

【論文】

Crossing Borders in Teacher Development: *Jugyokenkyu* (Lesson Study) from the East and Action Research from the West

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Abstract

This study is about teacher development (TD). The discussion focuses on two TD models that reach across borders: *Jugyokenkyu* (Lesson Study) from Japan in the East and Action Research (AR) from America in the West. Both *Jugyokenkyu* and AR are grassroots teacher mechanisms that allow teachers to research their own classrooms in a bottom-up approach. There needs to be a shift from top-down TD models prescribed by ‘outsider’ teacher education experts. The study brings into the equation the view that classrooms are complex environments with differing realities that each teacher faces. TD frameworks can no longer be devised in a top-down manner that view classrooms as representing a single reality in order to suit prescriptive development models. The study will describe *Jugyokenkyu* and AR and show how they empower teachers to meet their particular TD needs. The study will make suggestions on how the models can be integrated.

Key Words : *Jugyokenkyu* (Lesson Study) Action Research Collaboration Complexity

1. Introduction

In December 2008, I was invited to give a keynote address at the ‘ALT-JTE¹ Mid-Year Seminar’ for primary and secondary school teachers in Kumamoto. During that speech, it was pointed out that approaches to teacher development (TD) have been shifting. This shift in research on teaching reflected what teachers knew all along: ‘classrooms are complex teaching and learning environments, and each teaching and learning situation is uniquely influenced by various contexts at the local school and classroom levels’. Therefore, top-down, single reality approaches to TD are too limited. There is not a ‘one-size-fits all’ approach to TD. With this in mind, two particular teacher development models, *Action Research* (AR) from America and *Lesson Study* (*Jugyokenkyu*) from Japan have been popularized across borders. These models are gaining popularity in cross-cultural education transfer because they involve teachers as researchers in their local schools at classroom levels. In this report, I will 1) discuss the idea that classrooms are complex teaching and learning environments that require bottom-up teacher development models, and 2) talk about recent interest in Action Research and

Lesson Study as a way to deal with complexities of the classroom and improve on teacher development.

2. Classrooms are complex teaching and learning environments

We can no longer assume classrooms operate in a predictable, machine-like way. The scientific model of input (cause--*if teachers do X*) and output (effect--*then Y will happen in any classroom*) is ineffective. In TD, this means that the imitative, single reality model of ‘look at the video of these *good* teachers and do the same thing’ cannot work. It cannot work because 1) research has shown that it is unrealistic to completely measure what a *good* teacher actually *is* or *does* (Allwright, 1988 ; Politizer, 1970), and 2) if what happens in classrooms is complex and hard to predict (because of many differing realities), then it is unrealistic to suggest an all-purpose good teaching model for teachers to follow, especially if the model assumes that there is a single reality for all classrooms.

2.1 The Pennsylvania Project: A failure to understand complexity in the classroom

In literature reviews of classroom research, the Pennsylvania Project is often cited as a failed attempt by researchers who set out to control and predict standardized outcomes of teaching based on a designed teaching method (e.g. Allwright, 1988 ; Ellis, 1990 ; Smith, 1970). Researchers believed they could compare the audiolingual method with the traditional method grounded in grammar and translation. They confidently felt that the audiolingual method, based on a highly touted (at the time) technological approach to teaching and learning, would far outperform the traditional approach to teaching, as outcomes would significantly show learner success rates. The audiolingual method used state of the art technology of its time, the *language lab*, a schoolroom equipped with audio equipment so that students may hear and practice speaking a language they are learning. The recorded content consisted of repetitive drills where students could recite learned phrases that a teacher had previously introduced in the classroom. Using a behavioral approach, the teacher was asked to purely follow a prescribed method by leading students through drills much like a bandleader leading an orchestra. As a matter of fact, the individual characteristics of the teacher were not considered in the study. Grounded in the rigors of science, the method was designed to be ‘teacher proof’ (Ellis, 1990). That is, teachers were regulated to ‘deliverers’ of the method. Teachers’ individual teaching styles did not matter as long as they followed the prescribed method. This scientific approach to teaching was a way to control the ‘messy’ variable of dealing with the ‘idiosyncrasies’ of what individual teachers might bring into the teaching processes.

