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STATUS PEMAKANAN DAN PERKEMBANGAN KOGNITIF MURID LUAR BANDAR

Na'imah Yusoff, Sabariah Sharif, Aza Sherin Mohd Yusuf, Ismail Ladama,
Mohd Yusof Abdullah, Mohd Sobri Ismail, & Anuar Din

ABSTRAK

Kajian ini merupakan kajian awal bertujuan untuk memprofilkan pengambilan tenaga, tabiat pemakanan, status pemakanan dan perkembangan kognitif 46 orang murid kelas pemulihan berumur antara sepuluh dan 12 tahun murid luar bandar di sebuah pulau yang terletak di negeri Sabah. Data antropometri (berat dan tinggi) diukur menggunakan pita dan penimbang berat. Instrumen 24-hour Diet Recall dan perisian NUTRICAL pula digunakan untuk mengumpul maklumat pengambilan tenaga daripada makanan harian berdasarkan Saranan Pengambilan Nutrien (RNI) Malaysia. Penentuan status pemakanan murid pula dibuat berdasarkan klasifikasi National Centre For Health Statistic (NCHS), manakala perkembangan kognitif bukan lisan diukur menggunakan ujian TONI-3. Hasil kajian menunjukkan pengambilan tenaga daripada makanan harian kebanyakan murid yang terlibat berada di bawah paras RNI yang disyorkan dengan hanya segelintir kecil murid mengambil tenaga mencukupi berdasarkan umur dan jantina. Masalah status pemakanan paling serius dalam kalangan murid luar bandar ialah kesusutan dan kerencatan. Murid perempuan didapati mempunyai status pemakanan lebih tinggi berbanding murid lelaki. Sebahagian besar murid mencatat perkembangan kognitif bukan lisan di bawah paras purata.

Kata kunci: pengambilan tenaga, perkembangan kognitif, status pemakanan

Pengenalan

Kajian ini merupakan satu usaha awal untuk menilai taraf pemakanan dan perkembangan kognitif murid sekolah rendah di kawasan luar bandar. Pendidikan sekolah rendah merupakan pendidikan asas yang perlu diberi

perhatian oleh semua pihak untuk membantu murid memperoleh pendidikan yang mantap, khususnya dalam kemahiran menulis, mengira dan membaca. Di samping itu, peranan ibu bapa juga memainkan peranan penting dalam membantu perkembangan fizikal dan kognitif yang seimbang, sihat, cergas dan cerdas. Sekolah yang dipilih bagi tujuan kajian awal ini merupakan sekolah dalam kategori pencapaian kelulusan UPSR yang rendah serta mempunyai masalah celik huruf dalam kalangan murid tahap satu dan dua yang agak membimbangkan. Selain berhadapan masalah kekurangan kakitangan akademik dan bukan akademik, sekolah ini juga tidak dilengkapi kelengkapan pengajaran dan pembelajaran dan infrastruktur asas yang tidak mencukupi. Penduduk setempat juga menghadapi masalah infrastruktur asas. Dengan itu, kajian dan pembangunan pendidikan telah dilaksanakan dengan objektif seperti yang digariskan di bawah.

Latar Belakang Kajian

Di Malaysia, penekanan dalam perkembangan pertumbuhan fizikal murid mula dipergiatkan sekitar tahun 1930-an dan difokuskan kepada murid yang tinggal di kampung dan ladang getah. Selepas mencapai kemerdekaan pada tahun 1957, usaha berkaitan telah diperluas melalui penglibatan kerajaan dan NGO (Khor dan Tee 1997). Pelbagai usaha telah dirangka dan diimplementasikan untuk memastikan murid sekolah menerima komposisi makanan seimbang. Usaha tersebut termasuklah pelaksanaan Rancangan Makanan Tambahan (RMT) pada tahun 1974 di sekolah sekitar Lembah Klang yang kemudiannya diperluas ke seluruh negara mulai tahun 1989 (Wan Nudri dan Aminah 1996).

Berdasarkan portal rasmi Kementerian Pelajaran Malaysia, Bahagian Sekolah Kementerian Pelajaran Malaysia merupakan pihak bertanggungjawab terhadap kebajikan murid dengan merancang, mengurus dan memantau program Rancangan Makanan Tambahan (RMT) dan Program Susu Sekolah (PSS).

- Menyelaras dan memantau Program Kesihatan Sekolah.
- Menyelaras dan memantau program Keceriaan, Keselamatan dan Kebersihan Sekolah (3K).
- Mengurus program Skim Insurans Murid.
- Membekal jaket keselamatan untuk pengangkutan air.

Komposisi zat makanan dan keadaan persekitaran yang baik membolehkan murid mencapai keupayaan tumbesaran sepenuhnya (Chong *et al.* 1984). Sebaliknya, murid yang mendapat kurang zat makanan akan mengalami gangguan pertumbuhan fizikal dan mental, keletihan, kurang penumpuan terhadap pelajaran serta kemerosotan pencapaian dalam pelajaran di sekolah (WHO/UNICEF 1972). Budi *et al.* (2000) menyatakan bahawa pemakanan semasa murid banyak mempengaruhi kehidupan masa hadapan mereka memandangkan kebanyakan proses pertumbuhan berlaku dalam tempoh tersebut. Pemakanan akan secara langsung mempengaruhi tumbesaran murid melalui tiga cara:

- Melalui penyediaan dan kaedah memakan kerana proses ini mendedahkan murid kepada kuman.
- Melalui kandungan imunasi khususnya penyusuan badan kerana susu badan akan menentukan status imunasi murid.
- Melalui kandungan biokimia makanan kerana kandungan biokimia menentukan status nutrisi murid.

Menyedari perkaitan rapat antara pertumbuhan fizikal dan mental dengan sumber pemakanan harian murid, fokus kajian terhadap murid sekolah luar bandar dilihat sangat signifikan selaras misi negara untuk merapatkan jurang pendidikan antara sekolah bandar dan luar bandar. Jika negara serius dalam usaha transformasi pendidikan luar bandar, perkara asas seperti akses terhadap makanan, keselamatan dan pendidikan perlu menjadi “garis mula” kepada sebarang program bantuan, polisi dan pengimplimentasiannya.

Pernyataan Masalah

Banyak kajian menunjukkan perkaitan antara pemakanan dengan pertumbuhan fizikal dan perkembangan kognitif. Kajian perubatan turut memperakui makanan tidak berkhasiat boleh menyebabkan pertumbuhan fizikal terbantut atau tidak normal. Sesetengah kajian menyatakan makanan tidak seimbang juga boleh menyebabkan perkembangan mental yang rendah. Kajian oleh Wan Nudri dan Aminah (1996) merumuskan bahawa kandungan makronutrien di dalam makanan kantin sekolah rendah dengan julat kandungan kalori antara 77 hingga 274 kcal dan protein 0.9 hingga 3.6 gram per hidangan adalah sangat rendah.

Kandungan kalori makanan RMT didapati lebih tinggi berbanding makanan yang dijual di kantin sekolah tetapi masih rendah berbanding dengan yang disarankan oleh Kementerian Pendidikan Malaysia.

Masalah lebih buruk dihadapi di kawasan luar bandar yang relatifnya mempunyai akses terhadap kepada makanan berkhasiat dan seimbang berbanding kawasan bandar. Sumber makanan tradisional seperti sumber laut dan hutan dijadikan makanan lazim murid tanpa bantuan sumber makanan tambahan lain. Kekurangan nutrisi dalam hidangan menyebabkan kebanyakan murid luar bandar mengalami kadar tumbesaran lebih perlahan atau rendah berbanding murid di bandar. Satu penyelidikan menilai taraf pemakanan murid di FELDA Sungai Koyan, Pahang, menggunakan ukuran antropometri telah dijalankan di atas 105 orang murid terdiri daripada 62 lelaki dan 43 perempuan berumur 12 hingga 72 bulan. Kajian mendapati seramai 40.3 peratus lelaki dan 39.5 peratus perempuan mengalami masalah kurang berat badan berdasarkan umur (Soon dan Khor 1995).

Kekangan ekonomi dan kekurangan pengetahuan berkenaan pemakanan menyebabkan ramai ibu bapa di luar bandar memandang remeh aspek pemakanan seimbang anak-anak. Aspek kebersihan dan keselamatan makanan yang tidak dititikberatkan sering mengakibatkan anak-anak menghadapi pelbagai penyakit fizikal dan mental. Masalah kurang berat badan, kebantutan dan kerencatan merupakan antara penyakit fizikal yang kerap dilaporkan dalam kalangan murid, begitu juga penyakit mental seperti kemurungan dan tekanan perasaan. Tidak dapat disangkal bahawa keadaan ini mampu mempengaruhi pencapaian akademik murid, khususnya di luar bandar, kerana pemakanan yang tidak seimbang boleh menyebabkan kecergasan dan kecerdasan mereka terbatas.

Soalan Kajian

Soalan yang menjadi fokus kajian ini adalah:

1. *Apakah tahap pertumbuhan fizikal murid luar bandar?*
2. *Bagaimanakah tabiat pemakanan dan tahap pengambilan tenaga murid luar bandar?*
3. *Apakah status pemakanan murid luar bandar?*
4. *Apakah tahap perkembangan kognitif murid luar bandar?*

Tinjauan Literatur

Kedudukan geografi, sejarah dan kepelbagaian budaya banyak mempengaruhi corak pemilihan makanan di satu-satu tempat. Pengaruh faktor ekologi terhadap pertumbuhan fizikal turut dipersetujui Chen (1976). Pada tahun 1984, kajian berkaitan malnutrisi di beberapa kampung miskin di Kelantan, Johor, Kedah dan Perak ke atas kanak-kanak dari lahir hingga enam tahun menunjukkan seramai 43 peratus mengalami malnutrisi protein tenaga kronik atau kebantutan, manakala 37 peratus lagi mengalami malnutrisi semasa atau kurang berat badan (Chong *et al.* 1984).

Kajian Chen (1976) ke atas 3,312 murid sekolah rendah di sekitar Kuala Lumpur mendapati murid Cina secara keseluruhannya adalah paling berat dan tinggi, diikuti murid Melayu dan India. Kajian tersebut juga menunjukkan terdapat korelasi positif antara berat dan tinggi dengan tahap sosioekonomi keluarga. Dalam kajian tersebut, kaum Cina didapati mempunyai pendapatan paling tinggi, diikuti kaum Melayu dan kaum India. Satu kajian status nutrien dalam kalangan komuniti luar bandar Semenanjung Malaysia pada tahun 1992 hingga 1994 telah dilaksanakan oleh Khor dan Tee (1997) mendapati hanya 69.4 peratus murid lelaki di bawah umur 18 tahun mempunyai nisbah berat badan kepada umur yang normal. Selain itu, kajian sama juga merumuskan bahawa hanya 68.4 peratus responden terlibat mempunyai nisbah ketinggian kepada umur yang normal, manakala 88.8 peratus mencatatkan nisbah berat badan kepada ketinggian normal. Kajian terhadap remaja dan murid dalam lingkungan umur sama masing-masing mencatatkan 73.8 peratus mempunyai nisbah berat badan kepada umur normal, 72.6 peratus mempunyai nisbah ketinggian kepada umur normal dan 89.5 peratus mempunyai nisbah berat badan kepada ketinggian normal.

Jika dibuat perbandingan, kajian yang dilakukan oleh Khor dan Tee (1997) dengan kajian Chong *et al.* (1984), dapat disimpulkan bahawa terdapat pengurangan dalam peratusan masalah kurang berat badan, kerencatan dan kebantutan di kalangan murid bawah 12 tahun luar bandar Semenanjung Malaysia antara tahun 1984 dan 1994. Penurunan peratusan murid yang mengalami masalah kurang berat badan ialah 29.8 peratus di kalangan murid lelaki dan 25.5 peratus di kalangan murid perempuan. Peratusan masalah kebantutan juga berkurang kepada 31.3 peratus (murid lelaki) dan 26.9 peratus (murid perempuan).

Masalah status pemakanan turut dicatatkan dalam kalangan murid bandar dan kanak-kanak di bawah usia persekolahan. Kajian oleh Soon dan

Khor (1995) di Kuala Selangor menunjukkan wujudnya masalah kekurangan nutrien dalam kalangan murid bandar. Hasil kajian tersebut mendapati 32.9 peratus murid prasekolah mengalami kekurangan berat badan, 8.9 peratus kebantutan, 17.7 peratus kesusutan serta 3.8 peratus mengalami kebantutan dan kesusutan. Penyelidikan tersebut juga menunjukkan pengambilan kalori, protein, ferum dan vitamin B2 adalah rendah dalam kalangan murid terlibat. Kajian oleh Chee *et al.* (2002) terhadap murid luar bandar berusia antara 12 hingga 72 bulan di Semenanjung Malaysia pula menunjukkan bahawa terdapat hubungan signifikan antara taraf hidup penduduk luar bandar dengan perkembangan fizikal murid. Murid yang berasal dari keluarga miskin dengan pendapatan di bawah garis kemiskinan lebih ramai mengalami malnutrisi, iaitu kurang berat badan (30.5 peratus) dan kerencatan (22.3 peratus). Kajian tersebut juga menunjukkan bahawa perbezaan tempat tinggal memberi kesan kepada pertumbuhan fizikal murid. Murid yang tinggal di perkampungan padi mencatatkan masalah malnutrisi paling tinggi, diikuti perkampungan nelayan dan ladang getah. Realitinya, masalah malnutrisi yang mengganggu pertumbuhan fizikal dan perkembangan kognitif murid tidak hanya berlaku di Malaysia, malah turut dirasai majoriti masyarakat dunia, khususnya di negara dunia ketiga dan negara membangun.

Menerusi satu kajian dari 1990 hingga 1995 di negara China, Shuigao (2000) merumuskan perbezaan pengambilan nutrisi mempengaruhi perkembangan fizikal dan kognitif murid prasekolah. Shuigao turut menyatakan bahawa kelemahan dari segi pengagihan makanan tambahan dan infrastruktur pengangkutan menyebabkan krisis nutrisi bertambah buruk di China. Bagi mengawal masalah tersebut, kerajaan China telah membentuk dasar bagi agihan sumber makanannya pada tahun 1949. Dasar *Rural Cooperative Medical Schemes* (CMS) yang meliputi 90 peratus kampung dan 95 peratus kawasan luar bandar berjaya menurunkan kadar murid kurang berat untuk umur. Di kawasan bandar seperti Shanghai, Beijing, Tianjin, Jiangsu dan Zhejiang, penurunan yang dicatatkan ialah daripada 8.0 peratus kepada 4.6 peratus. Di kawasan luar bandar seperti di Guangxi, Guizhou dan Yunnan, penurunannya adalah daripada 22.6 peratus pada tahun 1990 kepada 17.8 peratus pada tahun 1995. Walau bagaimanapun, perubahan ekonomi telah menyebabkan CMS dibubarkan. Akibatnya, dianggarkan seramai 15 peratus murid tidak mendapat bantuan kesihatan semasa sakit. Malah, peratusannya mencapai 28 peratus di kawasan komuniti sangat miskin. Selain itu, secara purata hanya lima orang murid luar bandar yang mampu memperoleh kemudahan latihan fizikal dalam tempoh setahun berbanding 55 peratus di kawasan maju.

Impak daripada senario yang sama turut dibincangkan oleh Carlos (2004) dalam sebuah kajian di Timor Leste. Negara pasca krisis tersebut dianggarkan mempunyai populasi seramai 850 ribu dengan 40 peratus penduduknya merupakan murid di bawah umur 15 tahun dan 85 peratus tinggal di luar bandar. Kekurangan infrastruktur (70 peratus tidak mempunyai akses bekalan elektrik), makanan dan tenaga mahir menyebabkan 40 peratus penduduk berusia 15 tahun ke atas tidak boleh membaca. Walaupun isu pemakanan dan perkembangan fizikal serta kognitif murid luar bandar di negara kita agak terkawal, masih ada ruang untuk usaha penambahbaikan, khususnya di kawasan luar bandar, pesisir pantai dan pulau-pulau.

Komposisi zat makanan dan keadaan persekitaran yang baik membolehkan murid mencapai keupayaan tumbesaran sepenuhnya. Murid yang mendapat kurang zat makanan akan mengalami gangguan pertumbuhan fizikal dan mental, keletihan, kurang penumpuan terhadap pelajaran serta kemerosotan pencapaian dalam pelajaran di sekolah (WHO/UNICEF 1972). Makanan yang disediakan di bawah RMT cuma membekalkan tenaga sebanyak 6 hingga 11 peratus daripada RNI Malaysia, berbanding dengan 25 hingga 33 peratus yang disarankan oleh Kementerian Pendidikan Malaysia. Peratus sumbangan tenaga daripada protein di dalam makanan di kantin sekolah adalah terlalu rendah, iaitu hanya 2 hingga 10 peratus, manakala sumbangan tenaga daripada karbohidrat terlalu tinggi, iaitu 61 hingga 87 peratus. Daripada kajian ini, disarankan bahawa penyediaan makanan di kantin sekolah dan jumlah berat hidangan diawasi dengan teliti untuk memastikan murid sekolah mendapat cukup zat makanan untuk aktiviti semasa di sekolah.

Disebabkan masalah kurang pengetahuan dan kekangan ekonomi sebagaimana yang telah dijelaskan dalam pernyataan masalah, ramai ibu bapa di luar bandar tidak mengambil berat mengenai pemakanan seimbang dan masalah kesihatan anak-anak mereka sedangkan pemakanan dan kesihatan merupakan faktor utama untuk perkembangan kognitif yang cerdas. Masalah ini perlu diberi perhatian oleh ibu bapa di peringkat awal lagi, bermula dari kandungan sehinggalah ke peringkat awal kanak-kanak.

Berdasarkan kajian terdahulu yang dinyatakan di atas, dapat disimpulkan bahawa kajian berkaitan dengan perkembangan fizikal serta kognitif murid di kawasan luar bandar perlu diperluaskan. Oleh itu, satu kajian terperinci sangat wajar dijalankan untuk mengumpul data bagi membantu usaha kerajaan menyediakan program bantuan pemakanan. Di samping itu, kajian sedemikian akan memberi pendedahan khususnya kepada guru dan ibu bapa terhadap kaedah penyediaan dan kepentingan makanan seimbang

bagi memastikan murid luar bandar tidak ketinggalan dalam perkembangan fizikal dan mental. Penjagaan dan pendidikan awal yang baik akan mampu membentuk insan progresif dan proaktif pada masa hadapan. Inilah modal insan yang ingin dilahirkan oleh negara pada masa hadapan.

Metodologi Kajian

Kajian ini telah dijalankan di sebuah sekolah rendah di kawasan luar bandar kategori pulau daerah Kota Belud. Sampel kajian terdiri daripada 46 orang murid kelas pemulihan berumur antara sepuluh hingga 12 tahun serta ibu bapa ataupun penjaga murid tersebut. Oleh itu, kajian ini lebih merupakan kajian kes dalam kalangan murid sekolah rendah luar bandar kawasan pulau. Kajian menggunakan tiga instrumen utama, iaitu i) *24-hour Diet Recall*; ii) alat ukur data antropometri; dan iii) Ujian Toni-3. Maklumat berkenaan pengambilan tenaga dari hidangan dikumpul melalui temu bual bersama murid dan ibu bapa menggunakan *24-hour Diet Recall*. Berdasarkan rekod hidangan harian 24 jam terdahulu, kandungan nutrien hidangan murid dikira menggunakan perisian *Nutrical* dan kemudian perbandingan dibuat berdasarkan Saranan Pengambilan Nutrisi (RNI) Malaysia untuk menentukan tahap pengambilan tenaga murid. Jadual 1 menunjukkan standard RNI bagi kumpulan umur responden terlibat.

Klasifikasi status pemakanan ditentukan menggunakan dua set data, iaitu data antropometri yang merujuk kepada berat dan tinggi badan murid serta data pengambilan tenaga harian. Kajian menggunakan penimbang berat dan pita ukur untuk mengukur data antropometri murid dan kemudian memadankan data tersebut dengan data pengambilan tenaga berdasarkan pengukuran *National Centre for Health Statistic* (WHO 1983) untuk menentukan status pemakanan murid (jadual 2).

JADUAL 1: Saranan Pengambilan Nutrisi (RNI) Malaysia

Jantina	Umur 10–12 Tahun
Lelaki	2,180 kcal/hari
Perempuan	1,990 kcal/hari

Sumber: Kementerian Kesihatan Malaysia 2006

JADUAL 2: Klasifikasi Status Pemakanan

Status Pemakanan	Penetapan
Kurang berat untuk umur (<i>Underweight</i>)	Berat untuk umur di bawah 2 SD daripada median NCHS
Kerencatan (<i>Stunted</i>)	Tinggi untuk umur di bawah 2 SD daripada median NCHS
Kesusutan (<i>Wasted</i>)	Berat untuk tinggi di bawah 2 SD daripada median NCHS

Sumber: National Centre for Health Statistic (WHO 1983)

Ujian TONI-3 (Brown, Sherbenou dan Johnsen 1996, dalam Aza Sherin 2001) pula digunakan untuk menentukan tahap perkembangan kognitif bukan lisan murid. Ujian ini diperkenalkan pada 1982 mengandungi 45 soalan bergambar atau simbol dan sesuai ditadbir ke atas responden berumur antara enam hingga sembilan puluh tahun. Tahap perkembangan kognitif murid dibahagikan mengikut kategori berikut:

JADUAL 3: Kategori tahap perkembangan kognitif bukan lisan

Markah	Tahap Perkembangan Kognitif Bukan Lisan
> 130	Cemerlang
121–130	Baik
111–120	Atas purata
90–110	Purata
80–89	Bawah Purata
70–79	Lemah
< 70	Sangat Lemah

Sumber: Toni-3 (Brown, Sherbenou dan Johnsen 1996, dalam Aza Sherin 2001)

Dapatan dan Perbincangan

Responden kajian terdiri daripada 46 orang murid sekolah rendah di sebuah sekolah luar bandar di kawasan pulau daerah Kota Belud, Sabah. Seramai sepuluh orang murid (21.74 peratus) yang terdiri dari murid Tahun Empat, manakala 15 orang (32.61 peratus) adalah murid Tahun Lima, dan 21 orang lagi (45.65 peratus) adalah murid Tahun Enam. Dengan itu, seramai 26 murid lelaki dan dua puluh orang murid perempuan terlibat dalam kajian ini.

Tahap pendidikan dalam kalangan ibu bapa murid adalah sangat rendah. Kajian mendapati, hanya seorang (2.1 peratus) bapa murid berpendidikan menengah dengan STPM/HSC dan tidak seorang pun yang memperoleh pendidikan peringkat tertieri. Selain itu, seramai 15 orang (31.9 peratus) ibu tidak memperoleh pendidikan formal. Pendidikan ibu bapa, khususnya golongan ibu sering dikaitkan dengan status pemakanan kanak-kanak. Chee *et al.* (2002) dan Budi *et al.* (2000) mendapati tahap pendidikan ibu lebih mempengaruhi status pemakanan kanak-kanak berbandingkan bapa. Status sosioekonomi keluarga murid yang terlibat dalam kajian ini juga didapati sangat rendah. Pemerhatian menunjukkan semua keluarga terlibat bergantung kepada hasil tangkapan ikan sebagai sumber makanan harian mereka. Tidak terdapat usaha penanaman sayur secara meluas disebabkan masalah ketidaksuburan tanah dan gangguan binatang. Seramai empat puluh orang (85.1 peratus) ketua isi rumah memperoleh pendapatan bulanan di bawah garis kemiskinan, iaitu RM888 yang ditetapkan untuk negeri Sabah bagi tahun 2007. Sembilan keluarga (19.6 peratus) menyatakan pendapatan mereka tidak mencukupi untuk tujuan membeli makanan. Purata perbelanjaan bulanan keluarga untuk tujuan membeli makanan ialah RM274.78 dengan 25 keluarga (54.3 peratus) membelanjakan kurang daripada purata kos pembelian makanan bulanan responden.

JADUAL 4: Taburan responden berdasarkan umur dan jantina

Jantina	Umur						Keseluruhan
	10 Tahun		11 Tahun		12 Tahun		
	n	%	n	%	n	%	
Lelaki	4 orang	8.70	10 orang	21.74	12 orang	26.08	26 orang
Perempuan	6 orang	13.04	5 orang	10.87	9 orang	19.57	20 orang
Keseluruhan	10 orang	21.74	15 orang	32.61	21 orang	45.65	46 orang

Pertumbuhan Fizikal (Antropometri)

Prosedur pengukuran data antropometri menunjukkan julat tinggi murid terlibat ialah antara 112 cm hingga 154 cm, manakala julat berat badan murid ialah antara 17.1 kg hingga 42 kg. Berdasarkan jadual 5, murid perempuan mencatat min tinggi dan berat badan lebih tinggi berbanding murid lelaki pada kadar perbezaan yang kecil.

