

Video conferencing by student teachers: Does it make any difference?

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Background: During a nine-week teaching practice, 20 student teachers spent about 1.5 hours each week videoconferencing with one university faculty member and five student teachers from five different schools, while the other 22 student teachers did not have any videoconferences. Both groups were encouraged to make conscious effort in talking to school personnel and other student teachers about teaching practice related issues.

Aims: The study examined the impact of student teachers' talk on their reported experience of student teaching and self-perceived teaching competencies.

Sample: The participants were 44 student teachers who underwent a nine-week teaching practice in different primary schools.

Method: The questionnaire was administered to the 44 student teachers two days before they reported to their respective teaching practice schools and two days after they completed their nine-week teaching practice. The return rate was about 80 percent. Out of 44 sets of questionnaires, a total of 35 pre and post questionnaires were valid and used for the analysis.

Results: The findings suggested that the student teachers who had weekly videoconference reported more positive experience of their teaching practice. Self-reported teaching competencies were higher in the post teaching practice questionnaire for both groups and no significant differences were found between the two groups.

Conclusion: The value-added potential of videoconferencing as a technology lies in its possibility of providing new and alternative experiences for student teachers to engage in conversations and collaborative reflection. As videoconferencing removes the barriers of time and space that prevented student teachers from interacting with peers outside their teaching practice schools.

Keywords: preservice teacher education, teaching practice, videoconference

在實習過程中使用電腦視屏會議——對受訓教師的實習經驗及他們對本身教學能力的評估有影響嗎？

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背景：44名正在接受培訓的教師用九周的時間在不同的小學進行實習，其中20名參與了每周一次一個半小時的視屏會議，另外24名則沒有。參加每周視屏會議的包括一名教師學院的教授及五名在其它小學進行實習的受訓教師。教師學院鼓勵所有的實習教師盡量多與他們所在學校的教師交談探討實習中所遇到的問題。

目的：本文分析受訓教師實習期間與其他教師的交談，並探討其是否對受訓教師實習經驗及他們對本身教學能力評估產生影響。

調查對象：44名在不同小學進行九周實習的受訓教師。

調查方法：44名受訓教師分別在實習開始前兩天及實習結束後一天回答了同一份調查問卷。問卷收回率是百分之八十。總共三十五份實習前及實習後問卷用來做分析。

調查結果：調查發現參加每周視屏會議的實習教師比沒有參加視屏會議的實習教師更高評估他們的實習經驗。實習結束後,所有的受訓教師對本身教學能力的評估都有提高,是否參加每周一次的視屏會議並沒有影響他們對本身教學能力的評估。

總結：視屏會議排除了實習教師因為時間和距離不能與在其它學校實習的同事交流的障礙,為實習教師互相交留經驗提供了新的途徑。

關鍵詞：受訓教師, 實習, 視屏會議

Student teaching practice is an important stage in the professional development of teachers. It provides an opportunity for preservice teachers to apply the knowledge and theories learned on campus to the real classroom. Student teaching has been called the most challenging, rewarding, and critical stage of teacher education (Goethals & Howard, 2000) and it is generally agreed that the student teaching experience is the key for teacher preparation programs (Guyton & McIntyre, 1990). Because it is so important, teaching practice should be conducted in such a way that student teachers can continuously learn new knowledge and skills and develop professionally.

THEORETICAL FRAMEWORK

Teaching is a profession where practitioners enjoy a high degree of autonomy in classrooms and often work in isolation. However, the complexity of teaching demands that teachers work together, collectively examining new conceptions of teaching and learning and engaging in professional growth. Among the justifications for teacher collaboration is a compelling one offered by Shulman (1989):

Teachers' collegiality and collaboration are not important merely for the improvement of morale and teacher satisfaction (which always sound like a lame argument in favor of satisfied teachers, regardless of whether they succeed in teaching kids); they are absolutely necessary if teaching is to be of highest order and thus compatible with the standards of excellence demanded by the recent

reform (p.167).