However, the findings of the study were inconclusive. Researchers had to admit they failed to provide conclusive findings because of the difficulty in controlling the variables (see Smith, 1970, as cited in Allwright, 1988). Simply put, the study was flawed from the start because teachers were divided into two groups and were expected to purely teach from one method so that a comparative analysis could be done. One group was asked to teach from a traditional approach, and those of the other group were trained to teach from the audiolingual method approach. Unfortunately, at least for the researchers in the project, they found that it was unrealistic to expect teachers to purely base their instruction on one prescribed method. There was much overlap. Ellis writes

(1990, p.11),

There are inherent problems in studies that try to treat the real-life classroom situation as if it were a psychologist's laboratory. One of the main problems is that there can be no certainty the instructions given to the teachers are actually carried out by them. In other words, there is no guarantee that the 'treatments' really are different. Methods that are distinct on paper may not be so in practice.

Researchers ignored complex and influential variables, such as what the teachers or learners bring to a learning environment that are representative of their beliefs, attitudes and preferences for teaching and learning. Thus, the Pennsylvania Project had to be abandoned. Nonetheless, the inconclusively of the findings had some significance. One of the effects was that researchers began to understand that studies based on a single approach that could be applicable to teaching on a wide scale might not be the right way to go (Ellis, 1990). Allwright (1988) suggests the fact that the eventual rejection of applying a prescribed method as an appropriate goal to learning about teaching put in motion the view that small-scale observations of what goes on in the classroom were needed. By redirecting their focus to taking a small-scale look at individual classrooms, researchers began to recognize that classroom behaviours and environments are uniquely complex and diverse.

2.2 Complexity of classrooms : A Postmethod Condition

Bowers (1990) observed what goes on in a classroom is far too complex to expect that a singular teaching and learning method could be superimposed. He writes (p. 134),

How can we say that a method 'exists' or 'is followed' when there are so many variables, observed and unobserved, influencing its every application by the teacher and its every effect upon the learner, creating bifurcations and choice at every point?

Hodge (2003) writes that because of the complex and chaotic nature of classrooms, traditional science paradigms are limited in classroom research "where prediction and control are inherently difficult or impossible" (p. 9). He posits that where traditional linear science works well is in situations when phenomena are close to an equilibrium state. On the other hand, "far from equilibrium, near the edge of chaos, linear science breaks down, and new kinds of [unpredictable] phenomena appear" (p. 10). He writes (pp. 10-11),

But the world of second language users and the contexts and classrooms they must live and thrive or suffer in are inherently chaotic, and applications to the world from linguistics and classic social research [using traditional science approaches] will not only be merely approximate, as all classroom practitioners recognize. They will be meaningless or irrelevant.

Similarly, Finch (2004,) argues that researchers and teachers can better understand the processes and phenomena of a learning environment if they incorporate the view that classrooms are made up of complex

systems. He underscores the importance of looking at classrooms from a systems perspective (p. 28),

From this viewpoint, each learner is an independent, many faceted system developing and changing through contact with other systems, and resulting in a unique collection of needs, intelligences, learning references, learning styles, beliefs, perceptions and attitudes. The teacher is also a system of wants, needs, past experiences, social skills, professional skills and emotions (affective factors).

Taking the above views further, the many faceted sets of subsystems that occupy classrooms are further embedded in larger contexts. For example, Finch writes (p. 28),

We find that the classroom is part of the school system, and that the teacher is the interface between this higher order system and his/her pupils. Finally, the school is a subsystem of the education system, with the school principal interfacing between ministerial demands and teaching practicalities.

The above discussion provides support for a premise taken in this study and has implications for approaches taken in TD. The argument made is that classrooms are complex teaching and learning environments, and that, a linear cause and effect approach to TD is limited in scope. There are simply too many variables (influenced by a set of subsystems) which emerge from learners, teachers and contexts that cannot accommodate a predetermined, one size fits all methodological framework that can be applied to TD. Furthermore, the literature cited above strongly asserts that alternative paradigms outside of traditional science approaches are needed in order to understand what happens inside second language classrooms. Since the 1990s, second language researchers (e.g., Allwright & Bailey, 1994 ; Burns, 1992 ; 1996 ; Johnson, 1994 ; Richards, 1998 ; Woods, 1996) have highlighted classrooms as complex environments and have contributed much to our understandings on TD. Their research is also fruitful because they allowed teachers' (pre-service and in-service) voices to be heard and to make an important claim that TD will work when it is done in a bottom-up manner, often by getting teachers, individually and collaboratively, to explore aspects of the complexities of their classroom practices that underpin teaching