JADUAL 5: Data antropometri responden berdasarkan umur dan jantina

Umur	Jantina	Tinggi (cm)		Berat (kg)	
		Min $\pm$ SP	Julat	Min $\pm$ SP	Julat
10 tahun	Lelaki (n=4)	127.35 $\pm$ 14.0	122.0–146.0	25.6 $\pm$ 8.2	17.1–32.8
	Perempuan (n=6)	128.1 $\pm$ 3.6	123.0–132.0	26.2 $\pm$ 3.6	21.7–30.4
11 tahun	Lelaki (n=10)	127.5 $\pm$ 7.3	115.0–140.0	25.5 $\pm$ 2.6	21.6–29.4
	Perempuan (n=5)	131.2 $\pm$ 6.1	122.0–138.0	30.0 $\pm$ 6.6	56.3–41.7
12 tahun	Lelaki (n=12)	133.1 $\pm$ 10.2	120.0–154.0	39.4 $\pm$ 6.3	29.1–42.0
	Perempuan (n=9)	133.6 $\pm$ 5.8	124.0–141.0	29.5 $\pm$ 3.9	24.9–38.7

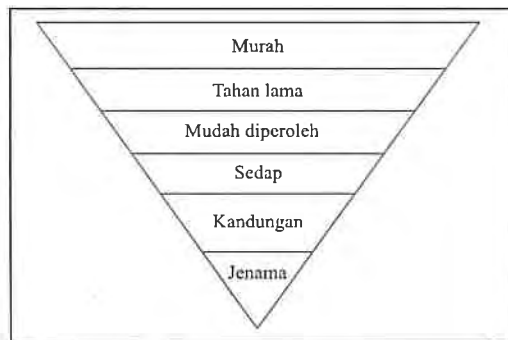
Pengambilan Tenaga dan Tabiat Pemakanan

Analisis data *24-hour Diet Recall* menggunakan perisian *Nutrical* pula menunjukkan hanya 27.16 peratus murid mengambil tenaga mencukupi mengikut umur dan jantina berdasarkan RNI Malaysia. Min pengambilan tenaga daripada hidangan harian murid berada di bawah paras RNI yang disyorkan ($M = 1,521.35$ kcal/hari; $SP = 517.39$). Tabiat pemakanan harian yang tidak seimbang dan kekerapan mengambil makanan ringan tidak berkhasiat dikenal pasti sebagai faktor utama kurangnya pengambilan tenaga daripada hidangan harian dalam kalangan murid. Kajian mendapati seramai 52.2 peratus murid mengambil hanya makanan tiga kali sehari, 26.1 peratus mengambil makanan lebih dari tiga kali sehari dan 21.4 peratus mengambil makanan dua kali sehari. Seramai sepuluh orang (21.7 peratus) tidak mengambil hidangan sarapan. Hanya tiga orang murid (6.5 peratus) mengambil hidangan harian yang lengkap merangkumi sarapan pagi, makan tengah hari, minum petang dan makan malam.

Pengambilan makanan ringan yang tidak berkhasiat serta mempunyai tahap kebersihan dan keselamatan yang rendah amat lazim dalam kalangan murid yang terlibat dalam kajian ini. Majoriti murid gemar mengambil makanan ringan terutamanya gula-gula atau coklat (97.8 peratus), keropok (93.5 peratus), biskut (87 peratus), minuman bergas (84.8 peratus) dan jeruk (76.1 peratus). Kajian juga mendapati 82.2 peratus murid gemar mengambil tiga hingga lima

jenis makanan ringan sehari. Dapatan serupa diperoleh beberapa kajian terdahulu. Contohnya kajian Aminah *et al.* (1994) melaporkan dua pertiga murid sekolah rendah dalam kajian beliau suka mengambil makanan ringan. Pengambilan makanan ringan bukan sahaja menyebabkan murid kenyang dan hilang minat terhadap hidangan lain malah boleh membawa kepada masalah kesihatan khususnya obesiti dan kelembapan mental (Norimah dan Lau 2000).

Berdasarkan rajah 1, pemilihan makanan oleh ibu bapa atau penjaga murid dipengaruhi oleh pelbagai faktor. Harga makanan yang murah dikenal pasti sebagai faktor pengaruh utama diikuti sifat tahan lama, mudah diperoleh dan kelazatan makanan. Faktor lain yang kurang dititikberatkan ialah kandungan nutrien dan jenama makanan. Urutan faktor pengaruh pemilihan makanan tersebut selaras dengan kekangan sosioekonomi dan tahap pendidikan ibu bapa murid. Pelbagai masalah dihadapi oleh ibu bapa atau penjaga untuk memilih dan mendapatkan barangan makanan yang berkhasiat dan seimbang. Masalah utama ialah kurangnya pengetahuan dalam bidang pemakanan dan ketidakfahaman ibu bapa atau penjaga mengenai kandungan nutrien atau maklumat dalam label makanan. Masalah lain turut diutarakan ialah maklumat makanan tidak lengkap dan jarak pembekal atau kedai yang jauh. Terdapat juga ibu bapa atau penjaga yang tidak yakin dengan maklumat kandungan nutrien pada label makanan.



RAJAH 1: Faktor Pemilihan Makanan Keluarga

Status Pemakanan

Status pemakanan dikategorikan berdasarkan ketetapan *World Health Organization* (1983) untuk menentukan status pemakanan dan melihat taburan masalah malnutrisi dalam kalangan murid. “Kurang berat untuk umur”

(*underweight*) merujuk kepada berat untuk umur di bawah 2 SD daripada median NCHS. Manakala “Kerencatan” (*stunted*) ditentukan melalui ukuran tinggi untuk umur di bawah 2 SD daripada median NCHS. “Kesusutan” (*wasted*) pula merujuk kepada berat untuk tinggi di bawah 2 SD daripada median NCHS.

Berdasarkan jadual 6, kajian mendapati masalah utama status pemakanan dalam kalangan murid luar bandar kawasan pulau ialah kesusutan dengan 58.7 peratus (27 orang). Masalah kesusutan berlaku apabila seseorang menghadapi masalah kekurangan nutrien dalam tempoh yang sangat lama menyebabkan pertumbuhan ketinggian dan berat badannya gagal mencapai tahap maksimum berdasarkan umur (Khor dan Tee 1997). Selain itu, masalah kerencatan yang merujuk kepada masalah kurang tinggi untuk umur juga didapati agak tinggi, iaitu seramai 56.52 peratus (26 orang). Murid perempuan mempunyai status pemakanan (berat untuk umur) lebih tinggi ($M = 27.4650$; $SP = 4.75973$) dan perkembangan kognitif lebih baik ($M = 21.70$; $SP = 10.05$) berbanding murid lelaki. Dapatan ini selari dengan kajian oleh Norimah dan Lau (2000) serta kajian Khor dan Tee (1997) yang juga mendapati peratusan murid perempuan yang mencatatkan berat untuk umur normal lebih tinggi berbanding murid lelaki.

JADUAL 6: Status Pemakanan Responden

Umur	Jantina	Status Pemakanan (z-score)	Kekerapan*	Peratus
10 Tahun	Lelaki (n=4)	Kerencatan	3	75.0
		Kurang berat untuk umur	-	-
		Kesusutan	2	50.0
	Perempuan (n=6)	Kerencatan	3	50.0
		Kurang berat untuk umur	1	16.7
		Kesusutan	2	33.3
11 Tahun	Lelaki (n=10)	Kerencatan	7	70.0
		Kurang berat untuk umur	4	40.0
		Kesusutan	6	60.0
	Perempuan (n=5)	Kerencatan	1	20.0
		Kurang berat untuk umur	4	80.0
		Kesusutan	1	20.0
12 Tahun	Lelaki (n=12)	Kerencatan	6	50.0
		Kurang berat untuk umur	2	16.5
		Kesusutan	9	75.0
	Perempuan (n=9)	Kerencatan	6	66.7
		Kurang berat untuk umur	2	22.2
		Kesusutan	7	77.8

* Seorang murid mungkin menghadapi lebih dari satu masalah status pemakanan

Perkembangan Kognitif

Perkembangan kognitif boleh dilihat dari dua sudut, iaitu lisan dan bukan lisan. Kajian ini bagaimanapun memilih untuk mengkaji tahap perkembangan kognitif bukan lisan berdasarkan peratusan buta huruf yang tinggi dalam kalangan murid yang terlibat. Langkah ini sekali gus bertujuan untuk mengelak unsur *bias*.

Berdasarkan jadual 7, peratusan terbesar tahap perkembangan kognitif bukan lisan murid luar bandar di kawasan pulau ialah pada tahap purata dan lemah (28.26 peratus). Analisis lanjut dibuat dengan mengelompokkan tahap perkembangan kognitif bukan lisan kepada tiga tahap, iaitu atas purata, purata dan bawah purata. Hasilnya, didapati bahawa 56.52 peratus murid mencatat tahap perkembangan kognitif di bawah purata, 28.26 peratus pada tahap purata dan hanya 15.22 peratus mencatat tahap perkembangan kognitif pada tahap atas purata. Dapatan ini sebenarnya menunjukkan masalah perkembangan kognitif yang agak kronik dalam kalangan murid luar bandar. Kajian oleh Na'imah et al. (2009) juga menunjukkan wujudnya masalah sama di kawasan pesisir laut. Kajian tersebut menunjukkan 59.99 peratus murid luar bandar kawasan pesisir mengalami masalah perkembangan kognitif bukan lisan di bawah tahap purata.

JADUAL 7: Tahap perkembangan kognitif bukan lisan murid luar bandar

Tahap Perkembangan Kognitif Bukan Lisan	Taburan		
	Bil. Murid	Peratus	
Sangat Baik	2 orang	4.35	15.22
Baik	2 orang	4.35	
Atas Purata	3 orang	6.52	
Purata	13 orang	28.26	28.26
Bawah Purata	10 orang	21.74	56.52
Lemah	13 orang	28.26	
Sangat Lemah	3 orang	6.52	
Jumlah	46 Orang	100.0	100.0

Implikasi dan Rumusan

Kajian ini merupakan kajian awal yang telah mengaitkan antara pemakanan atau pengambilan tenaga dan perkembangan kognitif bukan lisan yang bertujuan membantu pembangunan pendidikan murid luar bandar. Umumnya, kajian menunjukkan bahawa makanan berkualiti dan seimbang adalah penting untuk membantu pertumbuhan fizikal dan perkembangan kognitif yang lebih cerdas. Penerangan berkenaan dengan penyediaan makanan sihat menggunakan sumber tempatan perlu dilaksanakan agar penduduk luar bandar tidak terbeban dengan peningkatan kos sara hidup untuk mendapatkan makanan berkhasiat.

Kajian juga memberi gambaran perkaitan antara sosioekonomi masyarakat luar bandar dengan status pemakanan dan perkembangan kognitif kanak-kanak. Selain itu, kelaziman pengambilan makanan tidak berkhasiat dan kurang selamat seperti makanan ringan dalam kalangan kanak-kanak luar bandar perlu dikawal dan dipantau oleh pihak yang rapat dengan mereka.

Semua pihak, khususnya pentadbir sekolah, guru dan ibu bapa perlu memainkan peranan dalam menyediakan makanan seimbang dan berkhasiat. Dalam lingkungan keluarga nuklear, ibu bapa perlu peka terhadap kandungan nutrien dalam hidangan harian di rumah. Selain itu, kaedah penyediaan makanan lebih sihat perlu diamalkan, khususnya oleh golongan ibu. Pihak pentadbiran sekolah dan guru juga perlu memainkan peranan proaktif. Kualiti pengurusan dan bahan penyediaan makanan untuk Rancangan Makanan Tambahan (RMT) adalah baik tetapi masih boleh ditingkatkan dari segi pengurusan dan kaedah penyediaan makanan. Penyedia makanan harus menghayati dan mengamalkan konsep mesra murid selaras misi kerajaan "rakyat didahulukan, pencapaian diutamakan." Persatuan Ibu Bapa dan Guru (PIBG) sekolah luar bandar juga perlu memainkan peranan dalam menyedarkan ibu bapa tentang kepentingan makanan berkhasiat dan pengurusan makanan anak (masa makan) dalam membantu kecerdasan mental. Oleh itu, pihak dan Jabatan Pelajaran perlu mengadakan kursus keibubapaan kepada penjaga murid secara sistematik dan sesuai dengan persekitaran mereka. Guru perlu memahami kepentingan perkembangan kognitif bukan lisan dalam kalangan murid sekolah rendah untuk membantu kecerdasan mental murid dalam pembelajaran.

Di peringkat pengurusan, dapatan kajian menunjukkan perlunya Jabatan Pelajaran Negeri, bahagian Pelajaran Daerah dan Pejabat Pelajaran Daerah memantau kualiti RMT dan pengendalian kantin sekolah supaya

pelaksanaannya sentiasa sistematik, telus dan memenuhi garis panduan Kementerian Kesihatan Malaysia. Komposisi makanan RMT dan kantin sekolah perlu sesuai dengan keperluan nutrien kanak-kanak selaras piramid makanan. Ternyata, aspek pemakanan besar peranannya dalam bidang pendidikan dan menuntut lebih perhatian yang mendesak di sekolah luar bandar.

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MEMPERKASA MODAL INSAN BERKUALITI MELALUI PROGRAM AKADEMIK DI UNIVERSITI: SATU KAJIAN KES

Aziah Ismail & Abdul Ghani Abdullah

ABSTRAK

Modal insan berkualiti merupakan aset yang penting dalam usaha menggerakkan pembangunan dan kemajuan negara. Artikel ini menghuraikan tentang pendekatan yang diambil oleh sebuah universiti awam-antarabangsa dalam usaha memperkasa kualiti modal insan yang bakal mereka keluarkan. Kajian mendapati universiti yang dikaji telah menggunakan program akademik yang ditawarkan sebagai mekanisme utama dalam memperkasa modal insan, iaitu dengan menawarkan program-program akademik baru yang relevan dengan keperluan semasa, menilai semula program-program yang telah sedia ditawarkan serta mengintegrasikan nilai-nilai Islam dalam program akademik yang ditawarkan bagi melahirkan modal insan yang bersahsiah dan berakhlak terpuji. Hal ini untuk memastikan program akademik yang ditawarkan adalah relevan dengan keperluan semasa sesuai dengan hasrat untuk memperkasa kualiti modal insan yang bakal dikeluarkan. Malahan, aspek kualiti yang ingin diperkasa bukan hanya bertumpu kepada kemahiran dan pengetahuan, tetapi turut memberi penekanan terhadap aspek sahsiah dan akhlak diri modal insan tersebut.

Pendahuluan

Modal insan berkualiti merupakan aset yang penting dalam usaha menggerakkan pembangunan dan kemajuan negara (Johari 2000; Sufean 2002). Pembinaan modal insan merangkumi satu proses lengkap membentuk tenaga kerja manusia yang berilmu, berakhlak, berkemahiran, berdaya saing dan berdaya tahan. Pelaburan modal insan pula bermaksud apa sahaja bentuk pelaburan yang dapat meningkatkan produktiviti (Schultz 1977).

Pembangunan ekonomi dalam dekad 1990-an menunjukkan peralihan daripada pembangunan ekonomi berasaskan perindustrian kepada pembangunan ekonomi berasaskan pengetahuan (*k*-ekonomi). Peralihan ekonomi ini mengakibatkan perubahan dalam bidang industri yang berteknologi sederhana dan berat kepada industri berteknologi tinggi seperti bioteknologi, nanoteknologi, mikroteknologi, teknologi tinggi, fotonik, teknologi sel bahan api, teknologi maklumat dan sebagainya (Kementerian Pendidikan Malaysia 2001). Justeru, perancangan sumber manusia di Malaysia turut memberi penekanan kepada pembangunan modal insan yang dilengkapi dengan keperluan akademik serta kemahiran dan kepakaran yang diperlukan terutamanya dalam bidang sains dan teknologi, teknologi maklumat dan komunikasi serta kemahiran-kemahiran pekerjaan (*employment skills*) yang tinggi. Hasrat ini sesuai dengan aspirasi negara agar modal insan yang dihasilkan dapat turut bersaing dalam perubahan ekonomi dunia dan era globalisasi (Kementerian Pendidikan Malaysia 2001).

Pembangunan sumber manusia juga merupakan teras kejayaan sesebuah negara kerana kualiti sumber manusia merupakan penentu kemampuan sesebuah negara bersaing di peringkat global berasaskan acuan Malaysia (Zainol Abidin 1992). Rahmah (1996) menegaskan bahawa pembangunan sumber manusia, komponen modal insan adalah sangat penting dan ia dapat ditingkatkan melalui proses pendidikan dan latihan yang diterima, selain daripada kesihatan dan keupayaan yang ada pada seseorang. Sesebuah negara yang tidak berupaya untuk membangunkan tenaga manusianya dengan baik akan menyebabkan negara tersebut tidak dapat membangun dengan sempurna kerana pembangunan sumber manusia merupakan prasyarat untuk mencapai matlamat politik, sosial, kebudayaan dan ekonomi negara.

Akibat peralihan ekonomi negara kepada *k*-ekonomi, pembangunan sumber manusia di universiti juga turut diberi perhatian dan penekanan (Kementerian Pendidikan Malaysia 2001). Hal ini selaras dengan pernyataan World Bank (1994) yang menyatakan bahawa pendidikan peringkat tinggi mempunyai tanggungjawab yang penting bagi menjamin pembangunan ekonomi dan sosial negara.

Ahli-ahli ekonomi berpendapat bahawa universiti sebagai satu pelaburan jangka panjang yang amat menguntungkan terutamanya dalam usaha membekalkan tenaga manusia terlatih dalam pelbagai bidang (Chew dan Lee 1995). Tenaga manusia terlatih ini menjadi aset yang amat penting dalam usaha menggerakkan pembangunan dan kemajuan negara (Johari 2000; Sufean 2002). Hal ini adalah kerana kemajuan dan kekayaan sesebuah negara bukan

diukur daripada kuantiti sumber alam yang dimiliki tetapi kualiti modal insan yang kreatif dalam mencanai usaha-usaha pembangunan masyarakat dalam pelbagai bidang kehidupan (Sufean 2002).

Sehubungan itu, universiti sebagai institusi yang unggul dalam menghasilkan ilmu pengetahuan yang tidak dihasilkan oleh pendidikan peringkat lain (Fehl 1965) mempunyai peranan yang penting dalam melahirkan modal insan yang diperlukan oleh negara. Justeru, universiti perlu peka terhadap program-program akademik dan latihan yang ditawarkan agar seiring dengan peranan mereka dalam menyediakan masyarakat dengan pengetahuan dan kemahiran sebagai bekalan dalam menghadapi perubahan yang berlaku di persekitaran sama ada persekitaran dalaman mahupun luaran mereka (Altbach 1991; Fagerlind dan Saha 1983; Hussein 1993; Saha 1991).

Objektif Kajian

Kajian ini bertujuan meneliti pendekatan yang diambil oleh sebuah universiti awam-antarabangsa di Malaysia untuk meningkatkan kualiti program akademik mereka dalam usaha memperkasa modal insan berkualiti yang bakal dihasilkan.

Metodologi Kajian

Data kajian ini telah dikumpulkan dengan menggunakan dua teknik pengumpulan data, iaitu teknik temu bual dan analisis dokumen. Sejumlah tujuh orang responden yang telah dipilih melalui persampelan terpilih (*purposive sampling*) yang terdiri daripada Timbalan Rektor Akademik, Dekan dan Timbalan Dekan universiti tersebut. Semua responden ini telah ditemu bual secara mudah. Manakala, analisis dokumen dilakukan ke atas dokumen-dokumen rasmi universiti tersebut bagi mendapatkan data yang berkaitan.

Dapatan Kajian

Dapatan kajian menunjukkan bahawa universiti tersebut telah menggunakan program akademik yang ditawarkan sebagai mekanisme utama dalam memperkasa modal insan. Dalam merealisasikan usaha tersebut terdapat beberapa pendekatan yang telah diambil, iaitu menawarkan program-program akademik

baru yang relevan dengan keperluan semasa, menilai semula program-program yang telah sedia ditawarkan serta mengintegrasikan nilai-nilai Islam dalam program akademik yang ditawarkan bagi melahirkan modal insan yang bersahsiah dan berakhlak terpuji.

Kerelevanan program akademik dengan keperluan semasa

Perubahan dalam keperluan persekitaran telah memberi tekanan kepada semua institusi pendidikan tinggi termasuk Universiti A (dinamakan sebegini bagi memelihara etika penyelidikan) untuk memperkasa modal insan yang bakal dihasilkan. Hal ini adalah kerana kualiti yang ada pada modal insan yang bakal dihasilkan adalah perlu relevan dengan keperluan semasa persekitaran. Satu daripada langkah yang diambil oleh Universiti A sebagai usaha memperkasa modal insan negara ialah menerapkan pengetahuan dan kemahiran yang terkini melalui program akademik yang ditawarkan.

Implikasi daripada perubahan yang berlaku di luar telah menyebabkan Universiti A perlu memikirkan alternatif tertentu untuk membangunkan program akademik bagi memastikan program tersebut dapat melengkapkan graduan-graduannya dengan pengetahuan dan kemahiran yang diperlukan oleh persekitaran semasa. Sehubungan itu, Universiti A telah mengambil beberapa langkah tertentu untuk memastikan program akademik yang ditawarkan di universiti tersebut seiring dengan keperluan semasa. Langkah tersebut meliputi usaha mengemas kini dan memperkembangkan program akademik yang telah ditawarkan serta berusaha untuk menawarkan program akademik yang baru sesuai dengan tuntutan persekitaran.

Mengemas kini dan memperkembangkan program akademik yang telah ditawarkan

Satu daripada usaha Universiti A untuk memastikan program akademik yang mereka tawarkan adalah selari dengan keperluan persekitaran ialah dengan mengemas kini dan memperkembangkan program akademik yang sedia ada ditawarkan di universiti tersebut. Usaha ini dilakukan dengan menyemak semula program akademik tersebut dan melakukan pengubahsuaian sekiranya perlu. Pengubahsuaian terhadap program akademik yang telah ditawarkan akan dilakukan berdasarkan perubahan keperluan persekitaran terhadap program tersebut. Proses ini akan

dilakukan sehingga mencapai satu tahap kualiti yang ditetapkan oleh Universiti A, dengan program akademik yang sama yang ditawarkan oleh universiti lain sebagai rujukan (*benchmark*).

Tindakan mengemas kini dan memperkembangkan program yang sedia ada ini dilakukan berdasarkan maklum balas yang diperoleh oleh Universiti A daripada pihak-pihak yang berkepentingan terhadap organisasi tersebut. Maklum balas ini dapat diperoleh menerusi perbincangan penyemakan semula program akademik yang dijalankan oleh Lembaga Pengkaji Universiti A. Hal ini adalah kerana ahli Lembaga Universiti tersebut adalah terdiri daripada wakil pihak yang berkepentingan seperti pihak kerajaan dan swasta, juga wakil daripada universiti yang lain. Penglibatan wakil daripada universiti yang lain dapat membantu Universiti A untuk mempelajari pelbagai perkara yang berkaitan berdasarkan pengalaman universiti masing-masing.

Selain daripada itu, maklum balas daripada pihak berkepentingan yang lain turut diperoleh melalui hubungan Universiti A dengan pihak-pihak tersebut dan menerusi kajian yang dijalankan oleh staf akademik di universiti tersebut. Kajian yang dilakukan ini adalah berdasarkan maklum balas daripada pihak majikan terhadap kesesuaian kepakaran dan keupayaan graduan Universiti A yang diambil bekerja di syarikat mereka. Berdasarkan dapatan daripada kajian yang dilakukan ini, segala kelemahan dalam program akademik tersebut akan dikaji semula dan diperbaiki.

Berdasarkan penjelasan responden, dapat disimpulkan pihak Universiti A sentiasa mengkaji semula program akademik yang telah ditawarkan. Hal ini bertujuan untuk mengemas kini dan memperkembangkan program akademik tersebut agar sentiasa selari dengan keperluan dan kehendak persekitaran.