When teachers collectively make inquiries about their practices, they talk to each other about their concerns, making sense of taken-for-granted assumptions and reaching collective understanding or decisions. Their reflection becomes a joint responsibility that encourages them to work collectively toward shared understanding and commitments (Kruse, Louis & Bryke, 1995). When teachers investigate and critically examine their practices in a continuous way, their activities constitute the defining feature of a learning community, that is participants' collaborative endeavors and their shared norms, values and practices (Van Manen & Barley, 1984). As pointed out by Wenger (1998), the primary focus of a learning community is on learning as social participation. By discussing issues related to teaching, novice teachers can "offer each other moral support, intellectual/academic help, and solid friendship" (Noddings, 1992, p. 179), and they may find resolutions to some of their dilemmas (Thomas, Wineburg, Grossman, Myhre & Woolworth, 1998). Only when teachers work together as learners can they come to understand first-hand the sort of learning and teaching entailed by complex disciplinary reforms that are designed for all children (Darling-Hammond, 1994).

In a teacher learning community, teachers use collaborative conversations as a tool for learning to teach (Hollingsworth, 1994) and as a medium for understanding experiences within the classroom and a stimulus toward "transformative social action"

(Lather, 1991, p. 72). Through conversations, teachers make sense of what they already know, negotiate ideas and reach new understanding. Learning occurs through conversations about a subject that make knowledge explicit, and these conversations can be general discussions, focus on a subject, or talk about learning itself (Pask, 1975). Learning is a reflective dialogical practice in conversational learning (Cunliffe, 2002; Shotter, 1993). In an attempt to make sense of experience, individuals learn not only via internal but also external dialogues. By internal reflective dialogue, individuals construct self-managed, meaningful and personal learning. At this level, reflective skills are used in a conversational way to come up with new models of personal understanding. This may imply “reflection-in-action” (Schön, 1987). By external reflective dialogue, individuals share knowledge with others and meaning is socially negotiated, which may imply “reflection-after-action” (Schön, 1987). Regardless of the differences in the perceptions constructed by individuals, knowledge is shared, meaning is mediated and negotiated via social networks, and new understandings are developed. As conversationalists, student teachers can be reflective thinkers who constantly construct their understanding and also share and learn from social interactions within their specific socio-cultural settings.

A teacher learning community may take many forms. Some may be a handful of teachers voluntarily meeting informally (Helms, 1996). Others could be a mandated team or whole-school collaboration (Hargreaves, 1992). Still others could be a network of teachers across schools (Lieberman & McLaughlin, 1996). A teacher learning community may engage in story swapping, sharing experiences about teaching and students, and another may practice joint work that fosters interdependence as teachers work collectively to solve problems, raise questions, or engage in changing practice (Little, 1990).

Rapid development of technologies has added

new avenues for teachers to engage in conversational learning. As a method for engaging student teachers in sustained and substantive discussion, electronic discourse or electronic discussion groups and computer-mediated communication have shown promises in teacher education (Killian & Willhite, 2003). In addition to synchronized and asynchronous online discussions, learners now can also get together and discuss issues via videoconferencing. Video conferencing has shown promise for use in rural areas to provide interactions between student teachers in the field and their university supervisors (Venn, Moore, & Gunter, 2000), and for pre-service teachers to observe high school classes and discuss learning theories exhibited during the lessons (Knight, Pedersen & Peters, 2004).

BACKGROUND

At the National Institute of Education (NIE) in Singapore, teaching practice (TP) is organized under a partnership model where schools take the major responsibility of supervising student teachers’ day-to-day operation. Coordinated by a school coordinating mentor (SCM), the school principal and cooperating teachers (CTs) work as a team with university supervisors to mentor student teachers. In normal teaching practice supervision, NIE supervisors need to observe student teachers in their respective classrooms for two to three times. Prior to classroom observations, student teachers are usually required to submit their lesson plans and this may be followed by a discussion with supervisors over the telephone. On the days of observations, if time permits, immediately after the observations supervisors will have a conference with student teachers which is generally of short duration and concentrated on relatively low-level factual and prudential discourse (Sharpe, Moo, Crawford & Gopinathan, 1994). However, if supervisors need to go back to teach in the university or to another class observation, such feedback would have to be

very brief or be postponed. As a result, interactions between university supervisors and students are minimal. Often, student teachers feel isolated and lack support from the university.