The discussion to this point has shown that presently in TD there is a need for teacher education models that take into account the complexities teachers face. Complexities in the classroom reveal that there is no single reality of teaching that a teacher educator (TE) can base their TD models on. There are myriad challenges teachers are confronted with on a daily basis. Under these complex and sometimes chaotic conditions, teachers themselves are in the best positions to identify these problems and to discover ways to solve them. They have to be given opportunities to take on an ownership role in their development. To be able to bring to the surface the problems or conflicts they are facing in their classroom. In turn, a TE can play a role in helping teachers identify problems by making the 'implicit, explicit'. Teachers need opportunities to uncover and reflect on their teaching practices that are done subconsciously or routinely, but never brought to the surface and reflected on. By exploring their own teaching, teachers can begin the process of understanding why they are doing what they

do. TEs can come up with appropriate workshop-related activities that trigger teachers' interest to work on their development, to prioritize aspects of their instruction they need to work on, and to keep them engaged through activities that can keep them in the development process (see following sections on Action Research and Lesson Study)

In summary, a single reality TD approach is limited because it is superficial and provides a limited understanding of teaching that lightly touches the surface only. In superficial, formal TD sessions, teachers privately know that the hidden aspects of teaching are not fully discussed. As a junior high teacher in Japan once remarked after attending an officially sponsored seminar on introducing the new curriculum policy that was expected to be carried out in English classrooms (Laskowski, 2007),

What they say in the guidelines has no connection with what is happening in the classroom. I think they are made from people in higher positions who do not understand the realities of the classroom. I want to say to those [Ministry of Education] people that they should come to school and watch. They have to know the reality (p.163).

The above comments from the teacher indicate that teachers know classrooms are made up of complex systems, and that TEs must relate to the particular complexities of each teacher for any TD model to be effective. Teachers need to learn and share experiences from their own classrooms and to develop teaching methods that are suitable for the particular realities they face. TEs must take these concerns in mind and apply TD models that appropriate those concerns. Action Research and Lesson Study have been suggested as effective TD approaches to help teachers in this post-method era.

3. Action Research : Teacher as a researcher

Action Research is "The study of a social situation, involving the participants themselves as researchers, with a view to improving the quality of action within it." Bridget Somekh (1989)

Kurt Lewin, then a professor at MIT, first invented the term "action research" around 1944. He described *Action Research* as comparing conditions and effects of various forms of social action and research leading to social action that uses a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action (Burns, 1999). Lewin (1946, p.42) wrote, "We should consider action, research and training as a triangle that should be kept together for the sake of any of its corners". He proposed his development model as a grassroots bottom-up model that socially cohesive groups could use to 1) focus on a problem (identify) ; 2) research their own problems (*planning*) in their communities; 3) carry out the plan (*action*) ; 4) study the results for *future planning and action*, and in the last stage 5) share findings for future changes (*reporting*). It should be noted that AR was intended to be a collaborative effort. Thus, the AR model offered a structural framework that empowered those at the lower end of society, at the 'street level', so to

speak, to join together and take actions in their local communities about problems relevant to their needs.

AR became popular in American education in the 1980s. One reason was that the model appealed to teachers who at the classroom level felt far removed from policies that were formed at the top, and handed down for them to follow. In a top-down, bureaucratic hierarchy of education, it is the teachers who reside at the lower end. In other words, many policies are implemented by “street level bureaucrats”, and others who typically work at much lower levels in the federal system than those who wrote the policies (Lipsky, 1980). However, the degree to how much those policies get implemented depends on how realistic they appear to those at the street level, or at the classroom level in the case of teachers. Again Lipsky (1980) points out that studies on street level bureaucrats like teachers, police officers, firefighters and case workers show that they hold considerable amount of sway (based on their interpretations) on how much of the policy gets implemented.

In America, the top-down policy formation and teacher development programs, formed at the top resulted in a widening gap between what researchers had to say about teaching and what teachers at the local school levels were experiencing. The latter began to doubt the findings of educational researchers because what the former claimed is or should be happening in classrooms did not match teachers’ realities of their classrooms. Thus, AR was appealing to practitioners. Like Lewin’s intention to use AR for social activism, it empowered teachers to gain control of their own teaching and do research on their own particular teaching situations. An AR cycle is presented in Figure 1. below:

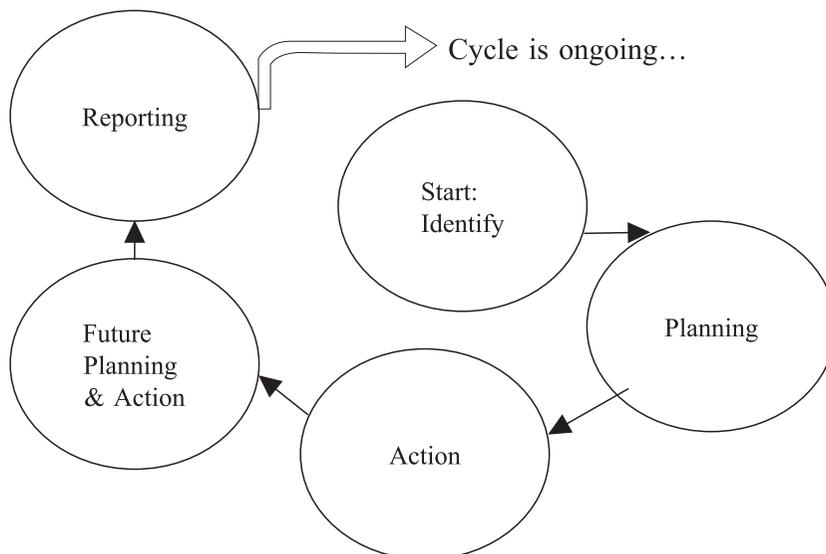


Figure 1. Action Research Cycle

The AR cycle suggests a cyclical and evolving TD process that allows the teacher to make ‘the implicit, explicit’ by looking, thinking and acting on instructional concerns. Moreover, the cycle reflects an ongoing TD approach. Teaching is an ever-changing, open-ended and dynamic process. After taking the first action, the

teacher is given opportunities to reflect on that action, and then to make future plans and take further action. An important component of the model is reporting. Freeman writes that many of the best teaching ideas and observations get lost during coffee chats (1996). They are mentioned in a casual way to one or two teachers and then whatever was discussed is left there and evaporates in the room when the break is over. If teachers are truly thought to be teacher-researchers, then they need to organize their thoughts presenting their findings in written or oral forms. Thus, presenting findings will contribute to a practical teaching database from which other teachers can draw on.

What does an AR cycle look like in the classroom? The following presents the cycle with problem solving examples in italics:

1. Identify a problem

My students don't use enough English.

2. Decide how to overcome it (Planning Hypothesis).

If I use more classroom English (CRE), then I will create an 'atmosphere' of English and they will be encouraged to use more English.

3. Take action by doing something to overcome the problem (Action).

I will use more CRE when I give directions, feedback, and interact with students.

4. Study the results for future planning and action (Do).

I needed to be reminded of CRE phrases, so if I make a list of phrases on note cards, then I can be reminded to use them in class at appropriate times.

5. Share results of study with other teachers for TD (Report)

I think I will write about what I did in the local Prefecture Junior high School English Education Magazine for other teachers to see.

As we can see, AR reflects an approach that does not require outside 'experts' to tell practitioners what should be happening in their classrooms and what steps should be taken to resolve the problems. However, researchers and senior teachers can play a much-needed facilitative role in helping teachers at any stage of the AR cycle. Actually, the role of researchers and experienced teachers acting as mentors is precisely what Burns feels is needed in collaborative AR (1999). Thus, aside from the participation of facilitators, an AR model reflects a *look, think* and *do* approach carried out by the teacher that lets her take control of issues that pertain to her particular realities and then to explore ways to resolve those issues. Carr and Kemmis (1986, p.162) define AR as follows:

Action Research is a form of self-reflective enquiry undertaken by the participants [teachers, students or principals, for example] in social [including educational] situations in order to improve the rationality and justice of [a] their own social or educational practices, [b] their understanding of these practices, and [c] the situations [and institutions] in which these practices are carried out.

The fact that AR is a ‘self-reflective enquiry’ should not be misinterpreted to imply that AR is non-rigorous and subjective, and therefore not a legitimate research method. Nunan (1992) points out that the steps involved in AR are systematic and rigorous: therefore adhering to the standards of research. For example, a problem or puzzling research question/issue is identified, a planning hypothesis is formed, data is collected, analyzed and outcomes are reported. These steps all reflect a standard research approach.