Penawaran program akademik baru

Selain mengemas kini dan memperkembangkan program akademik yang sedia ada, Universiti A turut mewujudkan program-program akademik yang baru untuk ditawarkan kepada pelajar sebagai satu daripada tindakan bagi memastikan program akademik yang ditawarkan selari dengan keperluan semasa persekitaran. Kajian mendapati, program akademik yang baru akan ditawarkan sekiranya terdapat pihak di Universiti A berpendapat program tersebut patut ditawarkan. Hal ini bermaksud idea penawaran ini tidak tertumpu pada pihak atasan sahaja tetapi memberikan peluang kepada mana-mana

pihak di Universiti A untuk mengutarakan idea yang berkaitan dengan penawaran program akademik yang baru.

Walaupun Universiti A membuka peluang kepada semua pihak mengutarakan idea mengenai penawaran program akademik yang baru, tetapi lazimnya, idea penawaran program akademik ini adalah datang daripada pihak atasan Universiti A. Hal ini adalah kerana pihak atasan terutamanya dekan dan pakar-pakar mempunyai perspektif yang meluas mengenai penawaran sesuatu program akademik.

Sumber idea kepada penawaran program akademik yang baru ini juga adalah berbeza mengikut peringkat penawaran program akademik tersebut, sama ada ditawarkan untuk peringkat ijazah pertama, peringkat sarjana ataupun peringkat doktor falsafah. Hal ini adalah kerana peringkat pengajian ini juga turut mempengaruhi sumber kepada idea untuk menawarkan program akademik yang baru di Universiti A. Kajian mendapati, kebanyakan program akademik yang ditawarkan untuk peringkat ijazah pertama adalah ditetapkan oleh Kementerian Pengajian Tinggi. Sebaliknya, kebanyakan program akademik bagi peringkat lepasan ijazah adalah ditetapkan oleh pihak Universiti A sendiri. Hal ini bermakna, penetapan program akademik yang baru bagi peringkat pasca siswazah lebih fleksibel kepada pihak Universiti A berbanding dengan program akademik bagi peringkat ijazah pertama kerana penawaran program akademik peringkat ijazah pertama masih tertakluk di bawah kuasa kerajaan.

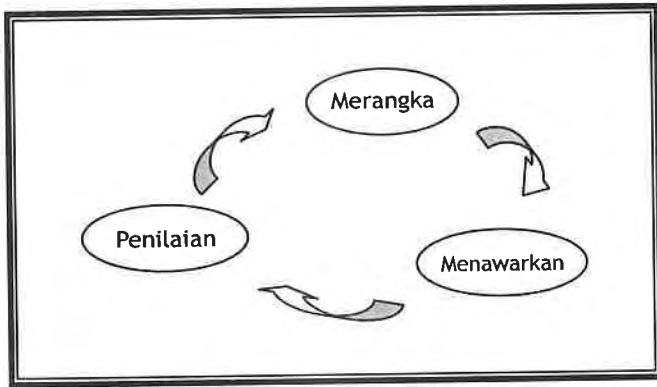
Penilaian semula program akademik

Program akademik yang ditawarkan di Universiti A akan dinilai semula pada jangka masa yang tertentu. Hal ini demikian bagi mengelakkan program akademik tersebut ketinggalan dan tidak seiring dengan keperluan dan kehendak persekitaran yang sentiasa berubah.

Penilaian merupakan satu daripada proses yang terdapat dalam kitaran pembangunan program akademik di Universiti A. Kitaran yang bermula dengan proses merangka, diikuti dengan penawaran program tersebut. Program yang telah ditawarkan ini perlu dinilai semula bagi memastikan penawarannya adalah seiring dengan keperluan semasa persekitaran. Hal ini adalah kerana sesuatu program akademik akan diubahsuai dan dirangka semula (sekiranya perlu) berdasarkan cadangan dan maklumat yang

diperoleh daripada proses penilaian semula yang dilakukan ke atasnya. Kitaran ini ditunjukkan dalam rajah 1.

Sehubungan itu, kajian ini mendapati Universiti A menetapkan bahawa setiap fakulti perlu menilai semula program akademik yang ditawarkan di fakulti mereka setiap tiga hingga lima tahun sekali.



RAJAH 1: Proses kitaran pembangunan program akademik

Aliran peringkat penilaian semula program akademik di Universiti A

Proses penilaian semula setiap program akademik di Universiti A dilakukan secara berterusan oleh pihak universiti tersebut. Walau bagaimanapun, penilaian keseluruhan bagi sesuatu program akademik akan dilakukan setelah kumpulan pertama pelajar yang mengikut program akademik tersebut menamatkan pengajian mereka.

Proses penilaian program akademik secara komprehensif di Universiti A adalah di bawah bidang kuasa Timbalan Rektor Bahagian Akademik. Kajian ini mendapati terdapat beberapa buah jawatankuasa telah ditubuhkan di peringkat fakulti dan universiti bagi tujuan penilaian semula program akademik di Universiti A. Satu jawatankuasa khas, iaitu Lembaga Penilaian Semula Akademik (*Board of Academic Review*) telah diwujudkan bagi tujuan memantau tugas-tugas penilaian semula program akademik yang dijalankan secara terperinci oleh setiap fakulti di Universiti A. Lembaga yang

dipengerusikan oleh Timbalan Rektor Bahagian Akademik Universiti A ini dianggotai oleh wakil daripada Pusat Penjaminan Kualiti Universiti A pegawai-pegawai Universiti A yang terdiri daripada profesor dan profesor kanan (*senior professor*) serta wakil dari setiap fakulti di Universiti A.

Selain itu, Lembaga ini juga bertanggungjawab sebagai pemantau kepada proses penilaian semula keseluruhan program akademik di Universiti A. Lembaga ini akan meneliti dan memberikan arahan kepada fakulti agar menilai semua program akademik mereka sekiranya Lembaga tersebut merasakan fakulti perlu berbuat demikian.

Berdasarkan temu bual yang dibuat, kajian ini mendapati, tanggungjawab menilai semula program akademik ini diserahkan kepada pihak fakulti kerana tugas penilaian program akademik memerlukan kepakaran dalam bidang ilmu yang berkaitan dengan program akademik yang dinilai. Sehubungan itu, tugas ini amat sesuai dijalankan oleh pakar dalam bidang yang berkaitan yang ada di setiap fakulti.

Penilaian semula program akademik di peringkat fakulti adalah di bawah tanggungjawab Jawatankuasa Penilaian Semula Akademik (*Academic Review Committee*) yang dipengerusikan oleh Dekan dan dibantu oleh Timbalan Dekan. Proses penilaian semula program akademik di peringkat fakulti dijalankan secara berperingkat dan tugas-tugas tersebut diagihkan mengikut bidang pengajian yang berkaitan dengan program akademik yang dinilai dan peringkat pengajian di mana program akademik tersebut ditawarkan. Kajian ini mendapati Jawatankuasa Penilaian Semula Akademik merupakan jawatankuasa yang bertanggungjawab memantau proses penilaian semula semua program akademik di peringkat fakulti. Manakala di bawah jawatankuasa ini telah diwujudkan dua lagi jawatankuasa kecil, iaitu Jawatankuasa Penilaian Semula Akademik Peringkat Sarjana Muda dan Jawatankuasa Penilaian Semula Peringkat Pasca Siswazah.

Jawatankuasa penilaian ini bertindak sebagai pemantau kepada pelaksanaan tugas-tugas penilaian semula program akademik di peringkat fakulti yang secara khususnya dijalankan oleh jabatan-jabatan yang ada di fakulti tersebut. Dalam proses penilaian ini, setiap jabatan bertanggungjawab menilai semula program akademik di jabatan mereka serta menyediakan laporan penilaian tersebut untuk diserahkan dan diluluskan oleh Jawatankuasa Penilaian Semula Akademik. Laporan penilaian yang telah disediakan oleh jabatan akan disemak terlebih dahulu oleh Jawatankuasa Penilaian Semula Akademik Peringkat Sarjana Muda (bagi program

akademik peringkat sarjana muda) dan Jawatankuasa Penilaian Semula Akademik Peringkat Sarjana (bagi program akademik peringkat sarjana) sebelum laporan tersebut dihantar ke Jawatankuasa Penilaian Semula Akademik yang utama di peringkat fakulti berkenaan.

Laporan Penilaian yang telah siap disemak dan diluluskan oleh Jawatankuasa Penilaian Semula Akademik di peringkat fakulti akan dihantar untuk mendapat kelulusan daripada Lembaga Penilaian Semula Akademik Universiti A. Lembaga ini akan menyemak dan meneliti laporan penilaian yang disediakan oleh fakulti sebelum meluluskan dan menghantar laporan tersebut untuk mendapatkan kelulusan daripada Senat. Sekiranya laporan penilaian yang diberikan oleh pihak fakulti tidak memuaskan pihak Lembaga, proses penilaian tersebut perlu dilakukan sekali lagi.

Laporan penilaian yang telah dinilai oleh Lembaga Penilaian Semula Akademik kemudiannya akan dihantar ke Senat untuk mendapat kelulusan. Kelulusan daripada Senat amat diperlukan bagi memastikan penilaian yang telah dibuat dapat diguna pakai untuk program akademik yang berkaitan di Universiti A. Hal ini adalah kerana Senat merupakan badan tertinggi yang bertanggungjawab terhadap hal ehwal yang berkaitan dengan akademik di Universiti A. Walau bagaimanapun, kelulusan daripada Senat akan diperolehi sekiranya Lembaga Penilaian Semula Akademik berpuas hati dengan laporan penilaian yang diterima daripada pihak fakulti. Hal ini bermakna Lembaga Penilaian Semula Akademik bertanggungjawab sepenuhnya dalam tugas menilai semula program akademik di Universiti A.

Penilaian program akademik Universiti A oleh pihak luar organisasi

Selain penilaian yang dibuat oleh pihak dalaman organisasi Universiti A, kajian ini mendapati bahawa tugas penilaian semula program akademik di Universiti A turut dilakukan oleh pihak daripada luar organisasi tersebut. Proses penilaian oleh pihak luar merupakan satu daripada polisi yang diamalkan oleh Universiti A. Walaupun proses penilaian program akademik telah dilakukan oleh pakar-pakar akademik yang ada di Universiti A, namun, laporan penilaian oleh pihak luar turut memberikan sumbangan yang amat penting kepada pembangunan program akademik di Universiti A. Hal ini adalah kerana penilai luar dapat memberikan penilaian daripada sudut pandangan yang berbeza dan input yang diperolehi daripada penilaian mereka akan memajukan dan menambahbaikkan program akademik.

Penilai luar ini datang dari pelbagai organisasi, terutamanya dari universiti luar negara dan badan profesional yang tertentu. Walau bagaimanapun, penilai dari badan-badan profesional yang tertentu hanya menilai program-program akademik dalam bidang profesional sahaja. Lazimnya, wakil dari badan profesional ini datang memantau dan menilai program akademik di Universiti A dalam jangka masa yang tertentu seperti empat tahun sekali bagi tujuan pengiktirafan (akreditasi).

Berdasarkan kenyataan Dekan Fakulti Farmasi, pengiktirafan yang diberikan oleh badan profesional ini adalah mengikut tahap kepuasan mereka terhadap pelaksanaan program akademik di fakulti yang berkaitan. Sekiranya pelaksanaan program akademik yang dinilai adalah pada tahap yang kurang memuaskan, penilaian daripada badan tersebut akan dilakukan dengan lebih kerap lagi.

Pengiktirafan yang diberikan oleh badan profesional ini juga adalah sah untuk tempoh masa yang tertentu sahaja. Tempoh masa sah untuk pengiktirafan yang diberikan itu adalah bergantung kepada kepuasan pihak tersebut terhadap program akademik yang dinilai. Sekiranya pihak penilai kurang berpuas hati dengan program akademik yang dinilai, keadaan ini akan mengurangkan tempoh masa sah pengiktirafan tersebut. Ini bermaksud tempoh sah pengiktirafan yang diperoleh dan kekerapan penilai dari badan profesional datang menilai program akademik di Universiti A adalah mempunyai perkaitan dengan kepuasan mereka terhadap program akademik yang dinilai.

Manakala, bagi program akademik yang berkaitan dengan bidang selain bidang profesional seperti sastera dan sains sosial, penilai luar lazimnya terdiri daripada pensyarah-pensyarah daripada universiti luar negara. Hal ini bermaksud, selain menjalin kerjasama dengan pensyarah-pensyarah daripada universiti luar negara, pandangan mereka juga turut diambil kira dalam proses penilaian semula program akademik di Universiti A.

Selain itu, pihak Kementerian Pengajian Tinggi juga turut memainkan peranan dalam proses penilaian program akademik di Universiti A. Hal ini adalah kerana, pihak Kementerian merupakan pihak berkepentingan yang utama bagi Universiti A serta mempunyai autonomi untuk mengarahkan universiti tersebut membuat penilaian ke atas program akademik mereka tawarkan sekiranya pihak kementerian merasakan tindakan tersebut perlu dilakukan.

Laporan penilaian program akademik di universiti tersebut pula perlu disediakan untuk diaudit oleh pihak Kementerian. Selain mengaudit berdasarkan laporan penilaian yang dikemukakan oleh pihak Universiti A, pihak Kementerian Pengajian Tinggi turut dijangka akan datang untuk

membuat penilaian ke atas universiti tersebut termasuk program akademik yang ditawarkan. Tugas ini akan dilakukan oleh Jawatankuasa Penjaminan Kualiti yang baru ditubuhkan oleh Kementerian tersebut. Ini bermaksud pihak Kementerian Pengajian Tinggi juga turut memainkan peranan dalam memberikan input kepada pembangunan program akademik di Universiti A.

Selain penilaian berbentuk formal, maklum balas berbentuk informal daripada pihak-pihak berkepentingan di luar Universiti A juga turut menyumbangkan input kepada usaha menilai semula program akademik di universiti tersebut. Pihak berkepentingan seperti Kementerian Pengajian Tinggi, Jabatan Perkhidmatan Awam serta pihak majikan yang lain dapat membantu Universiti A menilai keberkesanan program akademik mereka terhadap keperluan dan kehendak semasa persekitaran. Hal ini bermaksud maklum balas sebegini dapat membantu menjadi penanda aras (*benchmark*) kepada Universiti A dalam menilai kerelevanan program akademik mereka dengan keperluan semasa pasaran kerja.

Penilaian daripada penilai luar ini akan memberikan input kepada pembangunan program akademik di Universiti A. Mereka akan mengemukakan cadangan tentang perkara-perkara atau tindakan yang mereka fikirkan perlu dilakukan untuk membangunkan program akademik di universiti tersebut. Walau bagaimanapun, cadangan-cadangan yang diberikan ini akan dipertimbangkan terlebih dahulu oleh pihak Universiti A sebelum menerimanya. Hal ini bermakna cadangan penilai luar akan dipertimbangkan berdasarkan kesesuaian cadangan tersebut dengan visi, misi dan objektif Universiti A.

Pengintegrasian Pendidikan Islam dalam program akademik

Islamisasi merupakan satu keunikan yang ada pada setiap program akademik yang ditawarkan di Universiti A. Pengintegrasian antara Pendidikan Islam dengan program akademik yang dibangunkan turut menjadi misi dan agenda utama pembangunan di universiti tersebut. Sehubungan itu, keunikan inilah yang sentiasa dijaga dan diambil kira oleh pihak Universiti A dalam setiap usaha pembangunan yang mereka jalankan termasuk pembangunan program akademik.

Kajian mendapati nilai-nilai keislaman diterapkan dalam kurikulum yang dibangunkan di universiti tersebut. Bagi menjayakan usaha pengintegrasian ini, Universiti A mensyaratkan setiap program akademik

yang dibangunkan di setiap fakulti perlu mempunyai penerapan nilai-nilai keislaman di dalamnya. Malahan, perkara tersebut turut dibincangkan dalam mesyuarat Senat dan setiap wakil yang mempunyai cadangan berkenaan dengan hal tersebut digalakkan memberikan cadangan.

Kajian mendapati usaha Universiti A dalam mengintegrasikan nilai-nilai Islam ke dalam setiap program akademik mereka adalah melalui pelbagai kaedah mengikut bidang pengajian tertentu. Hal ini kerana bagi sesetengah bidang tertentu, nilai-nilai Islam ini dapat diintegrasikan secara langsung ke dalam program akademik mereka seperti bidang yang berkaitan dengan Syariah, Ilmu Wahyu, Sejarah Islam dan sebagainya. Namun, terdapat juga bidang-bidang ilmu yang tidak boleh dilakukan pengintegrasian tersebut secara langsung. Justeru itu, pelbagai cara telah digunakan oleh pihak-pihak yang terbabit dalam usaha membangunkan program akademik ini untuk memastikan pengintegrasian antara nilai Islam dengan program akademik yang ditawarkan dapat dilakukan. Hal ini bukan sahaja melibatkan pihak atasan universiti dan setiap fakulti, malahan turut melibatkan staf akademik yang menjadi saluran utama menyampaikan intipati sesuatu program akademik kepada pelajar di Universiti A. Hal ini bermakna program akademik yang diintegrasikan ini dapat melatih pelajar di Universiti A melihat sesuatu perkara daripada dua perspektif, iaitu perspektif sekular dan juga perspektif Islam.

Pengintegrasian yang menjadi misi kepada pembangunan Universiti A ini turut menjadikan kursus-kursus yang berasaskan Pendidikan Islam sebagai kursus wajib setiap pelajar di universiti tersebut. Hal ini bagi memastikan misi universiti untuk mengintegrasikan pengetahuan pelajar tentang ilmu duniawi dan ukhrawi dapat direalisasikan.

Bagi bidang sains dan teknologi pula, pendekatan yang digunakan untuk pengintegrasian ini turut memerlukan kreativiti agar matlamat pengintegrasian itu tercapai. Hal ini dilakukan dengan menginterpretasikan hasil kajian dengan unsur keislaman. Malahan, falsafah bidang sains turut mempunyai perkaitan yang rapat dengan kebesaran Allah.

Perkaitan antara nilai Islam dengan bidang sains bukan hanya dapat ditetapkan dalam aspek falsafahnya sahaja. Dari aspek sejarah, perkembangan bidang sains di dunia juga membuktikan bahawa bidang tersebut pada suatu ketika dahulu dipelopori oleh ulama-ulama Islam. Justeru itu, perkara tersebut boleh diterapkan semasa aktiviti pengajaran dan pembelajaran bidang tersebut.

Faktor Islamisasi ini menjadi faktor penting yang diambil kira dalam pertimbangan dalam pembangunan fakulti baru serta menawarkan program

akademik yang baru di Universiti A. Malahan, faktor ini menjadi persoalan utama perlu dihujahkan dalam usaha mewujudkan program-program akademik baru di universiti tersebut. Faktor ini perlu dihujahkan terlebih dahulu sebelum usulan mewujudkan program akademik baru diteruskan. Contoh yang amat jelas berlaku di Universiti A ialah semasa universiti tersebut bercadang untuk menubuhkan Fakulti Kejuruteraan. Hal ini seperti yang dijelaskan secara panjang lebar oleh Dekan Fakulti Kejuruteraan tentang hujahan awal mengenai pengintegrasian nilai Islam dalam program akademik bagi bidang kejuruteraan yang pada masa tersebut baru di peringkat usulan untuk dibangunkan. Antara hujah yang beliau ajukan ialah dari aspek sejarah perkembangan bidang sains dan teknologi yang suatu ketika dahulu dipelopori oleh ulama Islam.

Selain melihat daripada aspek sejarah, Dekan fakulti tersebut turut menggunakan sumbangan ahli sains Islam terhadap perkembangan bidang tersebut. Menurut beliau, penerapan ini dapat dilakukan secara tidak langsung dalam aktiviti pengajaran dan pembelajaran program akademik tersebut. Hujahan terakhir yang digunakan oleh pihak Universiti A untuk mempertahankan cadangan membina Fakulti Kujuruteraan di Universiti A adalah mengenai etika profesional yang dapat dihasilkan daripada program akademik bagi bidang kejuruteraan yang dibangunkan oleh Universiti A. Penekanan terhadap penerapan nilai-nilai keislaman ke dalam setiap program akademik di Universiti A termasuklah bagi bidang kejuruteraan bukan sahaja dapat menghasilkan tenaga kerja yang mahir dalam bidang tersebut tetapi beretika menurut perspektif Islam. Hal ini dijelaskan oleh Dekan Fakulti Kejuruteraan,

Dan yang ketiga yang lebih formal ialah kita hendak tekankan mengenai *professional ethic*. Kita lihat, kita begitu sedih sekali pada waktu ini kita lihat apabila ahli sains, jurutera, ahli sains hatta apa . . . sehingga doktor-doktor pun terutamanya di negara Barat yang menjadi begitu materialistik maknanya begitu kebendaan, sehingga mengabaikan aspek-aspek etika dan sosial, tanggungjawab sosial. Sebab itulah kita lihat, bom di sana sini, kita lihat pencemaran alam, kita lihat *mercy killing*, pembunuhan dan sebagainya. Jadi ini satu benda yang kita nak tekankan, *ethic*. Etika daripada perspektif Islam. Jadi kita ada, yang itu pun kita ada kursus-kursus khaslah, yang membincangkan tentang *professional ethic*. Jadi apabila kita menjadi seorang jurutera, Islam pula, maknanya kita mesti ada mempunyai etika, ada benda-benda yang kita boleh buat, ada benda yang kita tidak boleh buat.

Hal ini bermakna bahawa pengintegrasian amat perlu dipertimbangkan dalam program-program akademik yang dibangunkan di Universiti A agar misi yang digariskan untuk pembangunan universiti tersebut dapat dicapai. Pengintegrasian ini tidak terhad kepada program akademik yang berkaitan dengan bidang Pendidikan Islam sahaja, tetapi meliputi semua program akademik termasuklah yang berkaitan dengan bidang sains dan teknologi.

Implikasi dan Rumusan

Secara keseluruhannya, dapatan kajian ini menunjukkan bahawa Universiti awam-antarabangsa ini sentiasa berusaha memastikan program akademik yang ditawarkan adalah relevan dengan keperluan semasa sesuai dengan hasrat untuk memperkasa kualiti modal insan yang bakal dikeluarkan. Malahan, aspek kualiti yang ingin diperkasa bukan hanya bertumpu kepada kemahiran dan pengetahuan, tetapi turut memberi penekanan terhadap aspek sahsiah dan akhlak diri modal insan tersebut. Tegasnya, tindakan ini diambil bagi menyokong usaha universiti awam menghasilkan “produk” yang berkualiti untuk ditawarkan kepada pihak-pihak berkepentingan di persekitaran organisasi tersebut seperti pihak kerajaan, pihak industri, para majikan, kakitangan universiti, ibu bapa dan pelajar. Hal ini adalah kerana modal insan berkualiti yang dikeluarkan oleh universiti dapat memberikan pulangan dalam pelbagai bentuk seperti pelaburan, komitmen yang tinggi, penyertaan pelajar yang meningkat dan sebagainya. Keadaan ini menjelaskan bahawa wujudnya pertukaran antara kursus/program yang ditawarkan oleh universiti dengan permintaan persekitaran yang merupakan pasaran kepada universiti awam.

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A 'PROJECT-BASED LEARNING WITH MULTIMEDIA' APPROACH IN TEACHING A TESL COURSE

Loh Yoke Len

ABSTRACT

How can lecturers at institutes of higher learning incorporate the ICT component effectively into their teaching? This paper offers an acquiescent means of achieving that through a project-based approach to teaching with a touch of ICT based on an Intel® Teach Program. A project entitled "Improving Oral English Proficiency among Secondary School Students" was assigned to fifty TESL students at UMS. As future English Language teachers in secondary schools, they carried out a series of tasks, such as designing a questionnaire, conducting a survey in schools, reporting findings, preparing a proposal, and conducting a classroom speaking activity. The ICT support was utilised in creating student multimedia presentations, publications, web page, web site and evaluation tools. The Intel® Teach Program also provided templates for planning the entire project and production of student and teacher support materials. This paper provides clear evidence that instructors can make creative use of technology to impart knowledge to their students and engage them in learning.

Keywords: project-based learning, multimedia, information and communications technology

Introduction

Majority of the institutions of higher education in Malaysia are satisfactorily supported with technology infrastructure and electronic equipment, and well-connected to the internet service provider. Instructors and students can reap innumerable benefits from these facilities. As noted by Hawkins (1997), instructors face problems concerning chronic shortages of time, materials, and professional development. She envisaged that technology holds great potential that enable the education community to address these problems in

new ways. For instance, with the advent of Information and Communications Technology (ICT), the web provides access to an immense amount of information and a virtual world for participants to exchange opinions and ideas, accomplish a task, collaborate in research, or improve global understanding. In addition, today's technology can enhance teaching and learning when it is utilized meaningfully and productively in a project-based approach to teaching and learning.

