is that the SCMs' performance of their new roles will **be** enhanced through the regular sharing of ideas, experiences and resources. The Student Teacher Project involves 24 PCDE (Primary) students posted to schools in Cluster N2. Its aim includes the installation of MDVC hardware and **software** at the schools and to ensure that it functions reliably; to draw up basic **Electronic Social Interaction Protocols (ESIPs)** for using MDVC as a vehicle for practicum conferencing; and to collect basic quantitative and **qualitative** data.

Phase 3 (June 1999 and August 1999) and Subsequently

It is anticipated that the project will be continued during the second half of the year, using the same school clusters as a core. Once basic protocols have been established, it will be possible to move on to more exciting technological trials, for example with the use of MDVC shared lesson video clips, as well as the first phase of the research into practicum discourse.

**Funding and Support**

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- National Computer Board (NCB) – hosting, supplying and managing a server, and providing NIE with a password-protected chatroom, free of charge;
- Educational Testing Division/MOE – liaising with NCB, the Cluster School Principals and IMR;
- Schools’ Division/MOE – the good offices of the N1 and N2 Cluster School superintendents and the principals of Xishan and Jiemin schools for supporting the project to date;
- Raffles Girls Secondary School – hosting the first MDVC multi-point conference together with NIE;
- IMR – the provision of free licences for CU-SeeMe Meeting Point server and software, together with loan of computer peripherals and free consultancy;
- Kent Ridge Development Laboratory (KRDL) – free consultancy as part of the NIE Memorandum of Understanding;
- NIE – the provision of two Singapore One Magix accounts and two PC5 to KRDL specifications.

**Further Developments**

There are numerous potential applications of MDVC technology. We anticipate that the project will be continued so as to:

- explore wider practicum applications;
- continue the discourse research;
- extend the use of MDVC as an integral part of NIE's partnership model for the practicum;
- encourage wider use by the cluster schools to facilitate communication between staff, pupils and parents.

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**Developing Resilience in Secondary Schools**

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**Resilience** is a universal capacity which a person uses to **minimize or overcome** the damaging **effects** of adversity (Grotberg, 1995). Schools play a role in the development of resilience by identifying early vulnerabilities and creating learning environments to teach students to meet challenges. Previous research has examined
alienative vulnerabilities, such as feelings of powerlessness, meaninglessness, normlessness and social estrangement in the school context.

A study of resilience is more hopeful than investigating the maladaptation of children and adolescents at risk. Resilience keeps students functioning when they are confronted with adversities and life's challenges. An academic research grant, Developing Resilience in Secondary Schools, is in progress at NIE and is supported by the Ministry of Education.

During the first stage of research, the principal investigator consulted with Dr Michael Rutter who is a highly-respected researcher and has written extensively in the field of resilience. Rutter stresses the need to focus on the "steeling" or protective mechanism by which children maintain their self-esteem and self-efficacy in the face of adversity. Self-esteem is a belief in oneself and self-efficacy is having the internal power to deal with changes and difficulties in specific situations. Rather than being a static factor, resilience is a process by which students can overcome failure or adversity and bounce back. Interestingly, people who face childhood adversity or problems and bounce back may do better later in life than someone whose childhood was relatively easy.

A review of the literature suggests that resilience in one domain of life may not translate to other domains. Some students may show resilience with peer conflicts, but not with academic achievement. Other students considered to be academically resilient may show signs of emotional maladjustment. Yet other students may adapt to difficult situations time and time again.

This research focuses on resilience from a positive perspective where students strive to do well academically and socially in schools. What determines how much students can experience before giving up, differs. Some students give up after much stress, while others give up after a small incident. The former may have had more opportunities to take a risk, fail, and bounce back. The latter group may have had little experience of picking themselves up after failing. These experiences of successfully bouncing back develop self-efficacy ... the "I CAN" do it attitude.

In the stage of collecting and analysing data, one interesting finding showed that students sought help from those they have grown to trust or see regularly, such as older siblings, friends, and teachers. Students who have succeeded despite their problems very often have one person who can create a pathway to resilience, rather than leave success to fate or to character traits.

Another interesting finding is that experiences in school affect students in various ways either by exacerbating or by protecting them from debilitating consequences. Rutter (1987) explains that schools can be protective because they promote self-esteem and self-efficacy. In the interview stage of the research, teachers explained that they promote protective factors by developing a supportive relationship between a student and at least one person. In addition, teachers taught problem-solving skills for daily life. These protective factors help students have a belief and power in themselves to deal with changes and difficulties.

The research study surveyed secondary students to develop profiles of resiliency and interviewed principals, teachers and students for clarification and elaboration. Moreover, the study is a research of the comparison of data from two multicultural societies, Singapore and Hawaii, on resilience of adolescents.

References