3.1 AR: transitioning from a collaborative to an individual TD model

The steps and examples that depict an AR cycle in the above section imply a TD model that is largely represented as an individual process whereby a teacher conducts research on her own classrooms. Interestingly, AR, as we saw in Lewin above, was originally intended to be a collaborative effort. Burns (1999) writes, “He [Lewin] saw action research as a spiraling process of reflection and enquiry with the potential to become emancipatory and empowering because of its group structure” (p.27). However, in educational research this has not been the case. The interpretation of AR has been one of an individual effort departing from Lewin’s original collaborative focus. Again we turn to Burns (1999), who observes,

This interpretation is unfortunate as it reduces the possibility that organizational constraints on good teaching practice can be changed, as they are more likely to be by collective research. It also runs counter to the cooperative principles which are key elements of teaching practices in learner-centred programs and the growing trend toward collaborative and team teaching approaches (p.27).

In the above, Burns makes two important points about the power of collaboration. First, in order to affect change with larger powers, such as educational institutions it is necessary for teachers to work together. Forming a group structure further empowers the voices of its members. Second, recent trends in education have been toward cooperative learning, a learner-centered approach in which students work together in various tasks to solve problems. In short, following Vygotsky (1978), social interaction leads to learning development. This maxim can also be applied to teacher education. Teachers working together collectively can lead to effective TD.

Unfortunately, we have to acknowledge that AR has become an individual enterprise in the West. Perhaps, the social or humanistic aspect of reflection and group understanding disappeared from AR as it came under criticism during the 60s and 70s when positivistic, scientific approaches to research were dominant. Burns (1999) writes that during this period, AR became technical and inflexible as researchers tried to superimpose principles of scientific inquiry on it. Whatever happened, the result was that the social structure or collaborative

principle that Lewin believed to be important to AR was not applied. However, the nature of Lesson Study reflecting the roots of the educational culture of Japan represents a collective or communal approach. The core principle of Lesson Study is teacher collaboration, and this may be the reason why it has found its way in the USA.

4. Lesson Study and its growing roots in the USA

Lesson Study is a professional development process that Japanese teachers engage in to systematically examine their practice, with the goal of becoming more effective.

Lesson Study Research Group (2008)

In the 1990s AR was introduced in Japan as way for Japanese teachers to involve themselves in their own TD. Interestingly, at the same time Lesson Study (LS) was being introduced to American teachers as an effective TD approach. A short history of LS is provided by the following Macomb Intermediate School District website in Michigan:

Lesson Study originated in Japan as a grassroots educational movement to implement child-centered teaching on a wide-scale basis. It is the most common form of teacher professional development in Japan and was “imported” to the United States by Makoto Yoshida as a subject for his dissertation in the early 1990’s. Yoshida’s work so interested his advisor, James Stigler, that he established a team to analyze differences in classroom practice between the U.S. and Canada. Concurrently, educator Catherine Lewis became interested in Lesson Study and published the first scholarly article on Lesson Study in 1998. In 1999, Stigler and colleague James Hiebert published, *The Teaching Gap*; Yoshida completed his dissertation and launched the first collaboratively-guided lesson study group at Paterson School #2 in New Jersey. Since then, Lesson Study has spread to 2300 teachers in 335 schools in 32 states and continues to grow with every passing year.

In Japan, LS usually is implemented within the school as a school-based professional development program (Yoshida, 1999), which is fully supported and sometimes required by the local board of education. However, in America it has been a volunteer grass roots effort by teachers who collaborate with practitioners of other schools. One reason for this approach is that there is no existing mechanism or teacher culture framework to support a school-based lesson-study group in the States. Many teachers do not have experience working with other teachers in the same school as a group to accomplish a shared goal. Therefore, according to the ‘Chicago Lesson Study Group’ website to further encourage teachers to participate in LS, a cross-school model was found to be more appropriate in the U.S. setting. The group points out that “between its inception [October, 2002] and June 2007, [the group] conducted 6 lesson study conferences and 13 public research lessons”

Thus, the pioneering work of Yoshida and organizations like the Chicago Group took hold in US schools

because of LS's grassroots and collaborative nature. The following is a definition for LS according to their website in America:

Lesson Study, the primary form of professional development in Japan, is the critical systemic feature that enables Japanese elementary school teachers to improve classroom instruction. In Lesson Study, teachers work collaboratively to : 1) formulate long-term goals for student learning and development ; 2) plan, conduct, and observe a research lesson designed to bring these long-term goals to life as well as to teach a particular academic topic ; 3) carefully observe student learning, engagement, and behavior during the lesson; and 4) discuss and revise the lesson and the approach to instruction based on these observations. Discussion following the lesson is focused around the student-learning data collected during the observation. The process gives teachers opportunities to reflect on their teaching and student learning.