As talk during student teaching is a central component in teacher reflectivity, student teachers are encouraged to engage in active discourse with school personnel and fellow student teachers. With an average of 11 hours of teaching per week (about two hours a day), student teachers should have ample time for talk with other teachers and student teachers in their teaching practice (TP) schools. The main objective of the project in discussion was to explore the feasibility of using video mediated conferencing in enhancing the teaching practice by improving the discourses between student teachers and university faculty members. It was hoped that with the help of technology and conscious encouragement of more talk, student teachers would spend more time talking to each other, thus enhancing the quality of their teaching practice experience.

Traditionally, desktop video conferencing used ISDN telephone lines. Leasing of ISDN lines was costly. Fortunately, technological developments provided us with an alternative. By the time this project started, all schools in Singapore had been provided with Asynchronous Digital Subscriber Line (ADSL) gateway access into SingaporeONE, an ATM network suitable for broadband Internet applications. SingaporeONE offered low cost user access into a system already designed to distribute video-on-demand (VOD) multimedia services and with sufficient bandwidth capable of hosting a multi-channel server. The project took advantage of the existing infrastructure in the schools and used the CU-SeeMe® software for videoconferencing.

This paper reports the findings from one cohort of the participants who used multipoint desktop video conferencing (MDVC) during their nine-week teaching practice. Its objectives were to find out (1) whether the MDVC experience helped to produce more positive experience of teaching practice; and (2) whether there were any

changes to the participants' self-perceived teaching competencies.

METHODOLOGY

This paper is based on the data collected from 44 Post Graduate Diploma in Education (PGDE) students before and after their nine-week teaching practice. PGDE students are BA/BS degree holders who undergo a one-year teacher training program to become certified teachers. Of the 44 student teachers, 20 participated in the multipoint desktop video conferencing (MDVC) project and 24 did not. For the purpose of discussion, the former is referred to as the MDVC group and the latter, the Normal group.

Once a week, student teachers in the MDVC group used multipoint desktop video conferencing (MDVC) to conference with their peers in other schools and a university faculty member who was also the researcher. Each conference group consisted of up to five participants at five different locations (schools). Each conference was scheduled for an hour and a half, of which the first 10 minutes were usually spent on adjusting the system followed by an hour's discussion on pre-arranged topics. The last 15 minutes of the conference were used for agenda-free conversations among student teachers and the university faculty member would log off at this time. Such an arrangement enabled student teachers to have some more casual conversations without the presence of a faculty member.

The first conference was used for ice breaking activities. Student teachers took this opportunity to get to know one another. It was at this initial meeting that the university faculty member introduced some protocols necessary for successful video conferencing, such as raising a thumb to mean "I can hear you loud and clear" and thumbs down to mean "I cannot hear you". Also, at this session, participants refreshed their knowledge of the CU-SeeMe® software that they had learned at a briefing prior to their teaching practice.

Once participants became comfortable with talking into the microphone and seeing themselves on the screen, the focuses of the conferences shifted to teaching related issues. In the early phase of the project, the conferences were solely on the discussions on expected teacher competencies, such as planning and developing lessons, communicating with students, and managing student behaviors (Sharpe, Hu, Crawford, Moo, Gopinathan & Wong, 2000). In these sessions, the participants shared ideas and experiences on different aspects of their teaching, such as writing instructional objectives, choosing appropriate activities, employing different instructional strategies, and the issues related to classroom management.

Subsequently, video streaming was added to real time conferences (Hu, Sharpe, Crawford, Moo & Wong, 2003). Each student teacher recorded part of their classroom teaching with the help of either a peer or their cooperating teacher (CT). The purpose of classroom video clips was to demonstrate one of the three teaching skills, (1) lesson introduction, (2) questioning and explaining, and (3) small group teaching. Student teachers then edited the digital video clips with the help of the school technical assistant. Each edited video clip ran for about three minutes and was streamed during the conferences for student teachers to view and discuss (Figure 1).

Figure 1. Discussing video clips during video conferencing.



To enrich the student teachers' experience, three curriculum subject faculty members were invited to join in the video conferences with the student teachers. Each of the three subject experts had one session with the student teachers on Mathematics, English and Science respectively. During these sessions, the participants talked about the problems encountered in teaching a specific subject and the strategies attempted. The student teachers asked the experts questions and the experts provided suggestions and sometimes print or web-based resources. As for the student teachers in the Normal group, they underwent their 9-week teaching practice as per normal.

