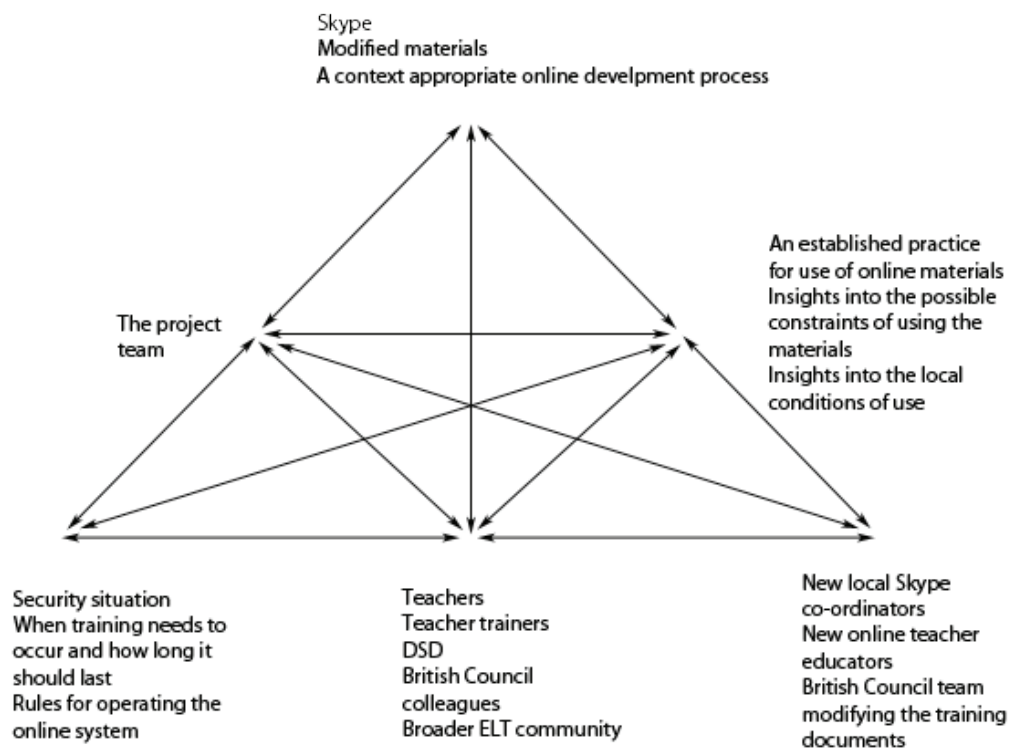


Figure 3. The Activity System and its Changes at the End of the Project.

specifically the need to upgrade large numbers of teachers who have little or no training and, if they are English teachers, often have very limited English language skills. The Pakistan Skype project had limited funds and needed to be able to continue once funding stopped, whereas Plan Ceibal en Inglés was well funded and enjoys significant government backing. The PEELI project was backed by DSD, but funding was coming from a variety of sources. The Pakistan project was also similar to the project described by Gray (2016) in that it was reaching out into contexts where training was required but was considered dangerous for face-to-face sessions. Both Plan Ceibal en Inglés and the Pakistan project were trying to reach large numbers of teachers. The project on its own was unable to solve the primary contradiction of under-investment in the education system that is part of the bigger picture in Pakistan.

RQ 2 – WHAT STRATEGIES DID THE STAKEHOLDERS USE TO MITIGATE THE CONTRADICTIONS IN AND BETWEEN THE ACTIVITY SYSTEMS?

Contradictions that had a direct impact on the project activity system included the lack of background and training of the British Council project team in the use of Skype, the need to develop

the skills of the local facilitator, and the realities of working with Skype over the Internet. One of the distinct advantages of the Plan Ceibal en Inglés project is that it makes use of fiber optic cable, which means that the quality of the line is guaranteed. Using the Internet to deliver the training is a less secure way of working. The primary contradiction of the lack of resources available for education in Pakistan makes this particular problem difficult to resolve, and other donor-led solutions would simply not be sustainable as they would stop once funding ceased, which is exactly what this project tried to avoid. Plan Ceibal en Inglés is involved in classroom lessons where you want to avoid significant breakdowns to prevent damage to children's education. In this case, we are working with teachers and the delivery is less high stake. There is also the key primary contradiction of the security situation brought about by global conflicts that spill over into many parts of the world—often those that are least able to deal with them.

RQ 3 – WHAT STRATEGIES DID THE STAKEHOLDERS USE TO MANAGE THESE CONTRADICTIONS AND BRING ABOUT EXPANSIVE LEARNING?

Strategies that were used included adjusting

the materials, changing the processes to include the use of PowerPoint to manage the sessions and increasing the use of local coordinators to manage local activity both to make the training sessions more effective and to deal with the on-going security situation. A further development was to start training local teacher developers to replace the British Council team, effectively shifting the division of labor to allow for the project to be sustainable.

The changes describe above can be summarized in Figure 3, which is a new version of the second-generation activity system showing the transformations in the project.

The use of CHAT allows us to trace the cultural history of the project and show change at a microgenetic level over a time. The project has allowed the transformation of the process that has the potential to make a significant impact on the development of language teachers both in this project and beyond.

CONCLUSIONS

This study has shown that a small-scale project for the introduction of a Skype-based training course can both achieve its outcomes in terms of developing the program and be part of a more important agenda for making sure that development projects using digital technologies take effective account of the whole sociocultural domain. It has shown through a CHAT analysis that by taking careful account of the context and by testing the teacher development process, we can see secondary contradictions managed and transformed. There are also primary contradictions that, while it would be desirable for them to be resolved, can be mitigated in the planning processes for the set-up of projects of the type described here. The dialectic framework of CHAT emphasizes the elements that need to be focused on, and the type of CHAT analysis shown here brings the nature of development and the difficulty of achieving it into sharp relief.

This study offers a novel way of working with teachers in complex and difficult circumstances; it shows how a readily available tool can be used to support language teacher development in ways that have not been available in the past. The use of videoconferencing enables distance training that is relevant for language teachers to undertake. Text-based systems, while they are valuable and widely

used in distance education, are limited in what they can achieve. The language teaching methodology that is being presented here models that of the active classroom, and the use of videoconferencing means that active teaching can be presented and demonstrated.

The project also brought together ideas from the world of international development and showed how they can be related to the work of English Language Teacher development, something that has not happened before. It also makes use of a CHAT analysis, which, while common in some areas of technology and education (such as Human Computer Interaction), is not a type of analysis that is not regularly found in the literature on information and communications technology for development.

There were limitations to the research and data collection because of the lack of access to people on the ground. The majority of the data collection was conducted online, and it would have been useful to have attended more face-to-face sessions, but this was not possible. In future research we will explore more effective ways of collecting remote data and trying to get direct access to the teachers on the ground.

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