As we can see, the *Jugyokenkyu* approach to TD, which has been in place for over a hundred years in Japan, shares some similarities with AR. The approaches are similar because teachers do research on their own classes, and they do so in a similar systematic way. In Lesson Study, the cycle is described as Plan-Do-Check-Act (PDCA).

An indication of the widespread popularity of LS can be seen in the Little Rock Arkansas Lesson Study website that offers a description of the LS cycle. An example of a typical cycle of a research lesson is presented:

Teachers in the Little Rock School District follow the Japanese Lesson Study Model as defined by Catherine C. Lewis in her book entitled, *Lesson Study : A Handbook of Teacher-Led Instructional Change* (2002). This cycle is described below.

- 1. Goal-Setting and Planning :** Teachers form a lesson study team [3-6 people with similar teaching interests]. They identify long-term and short-term goals for their students. These goals are brought to life in collaborative planning sessions in which teachers develop a detailed lesson plan based on a core unit of study. This detailed lesson plan is called the "Research Lesson".
- 2. Implement Research Lesson :** A member of the lesson study team volunteers to implement the collectively planned research lesson while the rest of the team carefully observes students and gather data.
- 3. Debrief the Lesson :** The lesson study team meets to discuss the data collected on students.
- 4. Revise the Lesson :** The team revises the lesson based upon the data collected.
- 5. Implement Revised Lesson :** The revised lesson is implemented with a different set of students. Members of the lesson study team and invited outside observers again collect data on students.

6. Debrief the Revised Lesson : The lesson study team and outside observers discuss the data and what they learned about how students respond to selected strategies and materials.

7. Final Report : The lesson study team writes a summary of what was learned about student thinking through the research lesson. This information is shared with others and contributes to the collective understanding of how our students learn.

A key element of the above collaboration is the research lesson depicted above. That is, the focus is on a particular lesson. A group of teachers prepare a lesson. The lesson is observed by a selected study group, which is often composed of other practitioners. The lesson is analyzed and feedback is given after the lesson during a discussion session. Through participating in the lesson, the teachers can focus more attentively on the ways the lesson evolves in the class. In doing so, they gather data on the various stages of their lesson. The data is then compared with the observations and analyses of the study group observers and later discussed in the feedback debriefing session. During this stage, reflections and discussions allow the participating teachers to make sense of their own teaching, challenge their own beliefs about teaching and learning and gain insights from professional collaborative support (Takahashi & Yoshida, 2004).

4.1 Differing roles of AR and LS, and between LS in the U.S and Japan

Both the AR and LS models involve teachers doing research on their own classes in a *look, think, do, reflect* and *revise* approach. The approaches of these models have gained in popularity because they offer TD mechanisms for teachers that help them to adjust to the complexities and particular issues of their classrooms that researchers have failed to take into account. However, there are salient differences in the models. For example, LS focuses exclusively on the ‘lesson’. A *lesson* represents a teaching and learning episode. Starting at a beginning and working toward a final teaching and learning objective goal at the end. The lesson therefore can be thought of as a unit of analysis or an object of study. Thus, the LS model is grounded in studying a particular lesson whereas AR is more applicable to macro-treatments of the teaching and learning process. Another key difference is that in Japan, the focus of LS is on long-term goals, which often are *zenkyoiku* (whole-person) goals of developing student character. Moreover, the LS approach is more collaborative and less individualized because teachers work together in their schools to solve issues.

A notable difference between LS in Japan and the U.S. is that the model is deeply rooted in the educational culture of Japan and supported (and often required) by the local board of education. This tradition and widespread formal support of LS by educational authorities does not exist in the U.S. Therefore, supporters of LS in America are working from the ground up. They especially believe that the long-term nature and collaboration are what is needed and what teachers are looking for in TD. At this stage they are focused on building a culture for LS through volunteer grassroots interest in the model. According to Makoto Yoshida, the long-term nature and its tested implementation in Japan over a century provide a much needed stable form of TD, which has been highly volatile and ever-changing in the States (personal communication, September, 2008).