A 47-item questionnaire was designed to assess the student teachers' perceptions of their teaching practice on two aspects, (1) overall experience of their teaching practice (23 items) and (2) self-perceived teaching competencies (24 items). Under the overall experience of teaching practice, the items were categorized into four sections, (a) interaction with university supervisor, (b) interaction with fellow student teachers, (c) personal role in a teacher learning community, and (d) overall evaluation of teaching practice. Under the self-perceived teaching competencies, these items were designed to assess the student teacher's attitudes, skills and knowledge. The wording of the pre and post questionnaire was identical except that different tenses were used. A copy of the post questionnaire is provided in Appendix 1.

The pre teaching practice questionnaire was administered to all 44 student teachers, two days before they reported to their respective teaching practice schools. The post teaching practice questionnaire was administered two days after they completed their nine-week teaching practice. Out of 44 sets of questionnaires, a total of 35 pre and post questionnaires were valid and used for the analysis, of which 20 were from the MDVC group and 15 from the Normal group. The return rate was about 80 percent. SPSS was used to analyze the data.

In addition to the questionnaire, a talk log was designed for the student teachers to record their “talk” each day. The participants were required to note down the persons whom they talked to during the day. All the student teachers also were asked to record what they had talked about, whether they had found it useful, modes used and an estimated duration (in minutes) of each conversation. To make a fair comparison, the MDVC group was asked not to include the time spent on weekly video conferences. Data collected from the talk log will be reported in a separate paper.

RESULTS

Overall Experience of Teaching Practice

The student teachers, regardless of the participation in the MDVC project, had high expectations of their teaching practice (TP). The pre-TP questionnaire showed that they expected their university supervisors to give them guidance on teaching methods, offer advice on

classroom management, provide moral support, and provide opportunities to discuss TP related issues. Similarly, they expected their fellow student teachers to provide feedback on their teaching, critically review and give guidance on their teaching methods, and offer moral support. They also had high anticipation of their roles in a teacher learning community, expecting themselves to critically review their peers' teaching methods, provide feedback and offer suggestions.

The results of the post-TP questionnaire revealed that in general the teaching practice did not meet the student teachers' expectations. Of the 23 items describing the TP experience, the post-TP questionnaire saw a drop in the mean in all the 23 items reported by both groups (Table 1). Such a finding seems to suggest that either the student teachers had false expectations of their teaching experience, or much effort is needed to make teaching practice more meaningful and fruitful for student teachers. Further studies are needed to provide more specific explanations to the finding.

Table 1: Comparison of Pre and Post Questionnaire in TP Experience

		MDVC		Normal		
		Pre	post	Pre	Post	
Supervisor	Supervisor gives guidance on teaching methods	5.68	5.05	5.87	5.33	
	Supervisor gives guidance on classroom management	5.84	4.65	5.80	5.53	
	Supervisor gives moral support	6.00	5.05	5.47	5.20	
	Supervisor provides opportunities for me to reflect my teaching	5.89	4.85	5.47	4.67	†
	Supervisor provides opportunities to discuss TP related issues	5.89	4.70	5.00	4.07	†
	Supervisor acts as a counselor	5.79	4.25	4.73	4.38	
Fellow Trainees	Fellow trainees review and give guidance on my teaching methods	5.35	4.70	4.87	3.20	†*
	Fellow trainees give me advice on classroom management	5.65	5.00	5.33	4.33	†
	Fellow trainees provide moral support	6.15	5.55	5.73	5.73	
	Fellow trainees give me ideas on teaching	5.70	5.35	5.53	4.87	†
	Fellow trainees provide me with feedback on my teaching	5.70	4.35	4.80	3.07	†*
Myself	I critically review and give my peers guidance on teaching methods	5.60	4.55	4.73	3.00	†*
	I give my peers advice on classroom management	5.60	4.70	5.00	3.80	†
	I offer my peers moral support	6.00	5.15	5.93	5.40	
	I give my peers ideas on teaching	5.85	4.90	5.60	4.07	†
	I give my peers feedback on their teaching	5.85	4.25	5.53	3.07	†*

Overall Experience	TP promotes collegiality among trainee teachers	5.75	4.90	5.73	4.13	†
	TP provides opportunities for collaborative learning among trainees	5.85	5.00	5.67	3.73	**
	TP helps develop positive attitudes towards discussing problems	5.95	5.10	5.87	4.07	†*
	TP enhances relationship between trainees and NIE supervisors	5.85	4.80	5.60	3.80	†*
	TP enhances relationship among trainees posted to different schools	5.80	5.10	5.20	3.80	†*
	TP allows me to share ideas with other trainees	6.05	5.52	5.53	4.40	†*
	TP provides opportunities to discuss problems when needed most	6.00	5.00	5.80	4.50	†