Statement of Problem

The most common application of computer technology in teaching is the use of PowerPoint when presenting curriculum contents. This limited application can be expanded with the availability of better internet facilities. Instructors can go beyond the walls of the classroom by connecting students to the real world via the internet. However, if instructors lack the enabling skills in ICT for teaching, the computer or multimedia laboratories may well function as non-technologically-equipped classrooms. The technology and electronic equipment lay idle while students wait eagerly to work on the computers in front of them. Unfortunately, this enthusiasm may not be met because the instructor may not be adequately equipped with the knowledge and skills in integrating ICT into their current teaching practices.

It is also a common practice among instructors to designate students with routine theoretical assignments that require students to seek secondary data alone. The potential of students should be challenged sufficiently so that their learning meets the objectives of the course they are studying. Since experience is the best teacher, students should be guided to seek first-hand or primary data so that they can compare and contrast their findings with established data. They will then have the possibility to put their theory into practice.

The third issue concerns students who are not engaged in their learning, that is, they do not spend enough time on their studies due to the hive of activities enticing them and distracting them from their studies. Consequently, their academic performance suffers. These are but a few scenarios that may be familiar to both instructors and students. As an effective solution to these problems, a project-based learning approach incorporating ICT is proposed in this paper.

Aim and Objectives

The general aim of this paper is to find out whether a project-based learning with multimedia (PTBL+MM) is a practical teaching and learning approach for tertiary education. Based on the subjects' feedback via a questionnaire and the quality of their products, the implicit objectives are as follows:

1. To reflect on the practicality of PTBL+MM in teaching the Teaching of Listening and Speaking course.
2. To investigate the potential of PTBL+MM in promoting the ICT and soft skills at institutions of higher education.

Research Questions

Based on the specific objectives mentioned, this research seeks to answer the following questions:

1. How do the subjects and instructor respond to the PTBL+MM approach?
2. Does the PTBL+MM approach provide opportunities for the subjects to practise their ICT and soft skills?

Definition of Terms

To avoid confusion over the abbreviation of PBL in the literature, it is suggested that PBL is the abbreviation which refers to problem-based learning and PTBL refers to project-based learning.

The terms "project-based learning with multimedia," "information technology," "multimedia," and "instructor" are defined in accordance to the specific context of this paper. To begin with, "project-based learning with multimedia," or PTBL+MM, is "a method of teaching and learning in which students acquire new knowledge and skills in the course of designing, planning, and producing a multimedia product" (San Mateo County Office of Education 1997–2001). Characteristics of exemplary PTBL+MM include intra- or interdisciplinary, student decision-making, student involvement in sustained effort over time, teamwork, connection with the real world, progressive and

summative assessments, and use of multimedia as a communication tool. Examples of multimedia products are web page or site, hypermedia stack, computer presentation, computer-generated movie, and video programme.

Secondly, “information technology,” or IT, as defined by the Information Technology Association of America, is “the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.” IT is concerned “with the use of electronic computers and computer software to convert, store, protect, process, transmit and retrieve information, securely” (ibid.). Generally, IT includes the development, installation, and implementation of computer systems and their applications. ICT (Information and Communications Technology) has become a popular term to extend IT to overtly include the field of electronic communication. In this paper, IT refers to the support and utilisation of computer-based information systems as well as software applications to assist the preparation of the assessment rubrics and survey instruments, to document the project, and to create multimedia products.

Thirdly, the term “multimedia” means “the integration of media objects such as text, graphics, video, animation, and sound to represent and convey information” (San Mateo County Office of Education 1997–2001). In this paper, “multimedia” include these products which may or may not utilise hyperlinks. Last but not least, the term “instructor” includes all teaching personnel, such as teachers, tutors, lecturers, etc., who are actively involved in generating positive changes among students or learners through education.

Literature Review

Project-based learning

Esch (1998) ascribes the following features to project-based learning. It is a student-centred approach that engages students in authentic, real-world tasks to optimise learning. The tasks stimulate professional situations and take the form of open-ended projects or problems with more than one approach or solution. The instructor plays the role of facilitator or coach while the students work in cooperative groups for extended duration of time. To accomplish the

task, students need to acquire information and/or collect data from diverse sources. At the completion of the project, students reflect and evaluate their work. The approach emphasizes on authentic, performance-based assessment.

Similarities and differences between problem-based and project-based learning

The similarities and differences between these two approaches are discussed due to their same orientation as authentic, constructivist approaches to learning, and conceptual similarity. Although project-based learning is similar to problem-based learning in the many aspects mentioned in the project-based learning section, Esch (1998) points out that these approaches may be differentiated by the subtle variations in the degree to which an end product or a problem dominates the project. Firstly, project-based learning generally starts with an end product, whereas problem-based learning begins with a problem. Hence, the end product in the former approach is more sophisticated (e.g., a computer animation piece) and it mobilises the planning, production, and evaluation process. It should be noted that the content knowledge and skills acquired during the production process are equally vital as the end product. On the other end of this continuum, the end product in the latter approach is simpler and more summative (e.g., report on findings) as the learning process emphasises the inquiry and research involved. Secondly, the problem is not explicitly stated in project-based learning and students will acquire problem-solving skills as they try to overcome the problems they face. On the other hand, students focus on the problem given in the problem-based learning approach and devise a solution or a set of recommendations. Therefore, the product is the more dominant factor in project-based learning, whereas the problem is more central in problem-based learning.

There are instructional strategies that merge these two approaches, which in fact complement each other. As a result, the boundary between these approaches is frequently indistinct. An illustration of this combination is the TESL project presented in this paper. The students were given a problem regarding poor oral English proficiency among upper secondary school students at the start of the project. They were required to investigate the causes and propose solutions on how to improve these students' oral English. This adheres

to the problem-based learning. However, the end product did not stop at presenting the findings of the research carried out by the students to identify the causes of poor oral English proficiency. The students were also required to devise a proposal, create a brochure and a website to publish their work using computer technology (MM). Since the emphasis is on these end products as well, the task is also project-based. Merging the two approaches makes learning come alive and more meaningful to the students. In addition, students are able to apply theories learnt more relevantly to real-life situations.

Previous research on PTBL+MM

Findings from past research have revealed the effectiveness of the PTBL+MM in engaging students in their learning, reducing absenteeism, enhancing cooperative learning skills, and elevating test scores (Edutopia Staff 2001). One example, cited in Edutopia Staff (2001), is a three-year 1997 study conducted by Jo Boaler on the teaching of mathematics at two British secondary schools; one conducted open-ended projects while the other utilised more conservative, direct instruction such as rote learning. The number of students who achieved top grade at the project-based school tripled that of the other school in a national examination in mathematics. These students were observed to be more analytical and could apply the mathematical concepts in solving problems in mathematics. In another study conducted by the Centre for Research in Educational Policy at the University of Memphis and University of Tennessee at Knoxville in 1999 (Edutopia Staff 2001) disclosed that the experimental schools where students were taught via the project-based learning and technology outperformed the control school students by 26 percent. The students gained higher test scores in all subject areas over a period of two years on the Tennessee Value-added Assessment System. Furthermore, the findings of a five-year study by the Centre for Learning in Technology researchers, led by Bill Penuel showed that students working on a multimedia project exhibited greater responsibility for learning, increased collaboration skills among peer, and higher achievement gains although they were labeled as low achievers prior to the project (Edutopia Staff 2001). In a year, one to four interdisciplinary multimedia projects that incorporate real-world issues and practices were completed. These studies and many others have validated the potentials of PTBL+MM and provided concrete evidence to its effectiveness as a teaching

approach to enhance learning among students. This is particularly so at the tertiary level of learning due to the dire need to strike a healthy balance between theory and practice.

Incorporating soft skills in PTBL+MM

In response to the vision of the then Prime Minister of Malaysia, YAB Dato' Seri Abdullah Ahmad Badawi, for the education ministry to produce citizens with first-class mentality, much emphasis has been placed on soft skills at tertiary level (*Kementerian Pengajian Tinggi Malaysia* 2006). The soft skills encompass aspects such as life long learning and information management, communication skills, thinking and scientific skills, management skills and entrepreneurship, technical/practical/psychomotor skills, knowledge, leadership and team spirit, social skills and sense of responsibility as well as professionalism, values, attitudes, and ethics (*Kementerian Pengajian Tinggi Malaysia* 2006). A PTBL+MM approach renders itself readily to the integration of all these soft skills; the extent of each depends on the content of the curriculum. For instance, students work in teams to solve authentic, challenging problems by deciding the means to solve them and identifying activities to pursue (TechLEARNING 2007). Students learn to seek information from multiple sources, synthesise, analyse, and acquire knowledge from it. They are assessed by "how much they've learned and how well they communicate it" (TechLEARNING 2007). Furthermore, computer technology is incorporated in achieving the end product. Hence, the skills sought by today's employers comprise many of the soft skills learned through PTBL+MM, including the ability to function well in a team, making thoughtful decisions, taking initiative, and solving complex problems.

Planning and implementing PTBL+MM

Approaches to planning and implementing a successful PTBL+MM project may vary according to the learning contexts which includes the learning goals and objectives, the types of learning activities, as well as the technical support available within the learning environment. A simple six-basic step model advocated by San Mateo County Office of Education (1997–2001) can provide

a useful and practical framework to realise a beneficial learning experience. These steps are as follows:

1. Decide on the project.
2. Draft time frame.
3. Plan activities.
4. Plan for assessment.
5. Begin project with students.
6. Finish project and reflect.

The initial four steps can be implemented by the instructor alone or through discussions with the students prior to the start of the project. The latter is advocated in a learner-centred approach which empowers students to make decisions concerning their learning. When making decisions on the project, several factors need to be considered including the content of the course or programme to be incorporated in the project, scope and major goals of project, multimedia component, as well as any constraints that may hinder or limit the project. Secondly, drafting the time frame includes deciding on the duration of the project and arranging a schedule or setting deadlines to monitor the project. The time frame should be sufficiently flexible to accommodate growth and changes in the project. Thirdly, activities drawn from own experiences, selected or adapted from other sources should befit the project and duration. The planned activities should be specified within the schedule so that students can know the appropriate time to carry out the activities. The fourth step involves identifying assessment goals, tools, and incorporating the assessment(s) into the time frame.

The fifth step is the implementation of the project which begins by discussing the entire project with the students if they have not been involved in the planning at the initial stage. While monitoring the students' progress, the instructor should be aware of the feasibility of the activities and schedule so that apposite adjustments could be made to bring the project to completion and help overcome students' predicaments if any. The final step comprises presentation of product or outcome of project and self-reflection by both instructors and students. The completed product can be presented in class or a special forum and/or published in a website, newsletter or brochure. Self-reflection should focus on the strengths/highlights of the project and suggested improvements for future projects.

Intel Teach to the Future Essential Course

This 40-hour course seeks to train instructors how to apply project-based learning and incorporate the use of technology into their existing curriculum to enhance their students' learning and achievement through research, communication, and productivity strategies and tool (Candau *et al.* 2005). The course includes instructions on devising the unit plan; locating resources; creating student multimedia presentations, publications, support materials for students and instructors, websites; and developing plans for implementation.

Although the course generates a variety of products with characteristic features, two unique products will be highlighted, namely, the unit plan and the technology tools. Firstly, the unit plan states the learning objectives which are aligned to curriculum specifications. It also specifies the essential, unit and content questions (Candau *et al.* 2005). The essential questions focus on the central theme or issue of a discipline. These subtle questions resurface naturally in the life of the discipline and raise other related questions that lead to fruitful research as answers become increasingly complex. On the other hand, the unit questions comprise more subject- and topic-specific questions that are necessary in framing particular content and inquiry to introduce and provide guidance to the work of the unit. These questions—without an obvious “right” answer—should stimulate thinking and sustain student interest. The content questions are related to the instructor's input and they can be answered specifically. The project should be formulated by focusing on these questions. In other words, the project should be designed to lead students to discover the answers to these questions. When students implement the project, learning occurs simultaneously. The unit plan should possess a goal for students to achieve, specify a certain role to be taken up by students and a multimedia product.

Secondly, the use of the computer as a research tool, a publishing tool, and a communication device should be integrated into the Unit Plan (Candau *et al.* 2005). The selection of the appropriate technology tool depends on the type of content to be presented and the mode of presentation. For oral presentation, various multimedia elements (possibly images, sound, video, hyperlinks to websites or other files) can be incorporated. Adequate attention and time should be given to content that achieves learning objectives when students use multimedia presentation software. For written communication, publication can take the form of a newsletter or brochure with a combination of text and images,

possibly charts and graphs. As a means of communication with a worldwide audience, publication of current information or research via the website would be a most appropriate option. This technology tool enables students to connect to the real world; share their expertise and display their work; communicate with peers, mentors, experts; and even conduct surveys or collect data.

Methodology

Subjects

The subjects were fifty first-year (Semester I, Session 2007/2008) TESL students of the School of Education and Social Development, Universiti Malaysia Sabah. They were taking the Teaching of Listening and Speaking course taught by the researcher. As part of the assessment for this course, the subjects were assigned to carry out a project that incorporated ICT skills and soft skills for a duration of five weeks. They were divided into ten groups of five students. In addition to playing the role of an instructor, the researcher was considered as a subject. This is because the researcher-cum-instructor's observation and self-reflection also contributed a subjective appraisal of the PTBL+MM approach.

Instruments

The primary instrument used is a questionnaire that enables the subjects to reflect on the PTBL+MM approach. There are two parts to the questionnaire. The first part consists of six questions, each with a response that corresponds to a choice of three descriptors. They are: "Yes! Very much," "To some extent," and "Not at all." The second part comprises five open-ended questions that require the subjects to write their own response. The 11 questions focus on their attitude towards the approach, the practicality of the approach, their contribution as a team member, and ICT skills learnt. It is an adaptation of a questionnaire used in a similar PTBL+MM approach (refer to appendix A). The questionnaire was administered at the end of the five-week project.

To triangulate the results obtained via the questionnaire, the researcher's experience and comments while carrying out the PTBL+MM approach also served as primary data. In addition, the quality of the subjects'

products for the project is considered as an instrument to reflect the practicality of the PTBL+MM approach.

Procedure in carrying out PTBL+MM approach

A five-week unit plan was designed for the Teaching of Listening and Speaking course to teach the speaking component to the subjects. The unit plan was developed by the researcher during a four-day Intel Teach to the Future Essential Course conducted at the school.

Curriculum-framing questions

a) Essential question:

- *How can you help English as Second Language (ESL) learners to speak fluently and accurately?*

b) Unit questions:

- *What problems do low English Language proficiency learners face when they are asked to speak in English?*
- *What classroom-speaking activities can be devised to help these learners overcome their problems and motivate them to speak in English?*
- *What programmes would you propose to improve the speaking skills of low English Language proficiency learners?*

Project guidelines for PTBL+MM/Teaching of Speaking

The current scenario is that students in most secondary schools are not conversant in English, especially those located in rural areas. As future English Language teachers in secondary schools, you and your team members have been assigned to identify the problems faced by these students and to prepare a proposal on how to improve the oral English proficiency among secondary school students. To achieve this goal, follow the steps listed in the procedure below.

Steps:

1. Form a team comprising five members.
2. Construct a **questionnaire** to find out the problems faced by low English Language proficiency students in speaking in English and a set of **interview questions** for English Language teachers on teaching oral English.
3. Conduct a **survey** at two secondary schools—one in an urban area and the other in a rural area—to identify the problems using the questionnaire and interview questions. Select fifty form four students who fail their oral English test at each school as respondents for the questionnaire. Interview the English Language teachers teaching English to the selected form four students.
4. Analyse the **data** obtained and identify the **problems** faced by these students.
5. Provide **solutions** (based on the theoretical input on speaking skills) to these problems.
6. Design one **classroom activity for speaking**, and **two programmes**—one short term and one long term—to be implemented in secondary schools in Malaysia.
7. Present the survey conducted, the analysis of data, and recommendations (solutions, suggested classroom activity for speaking, and two programmes) in the form of **PowerPoint**.
8. Create a **web page** for this project to publish the data concerning the problems or the oral English Language needs of secondary school students with low oral English proficiency and proposed solutions. You need to include the questionnaire and interview questions, and later upload your findings as well as proposed solutions, classroom activity for speaking, and the two programmes in a joint-website with other teams.
9. Produce a **brochure** to publicise your project website and distribute copies of the brochure to all secondary schools in Sabah.

Tools:

The tools for this PTBL+MM included Intel Teach to the Future Essentials Course CD-ROM, Microsoft Word, and Microsoft Internet Explorer, Microsoft PowerPoint, and Microsoft Excel. Microsoft Encarta and Microsoft Publisher are optional.

Results

The results would be discussed based on the responses from the students and instructor involved in this approach. Furthermore, the subjects' products would be commented upon.

Questionnaire

The results of the questionnaire (in appendix A) show that majority of the students found PTBL+MM interesting, stimulating, and challenging. This is because the approach had offered them an opportunity to visit their future workplace, interact with the secondary school community, and apply theories learnt. They were very enthusiastic when teachers and principals had actually requested them to share the outcome of their survey. There was a minority who commented that it involved much work and time. However, these students also realised the significance of carrying out the project when they stated that the exercise was to prepare them for their teaching in the future. In addition, the students found that the multimedia component had given them the opportunity to learn how to use various technologies effectively as tools in the planning, development, and presentation of their project. Furthermore, students gained more confidence in negotiating their communicative and academic intentions, improved their social skills and learnt to work as a team by practising collaborative skills, such as group-decision making, providing thoughtful feedback to peers, integrating peer and instructor's feedback, and working with others as student researchers. The students' reflective feedback was encouraging and motivating despite the problem of time constraint in conducting the survey in the schools due to public holidays, school break, school examination, and Lower Secondary Assessment (*Penilaian Menengah Rendah*).

Instructor's reflections

Throughout the PTBL+MM, the instructor's role was to provide guidance and advice to students. The PTBL+MM had engaged students in many hours of autonomous learning and practical application of soft skills beyond the limited weekly three contact hours for the course. It was indeed rewarding to learn how students independently overcame the problems they faced while conducting the multi-tasks and a joy to review the products of their labour.

The integration of the multimedia component with the course content was realised in the authentic production process. Instead of merely teaching core content of a course from a purely theoretical perspective, PTBL+MM had raised a greater awareness of the issues related to the course and enabled students to “take complex global issues and break them down into specific local action steps” (TechLEARNING 2007). This PTBL+MM experience in itself was the best teacher. For improved achievement of objectives, it is recommended that the duration of the project should be extended to ten weeks or more because a longer period of time is required to bring the project to greater maturity and to validate the effectiveness of the students’ proposals.

Products of the PTBL+MM approach

The products by each of the five groups included a questionnaire for students and a set of interview questions for teachers, analysis of survey data, PowerPoint for problems identified, speaking activity, a short-term programme, a long-term programme, a web page, and a brochure. The website <http://www.ioetesl.com> was a joint-effort among the ten group leaders. The quality of these products was highly commendable and reflected the earnestness and commitment of the students in accomplishing the assigned project.

Recommendations for Implementation of PTBL+MM Approach

The results advocate that the PTBL+MM approach be carried out in institutions of higher learning. This approach is recommended as the results reveal that it is able to realise the goal of incorporating four important strands in enhancing teaching and learning, namely, project-based learning, problem-based learning, multimedia, and soft skills. For the successful implementation of the PTBL+MM approach, the following three suggestions are proposed. First and foremost, Candau *et al.* (2005) emphasised the importance of training instructors by acknowledging that teachers must be prepared with the know-how of using educational technology because all this technology is worthless if teachers are unable to use it effectively. In fact, the inferential results of a study conducted among faculty members at the University of North Dakota has shown a highly significant correlation between technological literacy and pedagogical practice integration (Georgina and Hosford 2009). A well-trained

instructor can further develop their own creativity and that of their students beyond the walls of the classroom by using the capacity of computer technology to stimulate student imagination, and spur them towards better-quality learning. Futrell (2007) strongly advocates that today's instructors be equipped with the confidence and competence to effectively integrate technology into the teaching and learning process to keep the flame of students' enthusiasm for learning alive and to fan it to greater heights. It is proposed that instructors be trained via the Intel Teach to the Future Essential Course which is sponsored by Intel as a service to the community.

Secondly, coordinators of programmes or courses should synchronise the implementation of PTBL+MM by identifying a minimum of one or a maximum of two PTBL+MM for each semester. In this manner, students would not be overly burdened and the quality of the products can be safeguarded. As quality is more important than quantity, students would be able to focus specifically on one or two projects without neglecting other courses.

Thirdly, with computer technology, students' work can be compiled electronically as an ongoing portfolio of their creations (TechLEARNING 2007). The best among this collection can be selected and reviewed by peers and instructors (TechLEARNING 2007). Other students can further improve on the "best" and attain higher levels of achievement. Errors would not be repeated and the time gained can be focused on further development. Hence, progress can be accelerated. In view of these benefits, a portal for students' projects should be created on the website of every institution of higher learning so that model pieces of work can be displayed and reviewed by real audiences, not merely a single instructor, class, or school. Students would have the sense of pride over their work and would strive to do better in the future.

Conclusion

The positive feedback from the subjects (both students and the instructor) provided affirmative responses to the two inquiry questions in this paper. Firstly, the encouraging comments seem to provide substantial evidence that PTBL+MM are a practical teaching and learning approach for tertiary education. Secondly, the results also reveal that this approach allows the amiable incorporation of ICT and soft skills. The project-based learning with multimedia essentially bridges theories learnt with experience in practical applications which are construed to be more valuable to the learners. Utilising computer technology in education is literally having "the world at your

fingertips” to advance information at quantum leaps and bounds. The merging of two approaches, namely, project-based learning and problem-based learning, together with the incorporation of technology tools and assimilation of soft skills resulted in an insightful teaching experience for the instructor and an enriching learning experience for the students.

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APPENDIX A

Self Reflection

Name				
	<i>Comments (Examples)</i>	Yes, Very much!	To some extent	Not at all
1. Did I find this assignment enjoyable?	This assignment was enjoyable because I could go outside with my friends and carried out our research by ourselves.	100 %	0 %	0 %
2. Was this assignment informative?	I think this assignment was informative because we got to go outside and find the information on our own. So I think this assignment was informative for us to get to know the students better.	100 %	0 %	0 %
3. Did I feel comfortable using the research instruments?	I was comfortable using the research instrument even though it was the first time I was using it.	88 %	12 %	0 %
4. Did I enjoy working in a team?	I did enjoy working in a team but my friends might not think that way because they thought that we were selfish. I don't know why I said this, but this was what I felt about the condition of our group.	100 %	0 %	0 %
5. Did I contribute to the final product?	Of course I did, because I had given my best in making sure this project was a success.	100 %	0 %	0 %
6. Do I have adequate research skills?	I think I do have	76 %	24 %	0 %
7. What skills did you acquire during the construction of this project work?	We need to have the skills in controlling the students' attitudes and we also need to be patient when handling them because they (the students) overreacted when they met us for the first time.			
8. What skills did you perfect during the construction of this project?	During the construction of this project I had done great (I think) in handling the students when we went to the school. My friends also did the same.			

APPENDIX A (continued)

9. What computer skills do you feel that you have NOT mastered at this time?	I have not mastered the computer skills on how to use the PowerPoint and creating a website.
10. What could you have done to improve your active participation in this project?	Read more to gain more information about the students. By having lots of information in mind you will be able to guide the students and you also will have the courage in guiding them.
11. List the highlights of the speaking project and suggestions for improvement.	I think the major highlight for this assignment is to expose us to the school environment and to build self-confidence so that we can improve our skills in teaching. I have gained knowledge and experience as this project provided us an opportunity to work with real teachers and students. It was interesting because I met the students and I could know their problems. The duration of five weeks is too limited for us to carry out the project to its completion of establishing and publicising our website. Therefore, I propose a longer duration of 12 to 14 weeks.

Source: Adapted from D:\CourseCD\Sample_Unit_Portfolios\Sample_Project_Portfolios_Indian\High_School\Atomic Reflections_Story of Hiroshima Retold\lesson_support\student_support Intel Corporation 2007.