At the outset of the article, it was mentioned that TD methods in the States are in a constant state of flux, changing with new innovations depending on the ‘flavor of the day’, i.e. outcomes of a hugely funded research project-- only to become out of fashion after a new popular study emerges. On the other hand, LS has been slowly weaving its way into the fabric of American education. The challenge, as Yoshida claims, is to be patient (personal communication, September, 2008). Right now there is not much of a history or culture of LS in American schooling. He believes the long-term nature of LS requires time for it to be accepted by schools and teachers. Yoshida comments that right now in American education the introduction of LS is like a “jump start” approach because “there is no existing cultural mechanism [for LS]. Developing a culture where teachers can learn takes time” (personal communication, September, 2008). LS will take hold in the American education culture, as teachers become familiar with it either by hearing about it from other teachers, encountering it at workshops or conferences, or reading about it on the Internet or in the research literature.

Through applying an Asian approach of patience and a methodical Japanese *bochi-bochi* (step by step) implementation, Yoshida believes LS will become part of an established TD model in the educational culture of America. The spread of LS in America is helped by Akihiko Takahashi, a Professor of Elementary Mathematics of DePaul University in Chicago, who hosts the annual LS conference in March; Tad Watanabe, is a Professor of Mathematics (Education) at Kennesaw State University in Georgia, and Catherine Lewis, Professor of Mills College, California and author of an award winning book on Japanese education (1995), and several articles on LS (e.g. 2000; 2002).

This study presents LS as an appropriate method of TD. For teachers, LS is applicable to their concerns. For example, the growing complexities that surround classrooms, dealing with ever changing educational policies and generations of learners that bring with them new challenges and demands require a bottom-up TD approach that allows teachers to research their own particular situations. However, LS has its limitations.

4.2 Limitations of Lesson Study

One significant limitation of LS is that in America, it is mostly used in elementary schools for Math and somewhat for Science subjects. Most likely, the model has not spread to other subject areas because of America’s major focus on trying to improve students’ math scores. Recognizing this need, the Japanese pioneers of LS mentioned above have introduced LS mainly through focusing on Math education, something Japanese students score well in.

Another limitation of LS is that in both countries, the collaborative nature of LS disappears in secondary schooling. Perhaps, this occurs because in secondary schools in both junior and senior high schools individualized subject teaching is introduced in their curricula, respectively. Consequently, teaching becomes more individualized at that level. On the hand, in elementary school, more of a holistic environment exists. Teachers have to deal with more than one subject in addition to homeroom duties. Therefore, collaborative TD

suits the teacher culture, as elementary school teaching is less autonomous and more collective. However, this assumption needs to be researched more.

There are also cultural constraints that impose barriers to effectively implementing LS. In the U.S. it was pointed out that teaching has been thought to be an individual undertaking. Yoshida observes that teaching has been regarded as a specialized talent. That is, in the States there is a belief that those who become teachers have a special natural talent for the profession. The ‘you either have it or you don’t’ belief that exists in the teaching culture of the U.S. weakens support for the collaboration in TD. On the one hand, in Japan the communal nature and harmonious view of its culture to seek identity in groups through working together harmoniously produces a cultural acceptance of collaboration in TD. On the other hand, the hierarchical structure of Japanese society that maintains harmony through following social roles of giving way to authority may cause limitations in how open the reflective or feedback sessions of the LS cycle can be. This will be addressed in the next section.

4.3 Future implications for AR and LS

Although there are differences in the AR and LS models, the similarity of the approaches suggest that components of the models could be integrated across borders to produce positive effects. In an article titled, *Integrating mentoring and action research into Kounai-ken : teachers' professional development with Japanese abilities*, Fletcher (2005) suggests the possibilities of merging the two approaches after observing junior high school classes in Niigata and Tokyo. Fletcher was quite impressed with the already established *Jugyokenkyu* system in Japan. However, she wondered about the so-called open-discussion phase at the end of the cycle, especially about the hesitation of teachers to speak out in front of authorities. She writes,

However the culture of waiting for a party of experts to pronounce on the merits and weaknesses of a lesson rather than engaging in democratic debate may be an opportunity as yet not fully exploited for the growth of new knowledge about pedagogy (p.1).

Perhaps, AR in Japan will allow more individualization that will help teachers to break through traditional *tatemaie* (a social etiquette sometimes referred to as a ‘facade’ that is required according to one's position and circumstances) barriers that prevent true open, *honne* (one’s direct or true feelings) discussions in front of invited authorities or senior staff members. On the other hand, LS in America may help teachers learn to be more collaborative by working together to improve on their teaching, and at the same time take more interest in the long-term holistic, whole-person character building goals of their students.