Compared with the Normal group, the MDVC group had even higher expectations for their teaching practice as it is shown in Table 1. Higher expectations could be attributed to the MDVC project briefing that took place immediately before the questionnaire was administered. The MDVC group may have been led to believe that the opportunity to participate in an organized weekly video conference would make their teaching practice especially meaningful. The anticipation was reflected in the results of the pre-TP questionnaire where the MDVC group had higher means in 22 of the 23 items. Although the MDVC group had higher means in 17 of the 23 items in the post-TP questionnaire (Table 2), their disappointment was evident. For instance, one of the objectives of the weekly video conference

was to enhance the discourse between university supervisors and student teachers. However, because the faculty members who chaired the weekly video conferences were not necessarily the supervisors of all the participants, the MDVC group members' interactions with their supervisors was more or less the same as that experienced by the Normal group.

Despite the disappointment expressed in the post-TP questionnaire, as shown in Table 2 the MDVC group obtained higher means in 17 of the 23 items in the post-TP questionnaire than the Normal group (items with †), of which significant differences were found in nine items (items with †*) ($p < 0.05$). A closer look at the nine items where the MDVC group had higher means in the post TP questionnaire revealed something encouraging.

Table 2: Differences between the MDVC and Normal groups in Post TP Questionnaire

Item	Group	N	Mean	SD	T Equal variance assumed	Sig (2-tailed)
My fellow trainees provided feedback on my teaching	MDVC	20	4.35	1.42	2.362	0.024
	NORMAL	15	3.07	1.79		
My fellow trainees critically review and gave guidance on my teaching methods	MDVC	20	4.7	1.218	2.810	0.008
	NORMAL	15	3.2	1.935		
I was able to critically review and give guidance on my peers' teaching methods	MDVC	20	4.55	1.146	3.186	0.003
	NORMAL	15	3.00	1.732		
I was able to provide feedback on my peers' teaching	MDVC	20	4.25	1.251	2.309	0.028
	NORMAL	15	3.07	1.730		

My TP offered opportunities for collaborative learning among trainees	MDVC	20	5.00	1.076	2.604	0.014
	NORMAL	15	3.73	1.792		
My TP helped trainees develop positive attitudes towards discussing problems	MDVC	20	5.10	1.02	2.307	0.027
	NORMAL	15	4.07	1.62		
My TP enhanced relationship of trainees and NIE supervisors	MDVC	20	4.80	1.11	2.076	0.046
	NORMAL	15	3.80	1.74		
My TP enhanced relationship between trainees posted to different schools	MDVC	20	5.10	0.64	2.970	0.006
	NORMAL	15	3.80	1.82		
My TP allowed me to share ideas with my fellow trainees	MDVC	20	5.52	0.639	2.171	0.037
	NORMAL	15	4.40	1.595		

It appeared that the biggest gain for the MDVC group was in the level of collegiality experienced during the teaching practice and student teachers' overall evaluation of the TP experience. Overall, the MDVC group felt more strongly than the Normal group that their TP had provided them with opportunities for collaborative learning and helped them to develop positive attitudes towards discussing problems. As discovered by Smith and Steffen (1993), feedback everyday is more effective than scheduled feedback. The analysis of the talk-log showed that on average the Normal group had about 723 minutes of talk during the nine-week TP, and the MDVC group had about 1,369 minutes of talk (excluding the weekly 90-minute video conferences). The minutes of talk accumulated everyday by the MDVC group had apparently offered more opportunities for the MDVC student teachers to obtain feedback from their CTs, fellow student teachers and other school personnel, thus making feedback more timely and efficient.

Another advantage of the MDVC group was the opportunities to talk to student teachers from other schools in an organized forum. The ability to participate in a teacher learning community wider than their immediate community (their TP school in this case) exposed the MDVC group to broader perspectives that the Normal group did not experience. The MDVC student teachers benefited

from sharing ideas, receiving suggestions and working out solutions to their problems with the student teachers working in other schools where different norms and practices may be different from that of theirs. Such encounters helped build a stronger sense of collegiality among the MDVC student teachers, producing more positive feelings about their experiences with fellow student teachers. These findings seem to suggest that a learning community fostered by technology (video conferencing in this case) could facilitate student teachers' reflective practice and professional development during teaching practice.