SABAH ENGLISH LANGUAGE TEACHERS' CONCERNS IN IMPLEMENTING A CURRICULAR INNOVATION

Lee Kean Wah & Tan Choon Keong

ABSTRACT

Teachers are likely to resist change, unless they are convinced that it significantly benefits themselves and their students. Since teachers play an important role in the effective implementation of an innovation, it is therefore necessary to investigate the nature of teachers' concerns in the technology-enhanced innovation adoption process. The main purpose of the study was to examine and identify the "concerns" of English language teacher teaching in Smart Schools in Sabah, in relation to the implementation of the Smart School Curriculum (SSC) in their classrooms. Teacher "concerns" is measured using the Concerns-Based Adoption Model (CBAM) where "concerns" is defined as the composite representation of the feelings, preoccupation, thought, and consideration given to a particular issue or task. Data was mainly elicited using a questionnaire, supplemented by open-ended responses elicited asynchronously. An adaptation of the Stages of Concern Questionnaire (SoCQ) based on the CBAM was administered to all the English language teachers teaching in the five Smart Schools in Sabah. According to the findings, the concerns of the teachers largely focused on the "self" and "task" stages of the Stages of Concerns (SoC) model. Findings derived from supplementary open-ended elicitation procedure revealed that teachers were concerned with the processes and tasks involved in implementing the innovation such as those relating to their daily teaching duties, the best use of ICT in teaching and learning, scheduling, time, and organization.

Keywords: CBAM, English teachers' concerns, Malaysian Smart school implementation, teacher professional development

Introduction

The implementation of educational innovations is recognised in the literature as typically presenting a number of challenges. Examples of innovations, that were implemented as intended, whether they were implemented abroad or locally, are indeed few and far in between. For example, in various findings culled from studies abroad, such as those by Verspoor (1989), Fullan and Hargreaves (1992), Low *et al.* (1993), Pennington (1995), Hamilton (1996), Karavas-Doukas (1998), Dexter *et al.* (1999), Wetzel (2001), and Wedell (2003), it was found that most innovations failed or were "subverted" and partly implemented.

Thus, for instance, Dexter *et al.*'s (1999) study shows that teachers' resistance to change is primarily due to their concerns regarding the influence of instructional technology integration on their preparations, beliefs, and values. The concerns identified included teacher technical ability and proficiency with instructional proficiency, organizational culture, and climate conditions that are beyond the control of the teachers. Further research by Wetzel lends support to the findings by Dexter *et al.* which found that teachers have not rushed to change their instructional practice to accommodate the integration of instructional technology to facilitate their teaching and learning process. According to research done by Dexter *et al.* (1999) and Becker (1991), teacher resistance to change is primarily due to their concerns relating to teachers' technical ability and proficiency with instructional proficiency, organizational culture, and climate conditions that are beyond the control of the teachers. Additional research by Wetzel lends support for research by Dexter *et al.* which found that the work of integrating instructional technology into practice is a complex process.

According to Henrichsen (1989) and Hord *et al.* (1987), teachers encounter this complex process as either a bureaucratic or a professional culture and that the manner in which they encounter the process presents dissimilar viewpoints to teachers. Wetzel (2001:44) argues that, "bureaucratic cultures tend to give teachers autonomy in their classrooms, but restrict their participation in curricular and organizational decisions." On the other hand, "professional cultures support innovation and collaboration among teachers and it was found that in such culture, decisions are based on a guiding philosophy regarding teaching and learning and sensitivity to the learning needs of the students." Becker (1991) (in Wetzel, 2001) found that only 5 percent of technology implementation programmes succeed beyond a three- to five-year period in schools and the main culprit to such low success rate was attributed to the bureaucratic cultures of school.

Similarly, research on the many innovations carried out in Malaysia by Charlesworth (1975), Ahmad (1986), Rahman (1987), Khalid (1989), Syed Zin (1990), Ibrahim (1991), Nor Puteh (1994), and Goh (1999), indicate that there is surprisingly little change at the classroom level. Thus, for instance, in a case study investigation, Nor Puteh finds that many teachers continue to feel there was nothing substantively new about the *New Integrated Curriculum for Secondary Schools* (in Malay language, *Kurikulum Bersepadu Sekolah Menengah*, KBSM) despite efforts to help them adopt new approaches to teaching and learning. Recent studies carried out on the SSC innovation project, especially on the teaching and learning component of the project, have revealed a number of difficulties (Salim and Md. Nor 2005; Mohd Nor 2005). Salim and Md. Nor, for instance, in their study of the implementation of the Smart School approach in the state of Selangor via questionnaire survey and interviews, found that the lack of resources (particularly those relating to computers, teaching-learning materials, and classroom size), shortcomings in teacher development, teachers' heavy workload, and the examination-oriented nature of the educational system were the major stumbling blocks preventing teachers from successfully implementing the Smart School approach. Similarly, Mohd Nor's study using interviews, classroom observations, and document reviews on the factors facilitating the integration of the ICT element in Malaysian Smart Schools (MSS), highlighted the conditions that facilitated or hindered its integration in Smart Schools. Of the three pilot Smart Schools studied, only one appeared to have integrated ICT into classroom teaching, with another showing signs of partial implementation, and the third abandoning the process altogether. Mohd Nor also found teachers faced various problems in implementing ICT integration in the MSS classrooms — shortage of time, course content problems, technical malfunction, and so on.

Depending on the types of concerns and the related feelings of certainty (or uncertainty), teachers may consider themselves as qualified or not to implement the desired innovation. It has been acknowledged that teachers are likely to resist change, unless they are convinced that it significantly benefits themselves and their students (van den Berget *et al.* 2000; Cristou *et al.* 2004). van den Berg *et al.* partly attributed this reaction to the teachers' reluctance to view themselves as change agents. Since Smart School teachers play an important role in the effective implementation of the Smart School innovation, it is therefore necessary to investigate the nature of teachers' concerns in the technology-enhanced innovation adoption process. A commonly used theoretical framework to assess reaction to computer technology usage is the Concerns-Based Adoption Model (CBAM). The concept of "concerns" has been described as, "the composite representation of the feelings, preoccupation, thought, and consideration given

to a particular issue or task. Depending on the personal make-up, knowledge, and experience, each person perceives and mentally contends with a given issue differently; thus there are different kinds of concerns” (Hall and Hord 1987, 59). The theory and research of Hall and Hord (1987) and Hall *et al.* (1987) that “concerns change over time in a fairly predictable, developmental manner.” It is postulated that if concerns can be predicted throughout the change process, then it is possible to “design in-service and other intervention activities to address those needs” (Dooley 1999).

In the sections that follow, the background of study will be outlined in order to provide the basis for the succeeding sections. First, the innovation is presented. Then, the theoretical framework, methodology, data analysis, and findings of this study are introduced. Following that, the paper delineates and discusses the findings obtained. The final section of the paper examines the implications of these findings to curriculum implementation.

Background of Study

The Malaysian Smart School Curriculum (SSC) innovation and challenges posed

The Malaysian Smart School Curriculum (SSC) innovation has been borne upon Malaysia’s ambitious drive to achieve developed nation status by the year 2020 (a long-term national project known as “Vision 2020”). The vision calls for a sustained, productivity-driven growth, and requires Malaysian citizens to be technologically literate, creative, and critical-minded in order to meet the challenges of the “Information Age” (Ministry of Education 1997, 9).

Thus, in 1999, as part of this process, Malaysia embarked on a massive endeavour at the national level to implement an educational innovation to bring about a paradigm shift in her national education policy. Towards this end, a curriculum blueprint (*The Malaysian Smart School—A Conceptual Blueprint*), in keeping with this ambition was formulated by the Ministry of Education in consultation with a group of foreign educational experts, industry representatives, and officials from the Multimedia Development Corporation (MDC), in an attempt to ensure that the latest thinking from both inside and outside Malaysia was brought to bear (Ministry of Education 2004, 5). In this way, the new curriculum would capture global educational best practices, rather than just being based solely on the potential from development residing within indigenous educational traditions.

This resulted in the SSC initiative (Ministry of Education 1997, 9). The overall goal of the SSC has therefore been to restructure the entire basic education school teaching and learning environment as a major part of realising the aims of Vision 2020. Starting with ninety pilot schools in 1999, the intention is to complete the implementation of the SSC initiative in all the ten thousand Malaysian basic education level schools by the year 2010 (ibid., 9).

The overall nature of the change

The SSC involved restructuring at the basic education level of fundamental educational components such as the curriculum, pedagogy, teaching-learning materials, and assessment.

Thus, at the curriculum level, the SSC is designed to ensure that children are educated with critical and creative thinking skills, inculcated with appropriate values, and encouraged to improve their language proficiency while being allowed to progress at their own pace according to their own learning preferences and needs (Ministry of Education 1997, 11).

Accordingly, it is intended that the SSC pedagogy will use a mix of learning strategies to make learning more interesting, motivating, stimulating, and meaningful while at the same time ensuring mastery of basic competencies, promoting holistic development, and accommodating individual different learning styles (ibid., 11).

In turn, teaching-learning materials designed as vehicles for the new SSC strategies are intended to accommodate students' differing needs and abilities while also ensuring a fuller realization of the learners' capabilities and potential. They are also expected to allow learners to partake actively in the learning process while at the same time assuming greater responsibility for managing and directing their own learning (Ministry of Education 1997).

The SSC assessment procedures are intended to replace a predominantly norm-referenced system with one that is element-based and criterion-referenced in order to provide a more holistic and accurate picture of a student's performance (ibid., 11). Thus, the scope of the SSC initiative involves far-reaching and fundamental systemic and cultural change in all main aspects of the Malaysian basic education system.

The cultural and professional challenges posed by the SSC innovation

As previously indicated, reform of this nature clearly involves a major shift in the underlying thinking and methodological practices on the part of teachers.

However, it can be assumed that a similar level of change has to be undertaken by all the other main stakeholders concerned as well.

Thus, learners have to accustom themselves to new pedagogical practices; parents have likewise to come to terms with what the new curriculum means; those with school-level responsibility for overseeing the implementation of the innovation, such as principals and heads of department, have to work out how to introduce and guide the change process so as to make the new ideas work as effectively as possible in everyday school context; trainers and materials developers have to re-orient their thinking in order to devise pedagogical models and teaching resources of a very different nature; and assessment experts have to wrestle with the challenges of bringing about what is in many ways a volte-face in assessment practices.

The introduction of the SSC has thus involved “root and branch” change at all the main levels of the basic education system. Teachers, however, by virtue of being the primary interface between the curriculum vision and its delivery to the intended beneficiaries, have been particularly at the sharp end of this process. Although the instructional evolution involving ICT in teaching is not meant to demand teachers to abandon their traditional practices altogether, there is no denying that the SSC innovation entails a massive transformation in the way teachers work. Teachers who have been comfortable all along in the traditional delivery mode might not be willing to give up their roles as “a sage on the stage” to become “a guide by the side.” The biggest concern is the disparity between the pedagogic assumptions underlying the objectives of the innovation and the pedagogic practice of most teachers in Malaysia. Historically, the educational culture in Malaysia is one that is transmission-based. Adopting a new teaching and learning paradigm that is interpretative-based raises serious concerns about the viability and sustainability of the innovation. Thus, it is therefore primarily their views and experiences on which this study concentrates.

Theoretical Framework

The Concerns-Based Adoption Model (CBAM) was used as a heuristic to answer the following main question: *What are the ESL teachers' concerns in implementing the SSC innovation?* This question was formed in order to identify teachers' readiness in the form of Hall and Hord's (1987, 58–59) “concerns,” i.e., “the composite representation of the feelings, preoccupation, thought, and consideration given to a particular issue or task,” faced by the teachers in implementing the SSC innovation.

The Concerns-Based Adoption Model (CBAM)

The CBAM model is commonly used to describe how teachers perceive an innovation from the time they first became aware of it until they gained mastery of the innovation (Hall and Loucks 1978). Users were initially concerned about how an innovation affected them personally and later became concerned with how the innovation impacted their work environment. A Stages of Concern Questionnaire (SoCQ) was developed from the original conceptualizations provided by Hall *et al.* (1973). Seven stages of concerns affecting users or potential users of an innovation were identified, namely, Awareness, Informational, Personal, Management, Consequences, Collaboration, and Refocusing. These stages of concerns are perceived to be distinctive, but are not necessarily mutually exclusive (Hord *et al.* 1987). The seven stages vary in intensity and, consequently, characterize the developmental nature of individual concerns. The seven stages of concerns include:

TABLE 1: Seven stages of concerns

Stages of Concerns	Descriptors
Awareness (Stage 0)	<i>Teachers have little knowledge of the innovation and are likely to exhibit little or no concern about it.</i>
Informational (Stage 1)	<i>Teachers exhibit concerns for what the innovation is and the requirements for its implementation.</i>
Personal (Stage 2)	<i>Teachers become absorbed with the effects of an innovation upon themselves personally. They may be concerned about their own time limitations and the changes they will be expected to make. At this point they exhibit little concern about how to manage the changes in their classroom or how the changes will affect the level of student learning.</i>
Management (Stage 3)	<i>Concerns begin to focus on methods for managing the innovation within the classroom. Teachers now express concern over organization, tasks and details of the implementation, and overcoming difficulties.</i>
Consequence (Stage 4)	<i>Teacher concerns now focus upon effects on student learning. If positive effects are observed, teachers will desire to continue the implementation.</i>
Collaboration (Stage 5)	<i>Concerns again shift towards need to coordinate, share, and work cooperatively with colleagues in implementing the innovation.</i>
Refocusing (Stage 6)	<i>Teachers evaluate the innovation and make suggestions for continued improvements, or teachers consider alternate innovations.</i>

Source: Adapted from Hall and Hord 2001, 63.

The various stages of concerns can be summarized in table 2, along with the "focus" (i.e., the broad category of type of concern) each of them is perceived to relate to, as well as typical expressions of each of the concerns.

The stages of concerns are grouped into three dimensions: Self, Task, and Impact (Hord *et al.* 1987) in order to reflect the developmental nature of concerns. Thus, in the early stages of a change effort, an individual is typically deemed to have personal concerns with the change (*Self* concerns). In the latter stages of an innovation, however, *Task* and *Impact* concerns of the innovation become more pronounced.

The system, first of all, allows for the possibility of a complete lack of awareness and thus of concerns. Then come "self" concerns, which are those that deal with the subject's personal feelings of adequacy and competence in relation to handling the innovation in question; "task" concerns relate to subjects' preoccupation with mastering the techniques involved in various aspects of teaching associated with the innovation; and "impact" concerns are those that focus on student learning and what the subject can do to enhance student learning.

As can also be seen, "Unrelated" concerns consist of one stage, i.e., Awareness. "Self" concerns consist of two stages, Stage 1—Informational, and Stage 2—Personal. "Task" concerns consist of Stage 3—Management, and "impact" concerns consist of Stage 4—Consequence, Stage 5—Collaboration, and Stage 6—Refocusing. In the Awareness stage, the teacher has little awareness of the innovation and is not likely to be concerned about it. In the Informational stage, teachers are seeking an understanding of the innovation itself. Teachers at the Personal stage are beginning to express concerns about their ability to meet changing expectations resulting from the innovation. In the Management stage, teachers focus on implementation concerns, i.e., those arising out of attempts to put the change into practice. Teachers at the Consequence stage express concerns about the impact of the innovation on their students while in the Collaboration stage, teachers become concerned about their relationship with others also involved in implementing the innovation. Finally, in the Refocusing stage, teachers express an interest in adapting the innovation or considering alternative innovations.

TABLE 2: Stages of concerns: typical expressions of “concern” about an innovation

Focus	Stages	Typical Expressions of the Concerns
<i>Unrelated</i>	<i>0: Awareness</i>	<i>I am not concerned about it.</i>
<i>Self</i>	<i>1: Informational</i>	<i>I would like to know more about it.</i>
	<i>2: Personal</i>	<i>How will using it affect me?</i>
<i>Task</i>	<i>3: Management</i>	<i>I seem to be spending all my time getting materials ready.</i>
<i>Impact</i>	<i>4: Consequence</i>	<i>How is my use affecting learners?</i>
		<i>How can I refine the program to have more impact?</i>
	<i>5: Collaboration</i>	<i>How can I relate what I am doing to what others are doing?</i>
	<i>6: Refocusing</i>	<i>I have some ideas about something that would work even better.</i>

Source: Adapted from Hall and Hord 2001, 61.

Methods

Instrumentation: Teacher Questionnaire

According to Hall and Hord (2001), there are three ways of assessing concerns: one-legged interviews, open-ended statements, and stages of concerns questionnaires. Each of these methods has their strengths and weaknesses. However, only the results of the stages of concerns questionnaires (SoCQ) are presented and discussed.

The stages of concerns used in the study do not correspond exactly to the original 35-item 7-stage concerns developed by Hall, George and Rutherford (1979). Instead, the simplified 22-items 5-stage version of Stages of Concerns Questionnaire modified by Cheung *et al.* (2000) was used. There were two main reasons why the shorter version of the SoCQ was adopted. Firstly, in a recent study by Cheung *et al.*, it was revealed that the 35-item 7-stage model in Hall *et al.* (1979) was unwieldy. Using a modified 5-stage 22-item model, Cheung *et al.* found that their version worked more satisfactorily. Their modified five stages of concerns are summarized in table 3.

Secondly, the shorter version of the SoCQ was adopted because feedback from earlier pilot studies indicated that the 35-item questionnaire was too time consuming and laboriously demanding to respond. As there was

also other information being sought in the questionnaire, it was therefore decided for this reason also that the shorter Cheung *et al.* (2000) questionnaire was better suited for this study with minor adaptations in wording to suit the specifics of the research context (see appendix A for the list of the 22 questions that were used).

TABLE 3: Modified stages of concerns

Focus	Stages	Typical expressions of the Concerns
<i>Self</i>	1: Indifference	<i>Little concern about or interest in the innovation.</i>
	2: Informational/ Personal	<i>Is concerned about some general aspects of the innovation, such as unique features and benefits of the innovation, requirements for use, and personal commitment.</i>
<i>Task</i>	3: Management	<i>The focus is on efficiency and time demands of implementing the innovation. The person is worried about issues such as the best use of information and resources, scheduling, time, and organization.</i>
<i>Impact</i>	4: Consequence/ Collaboration	<i>The person is concerned with impact of the innovation on students as well as coordination and cooperation with others regarding use of the innovation.</i>
	5: Refocusing	<i>The focus is on possibility of improving the innovation by changing some of its features or by replacing it with an alternative.</i>

Source: Adapted from Cheung and Ng 2000, 110.

Participants

The SoCQ was administered to 28 English language teachers in all five secondary Smart Schools in the state of Sabah implementing the SSC. A total of 21 ESL teachers completed and returned the questionnaire giving an overall return rate of 75 percent. Demographic information of the participants who took part in the survey such as the gender of participants, the age category, the number of years of teaching experience, and attendance in the 12/14 week Smart School Inservice Training (INSET) course are shown in table 4.

TABLE 4: Demographic information of respondents

Demographic Information		
Gender	Frequency	Percent (%)
Male	3	14.3
Female	18	85.7
Total	21	100
Age in categories		
21-30	5	23.8
31-40	12	57.1
41-50	4	19.0
> 50	0	-
Number of years of teaching experience		
0-5	6	28.6
6-10	3	14.3
11-15	5	23.8
16-20	3	14.3
> 21	4	19.0
Special 14-week INSET for Smart School		
Attended	2	9.5
Not attended	19	90.5

As can be seen, the respondents consisted of 85.7 percent female compared to 14.3 percent male. Most of the respondents (57.1%) were within the ages of 31 and 40 with an average of ten years of teaching experience, followed by 23.8 percent of teachers between the ages of 21 and 30 and 19.0 percent of teachers between the ages of 41 and 50. Hence, the bulk of the respondents (approximately 76%), were experienced teachers with more than five years of teaching experience. However, despite the fact that most of the respondents were trained teachers, only a few of them had attended the INSET course designed for teachers to carry out the innovation in schools (9.5%). The majority of the teachers had not attended any formal courses. Most of them professed to implement the innovation based on whatever they learned from the in-house training conducted by their peers in schools and "learning by doing."

Data analysis

Group concerns can be analysed by “aggregating individual data together to form a profile that provides the average scores for each stage of the individuals in a group. The group averages will typically reflect the dominant high and low stages of concern for the entire group.” In this study, participant responses on the SoCQ were analysed using SPSS. The first and the second highest stages of concerns for all respondents were analysed for possible patterns along with the lowest stage of concerns. Hall *et al.* (1979) pointed out that identifying the second highest stage of concerns along with the peak stage allow us to develop a profound understanding of the dynamics of concerns of these group of teachers.

According to Hall *et al.* (1979, 32), there are two recommended ways of treating group data of this kind. One way of looking at group concerns is “to aggregate individual data by developing a profile that presents the mean scores for each stage of the individuals in a group. The group averages will reflect the dominant high and low stages of concerns of the composite group.” The second way is “to tally the number of individuals that are high on each stage” (*ibid.*), which when collated, provides a picture of the range of peak stage scores within a group. Both procedures were felt to be useful and are used in the data presented below.

Results

Profile of group concerns

To portray a profile of the stages of concerns, teachers’ responses to the 22 SoCQ items were first coded on a scale of 0 to 7; 0 for “not true of me now” through to 7 for “very true of me now.” High number responses indicate a high level of identification with the concerns in question, and vice-versa. Then, the raw score for each of the five stages was summed up and the mean scores for each stage were aggregated using a statistical software program (SPSS Version 11.5). Table 5 summarizes the group means for the five stages of concerns.

TABLE 5: Group means for each stage of concerns

		Stages of Concerns				
		Self		Task	Impact	
		Stage 1 Awareness	Stage 2 Informational/ Personal	Stage 3 Management	Stage 4 Consequence/ Collaboration	Stage 5 Refocusing
N	Valid	21	21	21	21	21
Mean		2.63	4.61	4.43	4.45	3.87
Std. Deviation		1.12	1.41	1.09	0.90	0.90

As can be seen, there is a relatively high level of intensity of concern at Stage 2 (Informational/Personal), 3 (Management), and 4 (Consequence/Collaboration). Stage 1 (Awareness) and Stage 5 (Refocusing) concerns, on the other hand, were somewhat lower.

The high score for Stage 2 (Informational/Personal) concerns suggests that the group might be having widespread worries about their ability to perform in the school environment in terms of the innovation. Both the Informational and the Personal stages relate to self-worries of teachers, such as issues with perceptions of benefits, requirements for use, and personal commitment to the innovation. There were also high Stage 4 concerns—those associated with Consequence and Collaboration, i.e., concerns related to the impact of the innovation on students as well as coordination and cooperation with other teachers regarding use of the innovation. The relatively high level of Stage 3 concerns—Management, i.e., concerns regarding the daily teaching duties, also merits attention. It suggests that there were a good number of teachers who were still worried about issues such as the best use of information and resources, scheduling, time, and organization.

Meanwhile, the relatively lower scores for Stage 1 concerns (Awareness—the issue of teachers having little knowledge of the innovation and have no interest in taking any action in connection with it) and Stage 5 (Refocusing—to do with ways of thinking about improving the innovation by changing some of its features or by replacing it with an alternative) suggests that by and large, the majority of the respondents were not as strongly affected by concerns related to these stages. The relatively low Stage 1 concerns suggest that the teachers were reasonably well aware of the nature of the

SSC innovation. Stage 5 concerns were also not as intense as Stage 2, 3, and 4, presumably because they occur mainly after the earlier stages of concerns have been allayed (Hall *et al.* 1979) and, as this appeared to have not yet occurred, were off the respondents' "radar."

Taken as a whole, thus, the profile that emerged seems to indicate that the awareness-raising stage of the innovation implementation process appeared to have been completed with a reasonable degree of success, but has yet to be capitalized on in terms of sufficiently turning "theory" into everyday "practice." By the same token, the more advanced implementation stage, associated with Level 5 concerns, has yet to be reached by many in the group presumably because of the continuing preoccupation they have with Stage 2–3 concerns. This implies that the more developed, personalized levels of ownership of the innovation (high Stage 4 and 5) associated with successful innovation (Hall and Hord 1987, 72) have yet to occur for many of the teachers.

Individual peak score data

The former procedure, i.e., looking at the group profile by the mean scores of the individuals in a group is useful in providing an overview of the group concerns. However, the limitation is that it obscures any high peak score trends due to the process of averaging individual data. As a result, it may not reveal the individual highs of distinct subgroups which are useful to help develop additional insight into the dynamics of concerns. This is where the second treatment of group data, the frequency count of high stage scores, is beneficial.

The profile for the individual peak score is derived by tallying up the number of individuals that are high on each stage. The data when collated provides a picture of the range of peak stage scores within a group, as shown in table 6.