The two models have implications for not only primary and secondary instruction, but also can play a productive role for TD in tertiary education. As mentioned, in Japan, LS is implemented in primary and secondary schooling. In America, it is mostly introduced in elementary schools and sporadically in secondary schooling. However, in the States and in Japan the atmosphere seems conducive for the application of LS at the college level. In difficult economic times, universities are competing for finances and students. Universities

throughout the world are competing for an increase in the number of international students. In response to the needs of globalized education, universities such as in Japan and America are realizing that their teachers also need to be involved in TD (in Japanese universities it is often called faculty development or simply FD) in order to attract foreign students and meet the specialized teaching skills they require.

In this environment, LS like AR represents a structured research approach to TD for college teachers. In a LS website for college teachers, Cerbin and Kopp (2008) posit that although the idea of LS seems simple, it is a complex process. LS involves collaborative goal setting, vigilant data collection and analysis on classroom learning and expectations to report the outcomes. The sophisticated nature of LS is appealing to college level teachers. In short, LS reflects scholarly inquiry into teaching and learning, and the final products--the outcomes of LS-- are appropriate for professional presentations and publications.

The suggestion that TD models can be applicable to tertiary FD is timely as mentioned. University teachers cannot escape from the same ongoing changes and challenges that they will confront in their instruction as primary and secondary school teachers face. Future educational demands are coming toward us at remarkable speeds. Keeping up with the dynamic process of teaching and learning and the new educational demands that each generation of learners bring with them, will require further flexibility and development by teachers to effectively deliver information and engage students in their courses. Applying AR and LS cycles in TD may provide innovatively academic and practical ways to better our FD goals.

5. Conclusion

This paper has identified and discussed two approaches to TD, LS from Japan and AR from the U.S. The two TD models were deemed to be appropriate to meet the growing complexities of classroom teaching and learning. The discussion showed why classrooms are complex. The teacher must face a barrage of unpredictable variables, such as differing systems of learning that involve subsystems within each individual learner. When entering the classroom, learners bring varying compilations of needs, learning styles, aptitudes, beliefs and attitudes. The teacher also represents a system of needs within each teacher that are influenced by subsystems composed of wants, past experiences, personality, interpersonal skills, professional abilities and affective or emotional factors. Finally, the particular teaching practicalities of individual teachers and learners are interfaced with factors stemming from the demands of local schools, such as meeting administration and other bureaucratic requirements. In this environment 'outsider' TE experts that present standardized, one-size-fits-all prescriptive approaches to teacher education of what should be happening in classrooms have created a credibility gap with practitioners.

Top-down TD models cannot be effective if they do not take into account particular realities teachers face. The classroom is a complex environment that requires teachers to research and therefore develop understandings of the particular realities they face. In short, teachers need to be involved in their TD from a

bottom-up perspective from identifying conflicts and problems to finding solutions to those issues. The role of the outside researcher changes from the all knowing 'sage on the stage' to a 'guide on the side', a facilitator who can help the teacher at various stages of development. AR and LS have built into their models cycles that address the contemporary professional TD needs of teachers. The models represent a bottom-up approach that requires teachers to explore their own classrooms by looking, thinking, acting and discussing. AR provides a macro and individualized approach to TD. LS offers a micro and collaborative approach that focuses on TD by grounding explorations and improvements to the lesson. Both models follow a rigorous research structure of a necessary cycle of steps.

Limitations of the models were highlighted. Over the years the collaborative component of AR has disappeared. On the other hand, LS seems to be mainly collaborative in elementary school, but its collaborative nature is not found much in secondary schooling. In addition, LS in the U.S. is mostly restricted to Math subjects and is not fully supported by education administrations. Although LS in Japan is firmly rooted in the teaching tradition within each school, the U.S. does not have a strong teacher culture base for L.S. ; presently it is done on a volunteer cross-school basis. Moreover, in the low-context culture of the West, feedback sessions of teachers to respond to observers can be much more open through interactive dialogs, where opinions are freely stated. On the other hand, in Japan, the high context nature of the culture considering observers' age and status may dampen open interactions among participating teachers and observers. Nonetheless, the individualized nature of AR and the collaborative and long-range goals of LS can be integrated. A suggestion of the study is that the features of both models can be integrated to form necessary improvements. The models are also suggested for college TD or FD as way to meet the growing needs of instruction due to globalization of tertiary education.

In sum, openness to future cross-border educational sharing of ideas (with equal respect) to improve TD may truly be one of the most powerful advantages and contributions of AR from the West and LS from the East to meet the globalization needs of educational systems.

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