Self Perceived Teaching Competencies

The student teachers were asked to rate their teaching competencies in both the pre and post questionnaires. A list of competencies was drawn from the criteria used to evaluate student teaching in NIE. The teaching competencies were classified into three areas: (1) attitudes, (2) knowledge and (3) skills. Compared with their results of the pre-TP questionnaire, the MDVC group had higher means in 20 items and the Normal group obtained higher means in 13 out of the 24 items (Table 3). Nonetheless, for both groups, the increases were not significant ($p > .05$).

Table 3
Comparison of Pre and Post Questionnaire in Self Perceived Teaching Competencies

		MDVC		Normal		
		Pre	Post	Pre	Post	
Attitude	Can take criticism	5.15	5.30	5.00	5.57	*
	Team player	5.75	5.65	5.71	5.21	**
	Open to suggestions	6.10	5.85	6.29	6.07	**
	Trusting	5.00	5.20	5.79	5.00	***
	Understanding and supportive of pupils	5.40	5.55	5.43	5.57	*
	Warm and friendly	5.60	5.55	5.57	5.29	**
	Cooperation with colleagues	5.55	5.65	5.64	5.71	*
	Enthusiastic	5.60	5.65	5.64	5.79	*
	Keen to improve teaching effectiveness	5.85	5.95	6.21	6.14	***
	Flexible	5.50	5.65	5.29	5.14	***
Knowledge	Knowledge of subject matter	4.80	5.30	4.86	5.57	*
	Able to criticize other trainees' teaching	4.55	4.80	4.64	3.79	***
	Recognize own prejudices	4.90	5.10	5.14	4.71	***
	Able to criticize my own teaching	5.20	5.35	5.64	5.36	***
Skills	Able to plan lessons	5.05	5.70	4.86	5.71	*
	Poise and confidence	4.90	5.25	4.63	5.43	*
	Rapport with pupils	5.30	5.95	5.21	5.64	*
	Able to make decisions	5.30	5.50	4.86	5.50	*
	Able to explain	4.90	5.30	4.64	5.36	*
	IT skills	4.55	5.30	4.86	4.86	***
	Classroom management	4.58	5.26	4.43	4.64	*
	Able to evaluate pupils	4.70	4.90	4.71	5.21	*
	Grooming and dress	5.50	5.65	5.36	5.29	***
	Organized	5.30	5.15	5.00	5.36	****

A closer look at Table 3 reveals something interesting. Of the 24 items, both groups reported higher competencies in 12 items (items marked with *), of which four are in Attitudes, one in Knowledge and seven in Skills. Apparently, teaching practice benefited the student teachers the most in the area of teaching skills. Interestingly, both groups reported lower competencies in three items (items marked with **), all in the category of Attitudes. This could be due to several reasons. One was the ambiguity caused by the way that the items were written. For instance, “team player” could mean one’s attitudes towards being a team player. It could also be interpreted as one’s ability of acting as a team player. It was possible that the student teachers realized through teaching practice that being a team player was not as easy as they thought. If this was true, the student teachers were not evaluating their attitudes but also their skills of being a team player.

Of the 24 items, there were eight items

in which the MDVC group reported higher competencies in the post-TP questionnaire while the Normal group reported lower or unchanged competencies (items marked with ***). Five of the eight items are related to reflective practice, such as being able to “recognize my own prejudices” and able to “criticize my own teaching”. The MDVC group appeared to be more confident than the Normal group about their reflective practice. More confidence could be attributed to more frequent and constant conversations with peers and university faculty members during the teaching practice. Using video conferencing as a medium for communication may also have helped the MDVC group gain confidence in using ICT tools and satisfaction in their ability to present a professional image (grooming and dress). There was only one item, “organized” (item marked with ****), where the Normal group reported higher competencies than the MDVC group.