TABLE 6: Frequency of highest concerns stage for individual respondents

	Highest Stage of Concerns (N = 21)				
	Stage 1 Awareness	Stage 2 Info/Personal	Stage 3 Manage	Stage 4 Con/Colla	Stage 5 Refocus
Number of Individuals	0	7	9	4	1

As can be seen, out of the five stages of concern, Stage 3 concerns (Management) has the highest number of people (9), followed closely by Stage 2 concerns (Informational/Personal) with seven people. There were four individuals with high Stage 4 concerns (Consequence/Collaboration), but only one respondent with a high Stage 5 concerns (Refocus). As expected, none of the respondents had high Stage 1 concerns (Awareness). This would appear to be because the SSC innovation is currently at the post-pilot implementation phase and to have teachers in the Smart School not being aware of the innovation at this stage would be very unusual. Comparing these results with the earlier group findings (see table 5), we can generally surmise that the ESL teacher respondents as a whole had intense Stage 2 (Informational/Personal) and Stage 3 concerns (Management) and an average Stage 4 concerns (Consequence/Collaboration), thus supporting and affirming the earlier findings that the majority of the Smart Schools' ESL teachers were having intense "self" and "task" concerns, i.e., they appeared to be too preoccupied with the problems of how to make the SSC innovation work in practice for them.

Open-ended responses

Besides examining data derived from the closed-ended items in the form of the SoCQ, open-ended data were also elicited from respondents via e-mail and asynchronous discussion board (Nicenet—www.nicenet.org). From the list of 21 teachers who returned the questionnaire, a group of seven teachers from a school, who kindly consented to be interviewed, participated in responding to the following set of questions online. The teachers were requested to download and answer the attached file containing the following questions:

TABLE 7: Online open-ended questions for selected ESL teachers

Open-ended questions

Theme 1: Implementing SSC innovation

1. Share with me your understanding of the SSC?
 2. Does the SSC fit in with your own daily routine in school? Explain. Why and why not?
 3. What have been some of your successes with implementing the SSC?
 4. What are some of the challenges that you face?
-

To facilitate greater discussions, participants were also invited to contribute their opinions to an online discussion board asynchronously relating to their experiences teaching in the Smart schools. The online discussion board yielded some interesting data. The following excerpts were selectively taken in verbatim from the open-ended responses of Teacher 2 (T2), Teacher 3 (T3), and Teacher 7 (T7), provides a flavour of some of the responses:

- T2: I want to learn but I feel I don't have enough time because human that I am I do feel tired. The activities that I have outside the curriculum are very tiring because they require personal attention to students and training and all that. So because of the exhaustion and all that I can't focus on what to do on the computer.

[T2 Jay: Line 87–91]

- T3: Basically we are bogged down with so much of work and our main aim is to finish the syllabus and of course between that a lot of activities, tests and a hundred and one things . . .

[T3 Maggie: Line 57–59]

- T7: We are doing a lot of clerical stuff, like keying in students' data in the computer. It's like double entry because we have to do the same thing in our register and the SSMS (Smart School Management System). It's redundant. We are doing double work. We are writing and rewriting the same thing. A lot of redundant work and it's a big burden to us. Every free period we get we have to go to the computer and then do our lesson plans . . .

[T7 Susie: Line 251–275]

As can be seen, the teachers were concerned about themselves, the processes and tasks involved in implementing the innovation such as those relating to organizing, managing, and time demands. Corroborating these with the concerns data discussed earlier, it appears that some of the ESL teachers exhibited considerably intense levels of “self” and “task” concerns (Hall and Hord 1987, 2001), especially in terms of making the SSC work at the classroom implementation level.

Discussion

The teachers in this study expressed greater informational/personal, management, and consequence/collaboration concerns. It appears that these teachers wanted to know more information about SSC, i.e., what SSC is and how using it affects them. These expressions of concerns were typical of a nonuser or inexperienced user. The peaking at *Stage 4—Consequence/Collaboration* concerns by teachers who had been implementing the SSC for a few years indicated that these teachers were beginning to be concerned about the impact of the SSC on learners. It shows there are some teachers who are experienced enough in their implementation are now reassessing and refocusing their concerns on improving the impact of the innovation on their students. Although Stage 4 concerns was the peak of concerns, the close second and third highest peaks at Stage 2 and Stage 3 respectively, should also be noted.

The second highest peak at Stage 2 implies that there are still many teachers who are still concerned about the benefits, requirements for use, and personal commitment to the innovation. Such a trend is worrying as it implies that there are some teachers who are still uncertain about the innovation and are crying out for more support and help.

It should also be noted that Stage 3 concerns are also high, implying that there are certain teachers who are still worried about issues such as the best use of information and resources, scheduling, time, and organization.

Regardless of the level of concerns about the SSC, teachers also show they have refocusing concerns, i.e., ideas about improving the SSC that would make it work better. This phenomenon is more indicative of experienced users of an innovation who have used the innovation with efficiency for some time and are concerned with finding better ways to impact learners. One explanation for this phenomenon in this study may be a lack of a basic understanding or knowledge about the SSC that may have resulted in a lack of sufficient training. Rogers (1995) suggested several reasons for re-invention of an innovation that may apply to these findings: (1) the complexity of the innovation; (2) a lack of detailed knowledge about the innovation; (3) an innovation with many possible applications; and (4) an innovation that is implemented to solve a wide range of problems.

Another important point to note regarding the multiple-peak profile is the need for attention by change managers and the Education Department. The high management concerns indicate that those teachers with more than

five years experience with SSC are having difficulties doing what was required by the new curriculum. Also, high consequence/collaboration and refocusing concerns indicate that the teachers had ideas about improvements on SSC. However, according to Hord *et al.* (1987), teachers with this kind of multiple-peak concerns profile often believe that it would be better to return to the old practices (Cheung and Ng 2000,119). It appears that change agents and the Education Department need to think of intervention strategies to allay these teachers' concerns and helping them to channel their ideas in productive ways.

The findings of the study support the position that teachers' concerns and perceptions of SSC influence the way in which they implement the SSC. Implementation of SSC does not happen by itself. The SSC implementation is a complex and prolonged process that must be nurtured and sustained.

For schools to experience significant change or reform due to the integration of computer technology in classrooms, the existing instructional concerns and practices of teachers must be carefully considered. Long-term in-service training based on the stages of concerns theory is needed; short-lived "hit and run" in-service effort is bound to fail (Cheung and Ng 2000,119).

Limitation of Study

Obviously, the present study, due to its limited sample size only yielded limited information regarding the status of the innovation and therefore may not provide enough useful suggestions for appropriate interventions. But, further data from study involving a larger sample size would certainly provide a more accurate snapshot of the implementation phenomenon of ESL teachers in their classes. Qualitative data via interviews and observations from actual classroom practices would also help to triangulate findings obtained from SoCQ.

Implications for Curriculum Implementation

There are several implications for curriculum implementation that can be drawn from the results of this study. Firstly, it is important for policy makers, teacher trainers and change agents to recognize that teacher concerns are natural

occurrences with a new curriculum, no matter what the curriculum is. Any curriculum innovation thus would entail developmental growth in teachers' feelings about the innovation. However, the positive thing about this revelation is that teacher concerns largely occur in measurable sequential stages, therefore making it possible for the relevant change agents and Education Department to anticipate them during the curriculum implementation process.

An important message for policy makers, Education Department officers, and change agents involved in overseeing the implementation of the SSC innovation is for them to understand that "self" concerns (i.e., the indifference and informational/personal concerns) are a fully legitimate part of the process of curriculum change. The Education Department and other change agents should not blame teachers for not implementing the innovation as planned but rather devise at the outset of the change effort to help teachers resolve their "self" concerns and to facilitate movement towards "task" and "impact" concerns.

Another important point to note is that teachers themselves should have the awareness that it is not a sin if they have "self" concerns about a new curriculum. They need to understand that their concerns are just a natural reaction to any change process. Since not many teachers understand their own developmental progression of concerns, it appears then that greater dissemination of the concerns theory need to be done.

Conclusion

The adoption and implementation of a new innovation requires time and appropriate intervention strategies to be successful. This study has presented a model for understanding and assessing the implementation of a technology-enhanced curricular innovation. The concerns-based approach requires the understanding that a school does not change until each individual changes throughout the whole system (Hall and Hord 1987). Concerns data, along with other data, can provide a foundation for a ground-up approach to effect systemic change in education.

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The 22-item Stages of Concerns (SoC) Questions

Stage 1—Indifference

- 1 I don't even know what SSC is
- 6 I am not concerned about the SSC
- 11 I am completely occupied with other things
- 17 At this time, I am not interested in learning about the SSC

Stage 2—Informational/Personal

- 14 I would like to know what teachers are required to do
- 16 I would like to know the time and energy commitments required to implement the SSC
- 20 I would like to know how my role will change when I use the SSC
- 21 I would like to know why the SSC is better than the KBSM curriculum
- 22 I would like to know how the SSC differs from the KBSM curriculum

Stage 3—Management

- 2 I am concerned about not having enough time
- 3 I am concerned about how to accomplish effectively the obligations of the SSC
- 7 I am concerned about my inability to manage all the SSC requirements
- 13 I am concerned about time spent on non-academic matters related to the SSC

Stage 4—Consequence/Collaboration

- 9 I am concerned about evaluating my impact on students
- 5 I would like to develop working relationships with other teachers
- 8 I would like to familiarize others with the progress of the SSC
- 15 I would like to coordinate my teaching with other teachers

Stage 5—Refocusing

- 19 I would like to use feedback from students to change the SSC
- 4 I am concerned about revising the SSC to improve its effectiveness
- 10 I would like to revise the SSC instructional approach
- 12 I would like to modify the SSC based on students' learning experiences
- 18 I would like to determine how to supplement, enhance, or replace the SSC

REHEARSAL FOR READING COMPREHENSION: SABAHAN SCHOOLCHILDREN USE PUPPETS AND SCRIPTS TO LEARN ENGLISH

Tamara Dietrich Randolph

ABSTRACT

Fourth-, fifth-, and sixth-grade students in a private rural school in Sabah, East Malaysia, participated in a 7-day pilot study to determine the efficacy of using puppets and natural science scripts in learning English. The experimental group read printed puppet scripts while listening to them on a battery-operated audiotape player, rehearsed several times while manipulating the puppets, and then presented to an audience of their peers. To minimize the Hawthorne effect, the control group was involved with distracter activities, such as creating some type of engaging craft object or listening to the researcher read an English-language illustrated story to them. Five students randomly chosen to be in the experimental group attained considerably higher average post-test than pre-test reading comprehension scores as well as slightly higher average post-test vocabulary scores on a standardized reading test. Average post-test scores for students in the control group stayed the same for reading comprehension and went down for vocabulary. The qualitative component of the study showed strong motivation and engagement on the part of the students who used puppets, suggesting that this approach may be valuable in teaching science terms to rural schoolchildren in Sabah.

Introduction

On a tour of private schools in Sabah, East Malaysia, in the fall of 2005, the writer found that there was a strong need for more engaging materials to assist the students in knowing science and mathematics terms in English for their national tests. Additionally, as a vehicle for learning English, puppets were in high demand, which correlated with one of the area's traditional art forms (Saad 1993). With these needs in mind, upon returning to the United States,

the writer searched for durable, realistic animal puppets that could be used with natural-science puppet scripts. In her curriculum and instruction classes, she introduced script writing as a class assignment. The students researched facts about birds, insects, or animals, and then wrote engaging scripts.

Throughout the next school year and summer we created 25 high-interest reading/listening centres complete with puppets, scripts, and audiotapes. In the fall of 2006, the writer took these 25 reading/listening puppet centres to Wild Mango Primary School in Sabah, East Malaysia, to initiate a small-scale pilot study.

This paper will establish the theoretical background for the study, review research methods for the process, analyze findings, and initiate directions for further research. One research question was whether using puppets with written and audiotape scripts would increase reading comprehension in English of students randomly assigned to an experimental group from a convenience sample of fourth- and fifth-graders at Wild Mango Primary School. A second related question was whether use of these scripts would increase student recognition of high-frequency English words that can account for as much as three-fourths of all written English text (Blachowicz and Fisher 2000). Control and experimental groups were to be pre- and post-tested for vocabulary and reading comprehension.

Puppets as a Type of Task-based Learning

For task-based learning of a target language to be efficacious, according to Carless (2004, 641), it needs to have purpose, context, process, product, and what he calls "a framework of knowledge and skills." For this pilot study, having primary school age children using the target language expressively and receptively while rehearsing scripts with puppets in order to present to classroom peers subsumes all those criteria. It also meets Harmer's (2003) notion of teacher and student negotiating a teaching/learning methodology culturally suitable to both. The research literature details several variations on using puppets in working with children and young people. Most were not in the field of literacy development, but there were a few reports that made the claim that puppet use stimulated language growth for native speakers of English as well as for non-English speakers learning another target language. In addition, findings from two quantitative studies not involving puppets were judged salient for the writer's study. These are briefly summarized below.

Puppets with Native-English Speakers

In this category are seven studies with young children, one report of high-school students who were being taught to read a native-American language, and a cluster of three related primary-school science findings. Yawkey's (1979) year-long study showed that five-year-old native-English speaking children learned and recalled language more effectively when they used puppets during play. Andersen's (1984) research with young children, ages three and four, showed that they exhibited surprising sophistication in terms of topics, vocabulary, syntax, and prosody as they spoke through the puppets to represent a doctor, nurse, teacher, students, and family. Bidwell (1992), a Chapter 1 reading teacher utilizing regular puppet performances with her students, found that fluency and reading comprehension increased as students re-read scripts. Garrett, Busby, and Pasnak (1998) used toy horses and hand puppets to successfully teach four-year-old Head Start students one-dimensional classification and serration in a quasi-experimental study. Szarkowicz (1999) found that young children ages 38 to 63 months were significantly more able than controls to determine false beliefs after they had participated in a story with finger puppets and dramatic action. Peck and Virkler (2006) reported on second-graders' increased comprehension, fluency, and expression by re-reading self-created and self-produced puppet plays. In Myers's (2006) classroom, using puppets with four kindergarten students for a school year greatly increased their ability to analyze, summarize, question, and predict. Teaching reading in the Hupa language was the subject of Bennett's (2002) report on work done in a Sebastopol, California, high school with shadow puppets and culturally authentic Hupa text. The conclusion was that puppets and texts supported goals of academic discourse development and more proficient reading in the target language. Puppets in primary-school science classes in the United Kingdom (Naylor *et al.* 2007) engaged children in the science process, drawing in those who were shy, motivating children to learn scientific vocabulary, and giving practice in using reasoning versus asking questions about process alone. An article by Maloney *et al.* (2006) gave preliminary evidence of similar findings, as did one by Keogh *et al.* (2006).

Puppets with Non-native-English Speakers

Two studies examined using puppets with non-native-English speakers who were either studying English or learning important health information in their

native language. In the latter category, Millican (1991) used rod puppets and stories to teach literacy classes in Senegal, reporting that students were more amenable to discussing difficult cultural topics when puppets were used. Summak, Summak, and Gür (1994) described the advantages of using traditional Turkish shadow puppets to teach English to Turkish-language students in the Netherlands, analyzing responses of 53 teachers of elementary-level children to determine that use of puppets allowed shy students to perform in front of classmates more openly than normal as well as to build syntactic and lexical skills in English. In addition, teachers judged that students felt the activity was enjoyable.

Contextualized Learning for Non-native-English Speakers Using Closed-Caption TV

Although the following study did not utilize puppets, the writer's inference was that viewing text while listening to the same text presented in an aural format could also provide contextual support, especially when opportunities to rehearse the script with attractive puppets for presentation purposes were systematically included. Neuman and Koskinen (1992) showed significant increases in vocabulary knowledge and conceptual science information in an experimental group of English-language learners in the United States when they viewed closed-caption television programmes. The researchers advocated the use of "reading materials with informative contextual supports" (*ibid.*, 103) to increase vocabulary skills.

Science Learning Using Stories

Again, no puppets were used in this study, but the notion of using literature to build science skills was what prompted the writer to use puppet scripts on natural science topics in her own research in Sabah. Morrow *et al.* (1997) studied the effects of using literature to teach science, randomly choosing two treatment groups and one control group with two classrooms in each group at one elementary school. One hundred twenty-eight students were pre-tested at the end of September and post-tested in May following eight months of treatment. Analysis was done on these scores, as well as on 180 hours of videotapes. Effect sizes for the treatment group where literature

was used both in literacy and science programmes were significantly greater than those for treatment groups where literature was used only in the literacy programme and those for the control groups where science and literacy were taught using basal texts and worksheets. In discussing their results, Morrow *et al.* referenced Bruner's (1986) paradigmatic versus narrative modes of cognitive functioning, suggesting that both modes were encouraged in experimental groups where literature was used in the science programme. This thesis was borne out by the writer's own research (Randolph 2001) with adults in mainland China using children's literature for learning English.

Materials and Methods

Twenty-five puppet scripts for the reading/listening centres were written, edited, and recorded for this pilot study. Students in two of the writer's curriculum and instruction courses were each assigned to write one puppet script with a minimum of seven scientific facts. The script had to be presented to the class with the aid of a realistic puppet.

The scripts were to be at least three minutes long, have a Flesch-Kincaid reading level (chosen for its ease of use in Word for Windows documents) somewhere between 1.5 (first-grade, fifth-month) and 4.5 (fourth-grade, fifth-month), and include a minimum of one human in addition to the animal. Fantasy was to be avoided. If the animals, insects, or birds talked at all, they had to confine their conversations to factual information that enhanced scientific understanding of that particular creature. The puppets themselves, if purchased, were carefully chosen for realistic design and colours, with reasonable cost factored in as well. Handmade puppets included stick, paper plate, and sock. Potentially problematic vocabulary terms were glossed in a section entitled "Words to Know."

Scripts were put into plastic envelopes and puppets were placed inside large zip lock freezer bags for safety from humidity and insects. The name of the matching script was written on each bag. A colourful plastic carousel clothespin line was included so that bags of puppets could be hung from the ceiling at the school.

A psychologist colleague who had made the initial trip to Sabah with the writer assisted in selecting a reading comprehension test, the *Woodcock Diagnostic Reading Battery* (1997). Since there was no known English-language reading comprehension test that had been a norm on the Sabahan students, this particular one was chosen as a convenient way to establish a

baseline score for both experimental and control groups. Another consideration was that our institution's curriculum library already had sufficient test booklets in stock and would allow us to use them without cost.

Prior to arrival in Sabah, the writer had obtained oral permission to involve the children in this research process; later she formalized this with written permission. Once at Wild Mango School, after randomly selecting half the students in the fifth- and sixth-grade classroom for the control group and half for the experimental group, then testing them all for reading comprehension and vocabulary identification, the writer initially planned for the experimental group to use the reading/listening centres while the control group did their regular reading programme for the rest of the term. The teacher would have control of the audio players and batteries, as this school does not have electricity, and would check those tools out to the students as needed for their work in the reading/listening centres.

Videotaping and observer journaling would be done while the writer was on site. Those data were to be analyzed to see if differences in attitude, risk-taking, and other qualitative aspects might be brought to bear on the reading comprehension issue.

The plan was that after one school term of following the schedule for use of the reading/listening centres by the experimental group, the teacher would retest the whole group for reading comprehension and forward the scores to the writer for comparison with their previous scores. The writer would then analyze the scores to see what differences, if any, might exist between those that used the reading/listening puppet centres and those that did not.

It turned out that the writer changed the original plan after she arrived and noticed the shining interest in the eyes of all ten students who were in the experimental and control groups. The writer immediately chose to use "distracter" activities with the control group, feeling that they might serve two useful purposes: one, to ward off the Hawthorne effect that could skew results towards higher scores for her experimental students; and two, to keep from disappointing those five pairs of eager, shining eyes. One of the strengths of qualitative research for classrooms is its recursive nature; thus, this change was acceptable, although it cut by half the amount of time the writer was able to spend with students from the experimental group. Nevertheless, the two factors discussed above outweighed the time consideration; thus, shortly after commencing the original research protocols, the writer began to work into her schedule the distracter process by reading the orangutan story with *C-Enam* and later with *C-Tujuh*.

All ten children who were in the Primary 5/6 classroom after the opening exercises on the writer's first day at Wild Mango School—and who were presented to the writer as eligible for the research programme—were scheduled that day for pre-testing for reading comprehension and word identification. There were two glitches, however. First, after the testing and random selection process, the writer found that three children were fourth-graders and one was a sixth-grader (The writer had been told that the sixth-graders were in another area preparing for their national tests). Second, a terrific storm came up during the time the tests were being conducted. At that point the writer was trying to do this in the little breezeway between the classrooms, but the storm completely disturbed the testing for one student. With the noise of the rain on the metal roof, one could not be heard except by shouting. All school activities ceased for the duration of the storm. Evidently, during this commotion the writer lost track of the fact that this student did not finish getting tested on reading comprehension. The writer did not find this out until she was back in the United States, analyzing the data.

After the storm, the writer finished testing the ten students and then randomly selected five students for the experimental group and five for the control group by drawing the numbers 1–5 or else “x”s out of a plastic cup. *E-Satu*, *E-Dua*, *E-Tiga*, *E-Empat*, and *E-Lima* drew the numbers 1–5, thus being selected for the experimental group, while *C-Enam*, *C-Tujuh*, *C-Lapan*, *C-Sembilan*, and *C-Sepuluh* drew “x”s and thus were selected for the control group. The average ages of the two groups turned out to be very similar.

The first full day at Wild Mango School, the writer started the research protocols with a reading/listening centre for *E-Satu*, using the bats script, tape, and puppets. The writer had set up the back desk in the corner of the room, facing the wall, with the text in its plastic folder, audiotape player with tape already inserted, and necessary puppets. After this initial single student, the writer set up another station and began working with the experimental students in pairs. The writer worked with the control groups on distracter activities one at a time. Rehearsals were scheduled for one initial reading with tape and script, followed by one time reading aloud with the researcher taking one of the parts, another rehearsal with the student reading the text and listening to the tape, and then the presentation, which was done with some visuals but no stage or curtain to stand behind. There were, however, extra regalia included in each script. The sheep script, for example, utilized a soft woolly sheep hand puppet, a farmer stick puppet, a daughter stick puppet, and tiny “wool” clothing pinned with minuscule clothespins to a miniature clothesline. These elements seemed to intrigue the four girls in the experimental group.

TABLE 1: Summary of results, including comprehension and letter-word identification scores

Name	Beginning Score	Ending Score	Comments
<i>E-Satu</i>	456 Letter Word ID score 479	446 LW ID score 492	Diligent about rehearsing and presenting. Drop in score could reflect psychometric principle of retesting going towards the mean. Did bats, chickens, sheep, dogs, snow scripts. Gave information for story frame for researcher to write children's book about her.
<i>E-Dua</i>	425 LW ID score 447	419 LW ID score 466	Seemed self-conscious. Often glanced up and around while rehearsing. Chicken script too high, so did dogs, sheep, pig, snow scripts.
<i>E-Tiga</i>	419 LW ID score 482	446 LW ID score 460	Tracked script with eyes while listening to audiotape, sub vocalized. Did pig, sheep, snow, chicken scripts.
<i>E-Empat</i>	380 LW ID score 463	412 LW ID score 476	Smiled often, sub vocalized, vocalized while reading script with tape. Did bats, sheep, snow scripts.
<i>E-Lima</i>	380 LW ID score 470	412 LW ID score 470	Enjoyed manipulating tape recorder. Smiled often as read with tape. Did bats, sun and rain, sheep scripts.
The above experimental students' average gain in comprehension scores was 15 points in seven days (the researcher met with many of the children and their families on Saturday and Sunday when school was not in session). Their letter-word identification average scores gained 4.6.			
<i>C-Enam</i>	unavailable (see p. 8 of this report) LW ID score 495	452 LW ID score 498	Cut paper snowflakes, read orangutan book, read <i>Too Much Snow for Tootie</i> book, snowman shapes and colours game. Gave information for story frame for researcher to write children's book about her.
<i>C-Tujuh</i>	380 LW ID score 479	380 LW ID score 470	Cut paper snowflakes, read book about <i>Children of Sabah—#1</i> , snowman shapes and colours game.
<i>C-Lapan</i>	441 LW ID score 495	441 LW ID score 479	Cut paper snowflakes, read orangutan book, snowman shapes and colours game, read snowflake book and <i>Too Much Snow for Tootie</i> book.
<i>C-Sembilan</i>	425 LW ID score 457	419 LW ID score 466	Cut paper snowflakes, read orangutan book, read snowflake book and <i>Too Much Snow for Tootie</i> book.
<i>C-Sepuluh</i>	430 LW ID score 504	436 LW ID score 498	Cut paper snowflakes, read orangutan book, snowman shapes and colours game. Read snowflake book and <i>Too Much Snow for Tootie</i> book.
Control students' comprehension-score averages showed the same score (419) for pre-test and post-test. They lost 3.8 points on letter-word identification score averages.			