DISCUSSION AND IMPLICATIONS

Humans collectively create and share meanings when they talk (Berger & Luckman, 1966). Student teachers initiate or participate in dialogues with an intention to learn something that they would not know otherwise. What distinguishes their conversations from chit-chat is that it is infused with a collective intention of making decisions, exchanging knowledge, and developing understanding about issues related to teaching and learning, and school (Feldman, 2002). In other words, their talk is not incidental, but intentional.

There are undoubtedly problems in attempting to draw precise conclusions from the data collected from this study. It is problematic to conclude that positive experiences or higher self-perceived teaching competencies are solely attributed to the amount of time spent on talk. Ten minutes of talk with one person might be worth one hour with another. Nevertheless, even if the student teachers' responses are treated only as a rough guide to reality, certain patterns emerge and their implications are evident.

Opportunities of Sharing

Through conversations with school personnel and peers, the student teachers talked about issues relating to classroom teaching, exchanged ideas and shared concerns. Weekly video conferences encouraged sharing and collective problem solving and facilitated the reflective practice during the teaching practice. Such practices promoted the opportunities for the development of thoughtful and conscientious practitioners (Pultorak, 1996). If the MDVC group's positive feelings about the teaching practice were attributed to more time spent on talk, then this is in line with the notion that emotion, feelings, motivation, and attitudes are integral parts of an intellectual and social development. A community of learners cannot exist if its members do not care for each other and do not understand

each other's feelings (Moallem, 2003). With such an experience, it might be easier for the MDVC group to view reflective activity as a metacognitive cycle that occurred on a daily basis when they become full-fledged teachers.

In spite of extra conferences with subject experts and viewing of their own class video clips, the MDVC group did not differ significantly as compared to their counterparts in the Normal group in the self-perceived teaching competencies reported in the post-TP questionnaire. Such a finding confirms the argument that viewing video lessons or discussing a controversial issue does not necessarily challenge preservice teachers to confront and analyze their own pedagogical practices (Hewitt, Pedretti, Bencze, Vaillancourt & Yoon, 2003). It makes it legitimate for us to reconsider the ways of using video for the improvement of student teachers' teaching skills.

Technology

MDVC bridged time and space by allowing student teachers to hear and share views, experiences and materials in a virtual learning environment and across time and space, which would otherwise be impossible. Learning took place through active exchange of ideas and experiences by individual student teachers via social interactions and through internal reflections about these experiences and ideas. MDVC was also a disembedding process. It made it possible to dismember teaching practice from the confinement to a single school. As a result, student teachers need no longer be "locked" in to and be socially and physically isolated within a particular school, and they did not have to rely solely on the expertise from their own schools. In other words, MDVC opens up a wider range of experiences than ever before for student teachers to engage in deliberative conversations. Through MDVC, student teachers have access to and learn from other teachers in collaborative settings in order to best meet the needs of students, peers and

the profession. They also learn from each other in communities, and teacher reflection takes place in the settings where professional conversations occur.

Future Studies

The project discussed in this paper was initiated with an intention of increasing both the quantity and quality of discourse between student teachers' and supervisor during teaching practice. The analysis so far has shed some light on the impact of talk and video conferencing on student teachers. However, because of the constraints in video conferencing arrangement, i.e. the chairpersons of the video conferences were not the supervisors of all the participants, the claims about the impact of video conferencing on the stated objective remain problematic. For future studies, efforts should be made so that student teachers would be able to video conference with their own supervisors. Also, larger contexts and social dynamics within which student teachers' talk takes place should be captured. Such information will help us understand the circumstances under which student teacher conversations and collaborative reflections are more likely to take place and help us to come up with strategies to facilitate such conversations and collaborative reflections. For the topics of video conferences, current arrangement mirrors traditional forms of instruction where the student were passive receivers. For future studies, we should actively promote student teacher inquiry where student teachers determine content and process to meet their specific needs.

CONCLUSION

Student teacher talk during teaching practice is not just simply chitchatting, and MDVC is not just simply a technology. As Shotter (1993) argues, "what we try to say, and what are understood as meaning, are often at odds with each other, and

thought development emerges in the course of dialogic process" (p.44). Student teachers use conversation as a medium to generate practical wisdom, reasoning, and disciplinary understanding (Feldman, 2002) that they would not, or could not, generate on their own (Shulman, 1989). Their talk enables them to reflect on shared personal concerns, ask questions and seek answers from others. Interactions with peers and more experienced teachers create opportunities for learning for student teachers, and group discussion becomes a vehicle for articulating, examining and changing beliefs (Schecter & Parkhurst, 1993).

The value-added potential of MDVC as a technology lies in the possibility of providing new and alternative experiences for teachers to engage in conversations and collaborative reflection. As it removes the barriers of time and space that prevented student teachers from interacting with peers outside their teaching practice schools, MDVC, as a technology, made it possible for a teacher learning community to be conceptualized as an integral and indispensable part of student teaching practice, in which meaningful learning takes place as a result of collaborative reflection by student teachers.

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Appendix 1

A Questionnaire (Post Teaching Practice)

Please answer the following questions as accurately as possible. Your feedback will be invaluable for us to learn more about your teaching practicum. Please be assured that this questionnaire is anonymous and the data will be reported in such a way that it is impossible to trace you or your school.

	Low							High
1 To what extent did your university supervisor:								
- critically review and give guidance on your teaching methods	1	2	3	4	5	6	7	
- offer advice on classroom management	1	2	3	4	5	6	7	
- provide moral support and encouragement	1	2	3	4	5	6	7	
- provide opportunities for you to reflect on your teaching	1	2	3	4	5	6	7	
- provide opportunities for you to discuss related issues with your fellow trainees	1	2	3	4	5	6	7	
- act as a counselor	1	2	3	4	5	6	7	
2 To what extent did your fellow trainee teachers:								
- critically review and give guidance on your teaching methods	1	2	3	4	5	6	7	
- offer advice on classroom management	1	2	3	4	5	6	7	
- offer moral support and encouragement	1	2	3	4	5	6	7	
- give you new ideas on teaching	1	2	3	4	5	6	7	
- provide feedback on your teaching	1	2	3	4	5	6	7	
3 To what extent were you able to:								
- critically review and give guidance on your peers' teaching methods	1	2	3	4	5	6	7	
- offer your peers advice on classroom management	1	2	3	4	5	6	7	
- offer your peers moral support	1	2	3	4	5	6	7	
- give your peers new ideas on teaching	1	2	3	4	5	6	7	
- provide feedback on your peers teaching	1	2	3	4	5	6	7	
4 To what extent did your teaching practice:								
- allow trainee teachers to be open for discussions and learn from one another	1	2	3	4	5	6	7	
- offer opportunities for collaborative learning among trainee teachers	1	2	3	4	5	6	7	
- help trainee teachers to develop positive attitudes toward discussing problems	1	2	3	4	5	6	7	
- enhance relationship between trainee teachers and university supervisors	1	2	3	4	5	6	7	
- enhance friendship among trainee teachers posted to different schools	1	2	3	4	5	6	7	
- allow you to share ideas with your fellow trainee teachers	1	2	3	4	5	6	7	
- provide opportunities for you to discuss your problems at a time when you need it most	1	2	3	4	5	6	7	

5 Read the following list of attributes of a good teacher. Rate what you see as your current strengths on each one by circling the appropriate

number.

- understanding and supportive of pupils	1	2	3	4	5	6	7
- warm and friendly	1	2	3	4	5	6	7
- trusting	1	2	3	4	5	6	7
- enthusiastic	1	2	3	4	5	6	7
- cooperative with colleagues	1	2	3	4	5	6	7
- keen to improve teaching effectiveness	1	2	3	4	5	6	7
- open to suggestions	1	2	3	4	5	6	7
- can take criticism	1	2	3	4	5	6	7
- team player	1	2	3	4	5	6	7
- poise and confidence	1	2	3	4	5	6	7
- rapport with pupils	1	2	3	4	5	6	7
- able to evaluate pupils	1	2	3	4	5	6	7
- recognize own prejudices	1	2	3	4	5	6	7
- able to explain	1	2	3	4	5	6	7
- can make decisions	1	2	3	4	5	6	7
- organized	1	2	3	4	5	6	7
- classroom management	1	2	3	4	5	6	7
- flexible	1	2	3	4	5	6	7
- able to plan lessons	1	2	3	4	5	6	7
- IT skills	1	2	3	4	5	6	7
- knowledge of subject	1	2	3	4	5	6	7
- able to criticize my own teaching	1	2	3	4	5	6	7
- able to criticize other trainees' teaching	1	2	3	4	5	6	7
- grooming and dress	1	2	3	4	5	6	7

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