Throughout the week that the writer spent at Wild Mango School, she was able to observe individual responses to puppets and scripts. The children exhibited what the writer has come to call "the shining-eyed syndrome." Their body language showed strong interest; their faces were animated. When they read, they focused exclusively on the text, their eye movements tracking appropriately from left to right and then back to the left, matching the taped reading. Movements or noises in the classroom did not appear to disturb them, with one exception. Of course, they had the headsets on, which helped to block ambient noise, but their focus is what kept them on task. They presented their scripts to their classmates with a fair degree of confidence, smiles, and laughter.

The control students participated in distracter activities, but those were not designed for the students to have the extra benefits of hearing language while at the same time seeing it in print. They also did not get the re-reading opportunities that have been found to be effective in raising fluency and reading comprehension (Samuels 2002; Samuels and Farstrup 2006). Additionally, control group students did not have the kinaesthetic advantages of handling technology or highly textured puppets. They listened to stories, looked at pictures in stories, and manipulated shapes for various crafts. The primary researcher talked to them, but there was very little, if any, language coming from the students to the researcher and certainly no rehearsal for presentations, as the experimental group was able to do.

Unfortunately, *C-Enam*, who obtained the highest control group post-test score (452), did not have a pre-test score for reading comprehension, which had been explained earlier. This was a shame, because *C-Enam*'s post-test reading comprehension was highest of any of the students, experimental or control (although it was lower than the starting score for *E-Satu*). *C-Enam* worked hard at all the distracter activities, but, of course, they were not designed for optimum language interchange. Of the control group with both sets of scores, *C-Sepuluh* was the only one whose comprehension score went up—from 430 to 436.

The average standardized score for the reading comprehension pre-test among the control students was 419. Their average post-test score was 419 also. This suggests that the distracter activities were not reading comprehension builders, at least not for this short-term, seven-day study. The finding contrasts all the more with the average fifteen-point gain for the experimental group. The average standardized score for the letter-word

identification pre-test for experimental students was 468.2. Their post-test average score was 472.8. This was a modest gain, but a gain, nonetheless, in their English pronunciation capabilities.

By contrast, the control group pre-score average for letter-word identification was 486, while their post-test average went down to 482.2. This showed that the distracter activities did not assist them in building their ability to identify English words.

Conclusion

Six scripts were used with five students in Wild Mango School over the course of the week. The scripts that were written to Flesch-Kincaid reading levels of 1.5 through 2.5 were the ranges found to be most accessible in the pilot study.

Because this was a convenience sample, results cannot be generalized to any other group, but the data are provocative, calling for further study with a larger sample. If a minimum of seventy-five students could be involved in a follow up study, statistical analysis could be done, which would give a sense, even with a convenience sample, of the efficacy of the work. If the results hold for growth in reading comprehension and vocabulary skills and if the puppet programme is judged to be logistically feasible, this might be a curriculum addition that would interest other educators in Sabah and mainland Malaysia as they face national mandates for tests in science and mathematics to be conducted in English.

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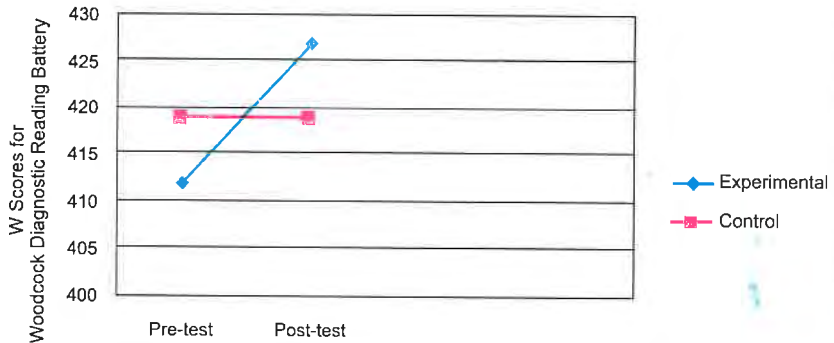
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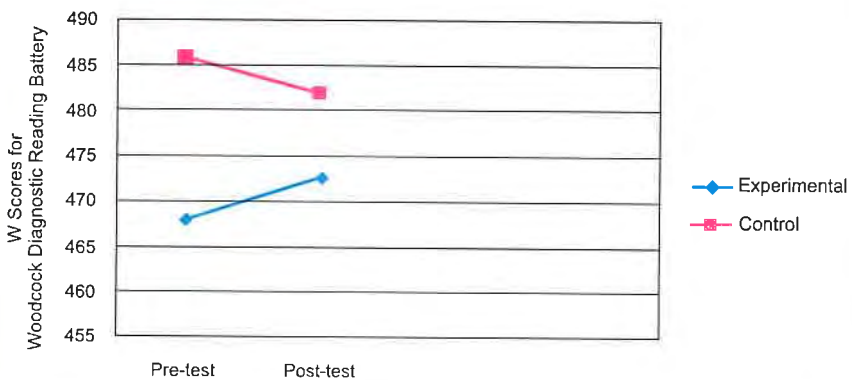
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APPENDIX A

Reading Comprehension: Wild Mango Primary School 2006



Letter-Word Identification: Wild Mango Primary School 2006



STUDENTS' READING HABITS, LANGUAGE PROFICIENCY, AND LEARNING STYLE PREFERENCES IN RELATION TO LITERARY COMPETENCE

Elizabeth Lee Foo Eng, Loh Yoke Len & Thomas Wong Kung Teck

ABSTRACT

The purpose of this research is to examine students' reading habits, language proficiency, and perception of learning preferences in relation to literary competence. A sample size of 181 respondents was derived from 236 Form Four students in an urban secondary school in Sabah. A self-administered questionnaire was selected as a mode of data collection. All instruments used in the hypotheses testing were adaptations of previously developed instruments. Descriptive, Pearson Product Correlation Coefficient and Multiple Regression statistics were used to analyse the data with the aid of SPSS. Additional research instruments used were interviews conducted with teachers and students. The findings showed that there was a positive significant relationship between students' reading habits, language proficiency, learning style preferences, and literary competence. However, language proficiency was found to be the salient predictor for literary competence. Additional findings also indicated that there was a mismatch of teaching style and learning style. This study concludes that students' language proficiency contributed significantly to the attainment of literary competence and therefore it should be given more emphasis in the teaching and learning of the literature component texts.

Introduction

In the study of literature, many studies have dealt with the approaches, methods, various teaching activities, and text/material selections that can be used or carried out in the teaching of literature. These studies (Collie and Long 1987; Carter 1986; Edwin 1993; Lazar 1993; McRae 1991) seem to lean on the notion that the teaching of literature, whether with a big "L" or a

small "1," can be taught to everyone and it depended very much on the teachers themselves to experiment, create, and improvised strategies used to make the reading and lessons meaningful. It is therefore hoped that this research will bring about some awareness that there are other factors such as students' reading habits, language proficiency, and learning style preferences that are equally important and should be taken into consideration in the teaching of literature.

The Ministry of Education has always emphasized on the importance of reading, and they have initiated many reading programmes such as The New Zealand Readers Programme (1970s), The World Bank Reading Project (1980s), The *NILAM* (*Nadi Ilmu Amalan Membaca*) Programme (1988), The English Language Reading Programme (1983) and The Class Reader Programme (1990s). It would be reasonable to conclude that the Ministry of Education recognizes the importance of reading and the habit of reading among students which it hopes promote life-long readers who not only reads efferently, but more importantly, aesthetically, so that they continue to find reading a joyful, purposeful, and meaningful activity.

The Integrated Primary/Secondary School Curriculum (*KBSR* and *KBSM*) was introduced in 1983 and 1988 respectively to enable students to develop their intellectual, emotional, spiritual, and physical potentials in a holistic and integrated manner. The new curriculum aimed to be student-centred. Since students are the focus, teachers will have to take account of learner's needs such as age, level of proficiency, aptitude, personality, cognitive style, first language, socioeconomic status, motivation, learning styles, etc. In the light of this, students' level of proficiency and learning style preferences have often been sidelined because of the large number of students per class the teacher has to teach, and also the assumptions that since students are of the same age at entry level of formal schooling, they should possess the same skills and abilities. With reference to the present time, it is generally acknowledged that students learn in different ways and the level of proficiency acquired would therefore be different for each individual even though they might be of the same age or in the same class/form.

The teaching and learning of literature in English in the Malaysian English Second Language (ESL) context is here to stay. The propagation of the study of literature both by policy makers as well as academics have indicated that they recognize the value of studying literature. Some of these values are fostering good reading habits, providing rich and diverse exposure to language, improving vocabulary, syntax and structures and leading to

language acquisition. It would not be wrong to say that literature can help students improve their linguistic performance and this, in turn, will help them improve their proficiency of the language. Consequently, it is crucial that consideration be given not only in the teaching and learning approaches, but also in the reading habits, language proficiency, and learning style preferences to help students acquire literary competence. Therefore, the objectives of the study are:

1. What are students' reading habits?
2. What is the level of English language proficiency among students?
3. What are students' learning style preferences?
4. What is the level of literary competence among students?
5. Is there a relationship between students' reading habits and literary competence?
6. Is there a relationship between students' language proficiency and literary competence?
7. Is there a relationship between students' learning style preferences and literary competence?
8. Which is the best predictor—students reading habits, language proficiency, or learning style preferences—that contributes significantly towards literary competence?

Review of Literature

Reading habits of students

Living in the third millennium and with most of our students belonging to the PS (PlayStation) generation, the declining interest in books and reading among the young is inevitable. Most students today are more visually inclined and dislike reading, and for those who are still reading and writing, they are doing it on the Internet. Moreover, there is a general consensus among ESL teachers that the overall decline of English is due to the fact that students do not "read enough" and looked upon "reading" as something that they have to do in order to pass their examination, and not for the love of it. It is undeniable that students tend to equate "reading" with "to study". Hence the equation "To read=to study" and vice versa is quite true for a great many students (McRae 1991, 16). A study conducted by Ogunrombi and Adio (1995) echoed the

same sentiment in stating that the main motivation for reading in Nigeria is "to pass an examination and possess a certificate" with the hope to get a good job. They go on to say that most Nigerians "see books and reading as a means to an end." The assumptions to be made from these statements would be that the reading habits of students are only confined to their school textbooks because the need to pass and do well in public examination has left them little time to read anything else for pleasure.

Language proficiency and literacy

There are many aspects towards the study of a language and these would include phonology, grammar, lexicology, and discourse, and from formal, semantic, or sociolinguist perspectives (Stern 1996, 27). In studying a second language, or any other foreign languages, one of the main objectives of the learner would be to achieve proficiency in the language. Proficiency in a language is frequently conducted through formal assessment of their writing and/or written work. A few good examples are TOEFL (Test of English as a Foreign Language), IELTS (International English Language Testing System), or MUET (Malaysian University English Test), which tests the four skills—speaking, listening comprehension, reading, and writing—by using a band scale descriptor which describes the different levels of proficiency achieved. In all three language proficiency tests mentioned above, reading and writing skills are given a higher weightage as compared to speaking and listening skills. Therefore, it would not be too presumptuous of the authors to conclude that reading and writing skills are considered important in achieving literacy. Though it may be a narrow conception to think literacy in this way, but historically, the origin and development of the whole language movement was linked to this notion of literacy (Read and MacKay 1984).

Culture and learning styles

Teachers are too often seeking the one perfect method which they can use to teach every student in the classroom. Though it is a common fallacy to think that all students are the same, but in retrospect, they are different as "day and night." In the Malaysian context, this will be further compounded by the

different cultural background of each student. The diversity of culture to be found in Malaysia is indeed unique in the sense that the population of Malaysia comprises of three main ethnic groups: the Malays, Chinese, and Indians, whereas the Ibans and Kadazan-Dusuns form the main ethnic groups in East Malaysia. There are also other minority groups like the Straits-Born Chinese (Peranakans), Sikhs, Eurasians, where each ethnic group has their own mother tongue and dialects within those mother tongues. Malaysian classrooms are indeed a "cultural melting pot" where teachers are already having a difficult time teaching 45–50 students per class without taking into account of the learners' needs such as age, level of proficiency, aptitude, personality, cognitive style, first language, socioeconomic status, motivation, and others.

Some might like to think that the Malaysian classroom can be considered a homogeneous class because all students share a common native language—Bahasa Malaysia—and most of them are of the same age level as they enter formal schooling. But the underlying truth is that the "homogeneous class" is in fact made of different individuals whose culture influences their point of view, self-identity, and system of thinking, acting, feeling and communicating (Brown 1994). Moreover, how they perceive and process a learning task would also be totally different between a Chinese student and a Malay student. In *Iron and Silk*, Salzman (1986), as cited by Nelson (1995), who tells of his experiences in China while teaching English at the Hunan Medical College in Changsha, it describes how Chinese students learnt by "modeling." The "modeling" method involves watching someone models what is to be learnt. In the same way, many Chinese students learn to compose by applying this method. To improve their writing, students would memorize written texts, often several pages long, that are considered exemplars of a type of discourse (Carson 1992). In this way, the students learn, through memorization, the framework for writing and can then modify it as needed and desired (Unger 1977) as cited in Reid (1995). It is not uncommon to find that Malaysian students studying in Chinese vernacular schools are practising the same method. Rote learning and memorization are highly-prized because during examination, students regurgitate what has been taught to show the examiner/teacher that they have learnt the course content/subject. Meanwhile, a study conducted by Reid (1987) on "The Learning Style Preference of ESL Students," showed that Malay students prefer to study in groups rather than individually. The results also revealed that Malay students enjoyed working with their hands and focused well during "hands on" projects and activities.

The meaning of literary competence

Brumfit (1985, 108) implied that the "fundamental ability of a good reader of literature is the ability to generalize from the given text to other aspects of the literary tradition or personal or social significance outside literature." The term "Literary Competence" has never been clearly defined (Rosli Talif 1995) nor has the precise nature of this competence been fully interpreted. Carter and Long (1991, 6) in *Teaching Literature* did not give a precise definition of literary competence but presupposed it to as having "the ability to infer a message." The well-known linguist, Noam Chomsky, proposed the idea that all speakers of any language possess an internalized grammar which allows them to produce and understand utterances which they may not have heard before, provided that these utterances conform to the grammatical rules of the language they are speaking (Steinberg 1993). In the same way, some theorists, in particular Culler (1975), have argued that effective readers of a literary text possess "literary competence," in that they have an implicit understanding of, and familiarity with, certain conventions which allows them to take the words on the page of a play or other literary work and convert them into literary meanings.

What the researchers have gathered from their readings is that in developing literary competence among students, they would first have to be taught literary skills which would enable them to increase their knowledge, understanding, comprehension, and appreciation of literature. After being "fully equipped," these students would then be able to express their personal response to the text with supporting details and also being acquainted with literary laments, forms, and devices.

Conceptual Framework

Figure 1 illustrates the suggested conceptual framework for this study. It consists of three independent variables and a dependent variable. The independent variables included in the study were: (a) students' reading habits; (b) students' language proficiency; and (c) students' learning style preferences, while the dependent variable was literary competence. It was hypothesized that students' reading habits, language proficiency, and learning style

preferences have no significant impact on literary competence. Therefore, the hypotheses posited for this study are as follows:

- H_{01} : There is no relationship between students' reading habits and literary competence.
- H_{02} : There is no relationship between students' language proficiency and literary competence.
- H_{03} : There is no relationship between students' learning style preferences and literary competence.
- H_{04} : The regression slopes for students' reading habits, language proficiency, and perception of learning preferences are equal to zero when regressed to literary competence.

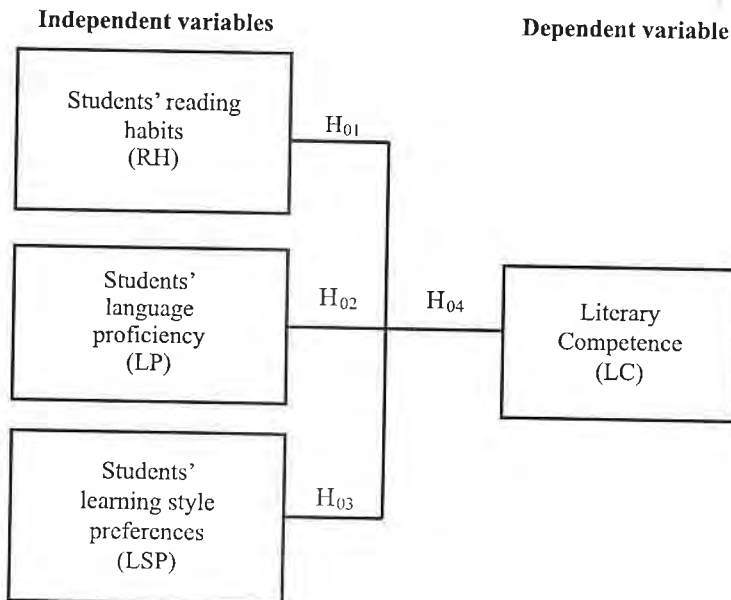


FIGURE 1: A conceptual framework of correlations between variables

Methodology

Research design

The survey technique using structured questionnaire was selected as the mode of data collection.

Population and sampling

The population selected for this study was the Form Four students between the ages of 15 and 16 years from *Sekolah Menengah Kebangsaan Z*. The accessible population was 236 students where 148 were randomly chosen as the target population as recommended with reference to the sample size table by Krejcie and Morgan (1970).

Reading habits

The independent variable *reading habits* was measured based on the adaptation of the Reading Habits Inventory (Mikulecky and Jeffries 2004). Originally, it had twelve items based on the simplest type of categorical scale: Yes/No. Hence, the researchers believed that the dichotomous variable is rather subjective and therefore increases the chances of guessing. As such and for the sake of validity, the Likert Scale method was used.

The adapted instrument consisted of a combination of "positive/efficient" and "negative/faulty" items so as to prevent the effect of respondent set. It has 14 statements with responses indicated by a three-point Likert-type format consisting of "rarely," "sometimes," and "usually." The instrument required that respondents indicate the frequency to which they usually or seldom practice with what is stated by each items. The items were mainly related to the individual's reading habits, specifically when reading materials written in English. Essentially, the items measured the regularities of an individual's reading behaviour.

Language proficiency

Students' language proficiency was evaluated through the achievement test which was acquired from the respective students' school-based final term results. This achievement test is a combination of English language Paper I and Paper II. The grade obtained will be further divided into category A, B, C, D, E, and F, with Grade "A" depicting the highest proficiency level of the students followed by B, C, D, E, and F. The range of marks for the six categories are as follows; A: 80%–100%, B: 70%–79%, C: 60%–69%, D: 55%–59%, E: 50%–54%, and F: 0–49%. Grading, or marking criteria, are based on the Band Descriptors provided by the Ministry of Education (MoE).

Learning style preference

Learning style preferences is measured by 24 items based on an adapted version of Kinsella's (1995) Perceptual Learning Preference Survey instrument. Originally, it had 32 items based on the Likert scale. However, the researchers believed that the statements presented in the survey were not suitable as they were intended for college or university students. For example, one of the items, "I am skilled with my hands and can easily repair things or put things together" was found to be not reader-friendly and was replaced by "I like to do things with my hands (like crafts or pottery)." For simplicity, the questionnaire was reduced to 15 items whose statements were simplified to cater to students' proficiency level. Furthermore, to facilitate understanding, every statement had an equivalent Bahasa Malaysia translation. The translation version was done and edited by teachers who were qualified in the Bahasa Malaysia subject.

The adapted instrument measured four different types of perceptual learning channels identified as visual learning, auditory learning, tactile learning and kinesthetic learning. In this study, tactile and kinesthetic learning have been combined even though there is a slight difference in meaning between these two styles. Nevertheless, the researcher had decided to use them interchangeably because the underlying meaning of both of these words conveys a similar reference to "working with hands" and learning best by doing, moving, or hands-on experiences.

Literary competence

The literary competence marks were acquired by subtracting the accumulated marks from the literature component section [SECTION D] of the English language Paper II. This section is made up of questions No. 32, No. 33 and No. 34 for which the accumulative mark is 25. Question No. 32 and Question No. 33 usually consist of four questions based on one pre-selected poem and short story. The poem and short story given are mostly excerpts taken from the literature component textbook titled *Selected Poems and Short Stories*. Questions are sequenced accordingly and based on literal and level of inferential skill. However, Question No. 34 is based only on the five short stories where one short story is selected by the examiner for testing. The marking scheme for Question No. 32 and Question 33 is straightforward, whereas Question No. 34 is based on the Band Descriptors provided by the Ministry of Education. In addition, a personal interview was conducted between the researchers and eight students. The purpose of the interviews was to provide an overview of the learning of the literature component in schools. The interviews conducted with students allowed the researchers to understand better the type of learning activities they like and dislike. Subsequently, the researchers would have an accurate understanding of the type of learning style preferences preferred by students and their reasons for selecting in a non-measurable way. The personal interview was selected because it allowed the respondents a greater freedom to express themselves and provided an opportunity for the researchers to observe the subjects' reactions and responses in total situations (Ary *et al.* 1996,432). The eight students comprised of four females and four males who were randomly selected from different classes based on the class teacher's recommendation. The personal interview consisted of five open-ended questions which allowed some flexibility on the researchers' part to repeat, rephrase, or explain their meanings when students did not understand what was being asked.

Data collection procedures

The research was carried out in January 2008 where two sets of revised questionnaires—Reading Habits and Learning Style Preferences—were distributed to all 236 students with the help of school administrators and class teachers. The students were given twenty minutes to answer the Reading Habits Questionnaire and another ten minutes for the Learning Style Preferences Questionnaire.

Next, students' language proficiency was evaluated through the achievement test which was acquired from the respective students' school-based final term results for the year 2007. Their grades were obtained from the schools' internal examination secretary. Following this, students' literary component section marks were acquired manually by checking through the "Section D" of the English Paper II for all classes involved.

Finally, a personal interview with five teachers and eight students was conducted face-to-face by the researchers. During the interviews, the researcher's observation, both oral and written accounts provided by the research participants, were noted. The interviews with students were conducted in the field or in the students' natural surroundings which happened to be in school. Meanwhile, the interviews with teachers were conducted in the respective English language teachers' homes to establish a close and personal rapport with the belief that research participants would be more spontaneous and unreserved in sharing their experiences in teaching literature.

Additional data collection

First, the data was coded before being transferred to the computer for data analysis. The system used for data analysis was the statistical program SPSS (Statistical Package for the Social Sciences) Version 11.5 for Windows. Frequency distribution and measures of central tendency were adopted in presenting and summarizing the data. In addition, the descriptive statistics were utilized to describe the profile of the respondents.

Next, the Pearson product moment correlation was utilized to determine the strength and direction of the association between the independent variables and the dependent variable—literary competence.

Then, in order to ascertain whether the independent variables were potential predictors of literary competence, the multiple regression analysis was utilized. In various kinds of research, the multiple regressions are not restricted to prediction purposes only. It may also be used to identify the variables that account for the variance in dependent variables which indirectly help researchers to understand complex phenomena (Ary *et al.* 1996,410). In addition, the researchers will use the results obtained from this study to determine the order of importance of each independent variable in contributing towards the dependent variable (Hair *et al.* 1995). The present study adopted the .05 level of significance in testing all hypotheses.

Finally, the answers given by both teachers and students were noted. The interview notes gathered were colour-coded to identify the similarities and differences shared by both students and teachers when the same open-ended questions were asked. In addition, ideas and emerging themes were categorized and organized into various "labels" so that the researchers could make a personal assessment or interpretation of the themes that capture the major categories of information.

Findings and Discussions

The outcome of the study revealed the answers to the research questions:

Research Question 1: What are students reading habits?

Results from the findings showed that 74.6 percent of the students have indicated that they practiced efficient reading habits while 18.8 percent indicated that they practiced faulty reading habits and another 6.6 percent indicated that they practiced both efficient and faulty reading habits (table 1).

While it is encouraging to note that majority of the students do perform effective reading habits, results from the frequency tables indicate that only 46.1 percent (table 2) of the respondents "sometimes" practiced effective reading habits, and 48.6 percent (table 3) "sometimes" practiced faulty reading habits. This high weightage seems to give a truer picture of the respondents' behaviour when reading. It may be justifiable to conclude that students' reading habits, both effective and faulty, are based on the inconsistency of the students' reading behaviour where other influencing factors may influence them to "sometimes" practice effective or faulty reading habits.

TABLE 1: Efficient and faulty reading habits

<i>Reading habits</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	Cumulative percent
Efficient Reading habits	135	74.6	74.6	74.6
Faulty Reading habits	34	18.8	18.8	93.4
Both Efficient & Faulty Reading habits	12	6.6	6.6	100.0
Total	181	100.0	100.0	

TABLE 2: Positive/Efficient reading habits (N=181)

<i>Positive Statements</i>	<i>3</i> <i>(Usually)</i>	<i>2</i> <i>(Sometimes)</i>	<i>1</i> <i>(Rarely)</i>	<i>Total</i>	<i>Mean</i>	<i>Standard</i> <i>Deviation</i>
1. Skimming	39.8	50.3	9.9	100.0	2.30	0.64
2. Read and underline words	42.5	40.3	17.1	100.0	2.25	0.73
6. Like going to the library	42.5	40.9	16.6	100.0	2.26	0.73
8. Like to read to acquire knowledge	35.4	47.5	17.1	100.0	2.18	0.70
9. Enjoys reading	41.4	48.1	10.5	100.0	2.31	0.65
10. Use the dictionary	37.0	47.0	16.0	100.0	2.21	0.70
11. Guess meaning of words	39.2	49.7	11.0	100.0	2.28	0.65
13. Guess the plot	37.6	45.3	17.1	100.0	2.20	0.71
Total	39.4	46.1	14.4	100.0		

TABLE 3: Negative/Faulty reading habits (N=181)

<i>Negative Statements</i>	<i>3</i> <i>(Usually)</i>	<i>2</i> <i>(Sometimes)</i>	<i>1</i> <i>(Rarely)</i>	<i>Total</i>	<i>Mean</i>	<i>Standard</i> <i>Deviation</i>
3. Reading aloud	14.4	50.8	34.8	100.0	2.20	0.67
4. Can't find books that are interesting	14.4	49.7	35.9	100.0	2.22	0.68
5. Can understand better when reading slowly	15.5	49.7	34.8	100.0	2.19	0.68
7. Pointing to words while reading	23.2	43.1	33.7	100.0	2.10	0.75
12. Need to know every word when reading	13.8	49.2	37.0	100.0	2.23	0.68
14. Can't understand paragraph if it has several new words	14.4	49.2	36.5	100.0	2.22	0.68
Total	15.9	48.6	35.5	100.0		

Research Question 2: What is the level of English language proficiency among students?

By referring to table 4, the results indicate that a large percentage of students (45.3%) failed in their language test, and a mere 2.8 percent managed to get an "A" grade. Another 28.8 percent were divided evenly between "B" and "C" grades while the rest were allocated to "D" and "E" grades at 10.5 percent and 12.7 percent respectively. Even though there were more passes than failures, it can be concluded that the students' level of English proficiency has not reached its mark of acceptance especially when the students are from an urban school.

TABLE 4: Frequency table showing the percentage of Grade A, B, C, D, E, and F acquired by students in their language proficiency test (N=181)

<i>Grade/Marks</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	Cumulative percent
A (80–100 marks)	5	2.8	2.8	2.8
B (70–79 marks)	26	14.4	14.4	17.1
C (60–69 marks)	26	14.4	14.4	31.5
D (55–59 marks)	19	10.5	10.5	42.0
E (50–54 marks)	23	12.7	12.7	54.7
F (0–49 marks)	82	45.3	45.3	100.0
Total	181	100.0	100.0	

Research Question 3: What is the students' learning style preferences?

Information from questionnaire indicated the following breakdown according to preferred learning style: Visual accounted for 61.3 percent of respondents, Auditory represented 5.5 percent, Kinesthetic/Tactile represented 12.7 percent, Visual and Auditory represented 12.2 percent, Visual and Kinesthetic/Tactile represented 1.1 percent, Auditory and Kinesthetic/Tactile represented 4.4 percent and finally, students who possess all three learning styles represented 2.8 percent. Table 5 provides the respondent breakdown according to preferred learning style.

TABLE 5: Means and Standard Errors of students' learning style preferences (N=181)

<i>Sub-variables of Learning Styles</i>	<i>Count</i>	<i>Percent</i>	<i>Valid Percent</i>	Cumulative Percent
Visual	111	61.3	61.3	61.3
Auditory	10	5.5	5.5	66.8
Kinesthetic/Tactile	23	12.7	12.7	79.5
Visual & Auditory	22	12.2	12.2	91.7
Auditory & Kinesthetic/tactile	8	4.4	4.4	96.1
Visual & Kinesthetic/Tactile	2	1.1	1.1	97.2
Visual, Auditory & Kinesthetic/tactile	5	2.8	2.8	100.0
Total	181	100.0	100.0	

Research Question 4: What is the level of literary competence among students?

By examining the results as shown in table 6, statistics indicate 2.2 percent managed to acquire a Grade "A" while 3.3 percent, a Grade "B". Students with a Grade "C" represented 8.3 percent, and students with a Grade "D" accounted for 2.8 percent. Students with a Grade "E" represented 11.0 percent and notably, 72.4 percent failed in their literature component test. It can be assumed that the low percentage of passes and the high percentage of failures in the literature component test present a bleak view of students acquiring literary competence.

TABLE 6: Frequency table showing the percentage of grade A, B, C, D, E, and F acquired by students in their literature component test

<i>Variables (Items)</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid percent</i>	Cumulative percent
A (80–100 marks)	4	2.2	2.2	2.2
B (70–79 marks)	6	3.3	3.3	5.5
C (60–69 marks)	15	8.3	8.3	13.8
D (55–59 marks)	5	2.8	2.8	16.6
E (50–54 marks)	20	11.0	11.0	27.6
F (0–49 marks)	131	72.4	72.4	100.0
Total	181	100.0	100.0	

Subsequently, this is further compounded by the fact that majority of the students (43.1%) failed in both their language proficiency and literature component test while only 26.0 percent passed both papers. Ironically, the literature component was first introduced with the intention of improving students' language proficiency but results indicate otherwise as shown in table 7.

TABLE 7: Frequency table showing the percentage of passes and failures for both language proficiency and literature component tests

	Frequency	Percent
Pass LP & LC	47	26.0
Failed LP & LC	78	43.1
Pass LP	53	29.3
Pass LC	3	1.7
Total	181	100.0

LP—Language proficiency

LC—Literary competence

Research Question 5: Is there a relationship between students' reading habits and literary competence?

Hypothesis H_{01} : There is no relationship between students' learning style preferences and literary competence.

Though there is a positive relationship ($r = .303$) between students' reading habits and literary competence, it is observed that the relationship is weak. Therefore, the null hypothesis was rejected and the alternative hypothesis was accepted.

TABLE 8: Correlation Analysis: relationship between students' reading habits and literary competence

		Literary Competence
Literary Competence	Pearson Correlation	1
	Sig. (2-tailed)	-
	N	181
REHABIT	Pearson Correlation	.303(**)
	Sig. (2-tailed)	.000
	N	181

Research Question 6: Is there a relationship between students' language proficiency and literary competence?

Hypothesis H_{02} : There is no relationship between students' language proficiency and literary competence.

As shown in table 9, there is a high positive correlation ($r = .765$) between the variables ($p < .05$). As a result, the null hypothesis was rejected and the alternative hypothesis was accepted.

TABLE 9: Correlation Analysis of the relationship between students' language proficiency and literary competence

		Literary Competence
Literary Competence	Pearson Correlation	1
	Sig. (2-tailed)	-
	N	181
Language Proficiency	Pearson Correlation	.765(**)
	Sig. (2-tailed)	.000
	N	181

Research Question 7: Is there a relationship between students' learning styles preferences and literary competence?

Hypothesis H_{03} : There is no relationship between students' learning style preferences and literary competence.

When students' learning style preferences were analysed as one entity, a positive correlation was found between them and literary competence (table 10). This result may indicate that in the learning of literature, students' learning style preferences are important for the teachers to take into consideration when teaching literature component.

TABLE 10: Correlation Analysis of the relationship between students' learning style preferences and literary competence

		Literary Competence
Literary Competence	Pearson Correlation	1
	Sig. (2-tailed)	-
	N	181
Learning style	Pearson Correlation	.173(**)
	Sig. (2-tailed)	.020
	N	181

Research Question 8: Which is the best predictor—students' reading habits, language proficiency or learning style preferences—that contributes significantly towards literary competence?

Hypothesis H_{04} : The regression slopes for students' reading habits, language proficiency and perception of learning preferences are equal to zero when regressed to literary competence.

To address question 8, a multiple regression analysis, as shown in table 11, was performed to analyse factors, which may influence students' literary competence in the learning of literature component in the classroom. The purpose of multiple regressions is to provide a thorough understanding of the relationship between numerous predictor variables (independent X variables) and a dependent (Y) variable. Variable information is used in multiple regression analysis to establish a multiple regression equation, which helps researchers decide best predictors of a specific event. Therefore, in this study, a stepwise multiple regression analysis was used to analyse the relationship between the independent variables (students' reading habits, language proficiency and learning style preferences) and the dependent variable, literary competence.

As the relationship for two variables—language proficiency and learning style preferences—were found to be positive, a stepwise multiple regression analysis was performed to identify which variables would be the best predictor for literary competence.

The multiple R as illustrated in table 12 shows a positive correlation between language proficiency at $R = .765$, learning style preference at $R = .775$ and literary competence (dependent variable). The R-square values

TABLE 11: Regression analysis of reading habits, language proficiency and learning style preferences [Coefficients (a)]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-25.993	8.469		-3.069	.002
	REHABIT	3.257	2.446	.068	1.331	.185
	Language Proficiency	.776	.054	.733	14.442	.000
	VAK	8.850	3.118	.136	2.838	.005

Dependent variable: literary competence

indicate that about 58.5 percent of the variance in literary competence is explained by the predictor variables, language proficiency and 60.1 percent of the variance in literary competence is explained by both variables—language proficiency and learning style preference.

Results from the analyses (table 13) demonstrated that the best predictor for literary competence was the language proficiency variable ($F = 252.084$, $p < .05$), followed by learning style preferences ($F = 133.789$, $p < .05$). Language proficiency explained 58.5 percent ($R\text{-square} = .585$) of the variance in literary competence, and learning style preferences explained 1.6 percent of the variance ($R\text{-square} = .601$). It was concluded that students' language proficiency was the best predictor for literary competence compared to students' learning style preferences. In the final analysis, it can be concluded that the best predictor would be students' language proficiency and therefore the null hypothesis is rejected and the alternative hypothesis is accepted.

TABLE 12: Stepwise Multiple Regression Analysis of Language proficiency and learning style preferences in relation to literary competence

Model	R	R Square	Adjusted R Square	F	Sig
1	.765(a)	.585	.582	252.084	.000(a)
2	.775(b)	.601	.596	133.789	.000(b)

a. Predictors: (Constant), Language Proficiency

b. Predictors: (Constant), Language Proficiency, VAK

Dependent variable: Literary Competence

TABLE 13: Stepwise multiple regression analysis of language proficiency and learning style preferences in relation to literary competence

<i>Variable</i>	<i>F - Value</i>	<i>Sig. F</i>	<i>R-square</i>	R-square Change
Language proficiency	252.084	.000**	0.585	0.585
Learning style preferences	133.789	.000**	0.601	0.016

**p < .05

Recommendations

Students' reading habits and literary competence

The variable, students' reading habits, was found not to be significant and the reason could be due to the fact that a high percentage of respondents claimed that they "sometimes" performed efficient and faulty reading habits (tables 2 and 3) which indirectly indicates that their readings can be considered arbitrary with no set patterns or behaviouristic tendencies. This seems to imply that their reading habits are erratic.

These erratic reading habits may be due to students' current exposure to English—through the television set and the internet. It is generally acknowledged that good reading habits are not formed by sitting in front of the television set. A reader's eyes are not following a text but rather following visuals being displayed on a screen at a high density impact. No doubt, there are some movies and documentaries with subtitles, but rarely is the case where one becomes an efficient reader because of watching television. Similarly, using the internet, whether it is for chatting on-line, e-mailing, searching for specific information or surfing the websites, can never be considered as "reading" in its truest sense of form.

It is true that any piece of texts, be it newspaper reports, songs or advertisements bill, can be considered as a piece of literature, but the literature component texts belong to a canonical body of text known as the classics. Furthermore, findings from the interview indicated the students' inability to respond to culturally charged texts with special reference to *The Necklace* by Guy de Maupassant, one of the five short stories found in the *Selected Poems and Short Stories* (1999) produced by the Ministry of Education,

Malaysia. Though the literature component texts used in the Form Four classroom are a mixture of both contemporary and the classics, it is still a different kind of reading which students have to do when he/she is reading a literary text as compared to reading a narrative essay. To quote Balakian (1994, 264), "What makes literature distinct from other reading materials is its ability to convey the uniqueness of a personal experience and at the same time transcribe it in an idiom that universalizes that experience through a dimension called aesthetics."

Students' language proficiency and literary competence

Students' language proficiency was considered the best predictor to literary competence and these findings seem justifiable since the *R*-square values indicate that about 58.5 percent variance in literary competence is explained by the predictor variable—language proficiency (table 13). This would mean that an increment in the *R*-square values would also lead to an increment in the students' literature component marks. Moreover, the beta value at $\beta = 0.733$ (table 11) indicates that a high percentage of influence on the dependent variable—literary competence—is caused by language proficiency.

However, these findings seem to contradict the aspirations of policy makers who have advocated the study of the literature component in view of improving students' proficiency of the language. In the final analysis, the findings reveal that the learning of the literature component text will not improve students' language proficiency but rather, literary competency is dependent on students' first acquiring language proficiency.

Students' learning style preferences and literary competence

The values obtained from the findings (table 10 and table 11) for students' learning style preferences were not as statistically significant as compared to the independent variable—language proficiency. Nevertheless, these findings provide a valuable insight for teachers to take into account of students' learning style preferences as a stepping stone in helping students to be aware of their strengths and weaknesses in approaching the literature component texts.

Conclusion

Initial results from the Product-Moment correlation coefficient analysis indicated a positive relationship for all three independent variables; reading habits, language proficiency and learning style preferences with literary competence. However, stepwise multiple regression analysis has demonstrated that language proficiency variable was the best predictor for literary competence. Though many scholars and experts in the field of literature would differ and even admonish these final findings, the aims of this study is to bring about an awareness that although the literature component text was first introduced as a way to inculcate reading habits among students and enhance students' English language proficiency, it will definitely take a period of time to see the effects. In the meantime, teachers cannot just stand by and wait for the miraculous change to happen in their students. For the present moment, teachers need to address the immediate problem of students not doing well in the literature component. As the findings in this study suggest, they should pay close attention to students' language proficiency and not blame students for their lack of ability to answer adequately the literature component text questions.

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A STUDY TO DETERMINE THE SUPPORTING TOOLS OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN CREATIVITY AMONG STUDENT TEACHERS OF A PUBLIC UNIVERSITY IN SABAH, MALAYSIA

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ABSTRACT

Creativity is an essential competence through which people can develop their potential to use their imagination to express themselves, and make original and valued choices in their lives. The growing interest and concern in cultivating creativity has prompted much education reforms being undertaken in a number of countries, particularly Malaysia. Creative teaching and reflective practice are the two most important milestones that teachers aspire to attain. This study explores the role of Information and Communication Technology (ICT) in supporting the creativity process of a group of student teachers in a public university in Sabah, Malaysia. The use of ICT includes collecting relevant information or knowledge to scaffold the revision of existing ideas and development of innovative concepts and hence, possible innovations and inventions. The researchers identify ten most important tasks for the student teachers where ICT application is most appropriate. This is to identify what ICT software is most frequently used and important for the creativity work of each student teacher. Then, the usage of ICT is mapped to the Loveless's Model of Five Elements of Creativity. Results showed that ICT plays an important role, as specified in the Model, in supporting the creativity process of student teachers while completing the ten important tasks. The study suggests that the Ministry of Education, universities or institutions of higher learning stress the importance of computer literacy education for secondary school students. The training should focus on data/information searching strategies via the Web, data arrangement, sorting and analysis

(computational software) and graphical as well as presentational software. The training should preferably be completed prior to the students entering the universities for further studies.

Keywords: creativity support tools, ICT, models of creativity, usage of ICT

Introduction

The last three decades of educational research and development have led some educationists to suggest that man prefers to learn in creative ways through creative and inquiry-oriented activities (Torrance 1990). This has motivated many researchers to seek and explore ways of teaching and learning (T & L) in a creative manner.

However, teachers have to be creative first before meeting the challenges of creative T & L. In order to respond to these creative needs of the learner, the teacher would be required to recognize and acknowledge the learner's potentiality. Creativity is latent in every person although this can remain as a suppressed potential in many people. Just how one can discover the inner abilities to perform every task creatively is just as challenging.

In other words, creativity of a person can be fostered and improved, especially his creative thinking skills and abilities. The rapid advancement of Information and Communication Technology (ICT) has created societal transformations and improvements in the quality of life. Thus, it can play a significant role in fostering creativity. Traditionally, creativity potentials of people are fostered via face-to-face training such as the "PO" programme for lateral thinking by DeBono (1990). Many of these creativity trainings today have been utilizing face-to-face session (Treffinger and Isaksen 2001). Therefore, in what way can ICT play its role in supporting creativity training?

The implications of ICT to educational reform are deemed inevitable which leads to changes in instructional, curricular, administrative, and research aspects (Fetterman 1998; Lesgold 1993). How does ICT facilitate and improve learning? According to constructional learning approach, learning is inherently active, reflective, self-regulated, social, collaborative, and problem-oriented in nature. This form of learning can be enhanced using ICT.

Examples of ICT roles in learning are computer-supported collaborative learning, e-mail, Internet Relay Chat (IRC), and video conferencing for sharing ideas and solving problems collaboratively (Dillenbourg 1999).

Furthermore, the internet serves as an extensive database for users to extract useful information.

This research is designed to investigate the supportive role of ICT in fostering creativity. The respondents are university undergraduates pursuing a degree in Education. For example, a creative student teacher needs to present his/her assignments or projects creatively with the assistance of ICT. In this regard, the research focuses on how ICT can help to fulfill these needs. It also defines the student teachers as people or researchers, who need to go through a process of getting data/information, process them into presentable format, and then present and share them with their peers and friends.

Research Questions

This research is designed to provide answers to the following questions:

1. What are the most frequently used softwares that help student teachers to present their assignments/projects creatively?
2. To what extent do the student teachers' use of ICT comply with Loveless's Model of Five Elements of Creativity that emphasises the four features of ICT (provisionality, interactivity, capacity or range, and speed or automatic functions)?

Literature Review

According to the book "*Poetry About Creativity*" authored by Alfreda, creativity is, "delicate combination of elements that result in new ideas and innovations" (Alfreda, 2007). This definition is closely related to innovation—the process by which new ideas, practices and methods of organisation are generated. But creativity is more than just innovation for its own sake. To exercise creativity we have to be able to understand and respect the parameters of an existing practice, and to go beyond it. Torrance Test of Creative Thinking (TTCT) says that creative thinking ability is, "*constellation of generalized mental abilities that is commonly presumed to be brought into play in creative achievements*" (Torrance et al. 1992,1).

Creativity, therefore, has to be able to articulate the kind of value it is helping to generate, although this value might be expressed in many different

ways. Creativity involves the exercise of *imagination*. Creative learning often involves finding ways to generate a new perspective on an existing question or practice, and therefore, to understand it more deeply.

The process of creativity that was first described by Wallas (1926) has four stages. The first stage is the *preparation stage* where the problem is investigated from all directions. Secondly, in the *incubation stage*, the individual is termed as not consciously thinking about the problem. In the subsequent stage, the *illumination stage*, “the happy idea” emerges. The last stage is the *verification stage* where the validity of the idea is tested and reduced to exact form.

Follow-up researches on Wallas’s model of creativity and its processes had produced many more theoretical models which are more or less the combination, break-up, or a modification of the basic model. Stein (2004) defines creativity as a three-stage process, namely, hypothesis formation, hypothesis testing, and communication of results. It combines the preparation, incubation, and illumination stages of the Wallas Model into *hypothesis formation stage* and adds another stage for communication of results. Stein (2004) views the publication and sharing of the creative work in the *communication of results stage* as vitally important to the research communities.

Rhodes’s (1961) theoretical model of creativity is in the form of *Person*, *Process*, *Product*, and *Press* or familiarly known as 4Ps. It describes creativity in terms of components. The *Product* and *Press* components are quite similar to Stein’s *hypothesis testing* and *communication of results* while the *Person* and *Process* resemble the first three stages of the Wallas’s Model.

On the other hand, Gardner’s Model of Multiple Intelligences features creativity in a form of pluralistic theory of mind, recognizing multiple intelligences in individuals and differing a person’s creativity through his/her innate abilities (Gardner 1983, 1993). For example, a gifted person with musical talent can display his creativity best with this special inner ability.

Creativity can also be categorised with a model by Amabile (1982) in different interacting components. It involves an individual that possesses domain-relevant knowledge, creative skills and intrinsic motivation that interacts with the external social environment that resulted in his creativity. In addition, creativity can also be studied as a system approach (Csikszentmihalyi 1996). Csikszentmihalyi describes an individual operating within a domain, presenting his work to be judged by a panel of judges on the other side of the system for acceptance as a creative contribution.

Shneiderman (2000, 2002a, 2002b) understands creativity in a form of genex framework in which there are four activities for generating excellence. The *Collect stage* involves learning or exploring previous work stored in libraries (or the Web) while the *Relate stage* involves collaboration of ideas with peers and mentors. In the *Create stage*, a person explores, composes and evaluates possible solutions. The last stage is the *Donate stage* where the results are contributed and shared in a form of publications in reports or journals.

Loveless proposed a model with five elements of creativity (Loveless 2002). The elements are *using imagination*, *fashioning process*, *pursuing purpose*, *being original*, and *judging value*. These five elements can be fostered with the appropriate use of ICT. The *using imagination stage* is the process of supposing and generating original ideas and providing an alternative to the problem under investigation. The *fashioning process stage* is the skills where an idea is shaped, refined, and managed. The *pursuing purpose stage* is where the motivated person uses his imagination to produce tangible outcomes from purposeful goals.

In the *being original stage*, the person displays originality in his work in relation to his previous work, peers, and historically (completely new and unique). The last stage, the *judging stage*, is where evaluation takes place when other individuals and peers give reflective reviews and comments on the accomplished creative work.

Loveless (2002) also suggests four features of ICT that can be mapped with the five characteristics of creativity. They are provisionality, interactivity, capacity or range, and speed or automatic functions. The definitions for these four features are as below:

- a. **Provisionality:** users can make changes or edit ideas, try out alternatives and keep track of the development of ideas.
- b. **Interactivity:** engage users at a number of levels.
- c. **Capacity or range:** provide access to vast amount of information in various geographical locations (in databases).
- d. **Speed or automatic functions:** technology for storing, transforming, interpreting, analyzing, synthesizing, and displaying information at the highest level.

Table 1 summarises the relationship between creativity and ICT with examples of possible ICT application that can be used.

Information and Communication Technology (ICT) refers to both computer and communication technology. IT (Information Technology) is defined as any equipment or interconnected system (subsystem) of equipment that includes all forms of technology used to create, store, manipulate, manage, move, display, switch, interchange, transmit or receive information in its various forms. Information can be in the form of business data, voice conversations, still images, motion pictures, multimedia presentations, and other forms including those not yet conceived. The meaning of communication refers to a system of shared symbols and meanings that binds people together into a group, a community, or a culture. The word communication is added to IT so as to make a network of the usage of Information Technology (Merriam Online Dictionary 2006).

TABLE 1: Relationship between creativity and ICT and examples of ICT application

Features of ICT	Characteristics of creativity	Examples of ICT application
Provisionality	Using imagination Being original	Word processors (editing, storing, retrieving data)
Interactivity	Fashioning process Pursuing purpose Judging value	Educational software or multimedia learning systems that supports interactive functions (created with authoring tools or Database Management System)
Capacity or Range	Pursuing purpose	World Wide Web (Internet, e-mail, chatting, online forums, digital library)
Speed or automatic functions	Pursuing purpose Being original	Technology for storing (databases, etc.), computational (spreadsheets, etc.) and presentational tools (MS PowerPoint, digital slides, etc.)

Research Methodology

The researchers used the survey method to elicit data from the subjects. The respondents were student teachers who took the Computer in Education (TT1012) and Multimedia (TT2072) courses in the School of Education and Social Development of a public university in Sabah, Malaysia. Purposive sampling procedure was used to select subjects for this study. Out of 210 randomly selected respondents, only 203 of them returned the questionnaire and furthermore, another five subjects were disqualified due to incomplete information needed for this research. As a result, the final number of subjects for this study was 198.

The respondents were given the questionnaire during one of the lecture by the Course Lecturer (for both courses). They were required to listen to the five minutes briefing by the researcher to clarify terms used in the questionnaire that might be difficult to understand. The filling up of the questionnaire required only 15 minutes. The completed questionnaires were then collected for further analysis.

Instrument and Data Analysis

The main instrument used in this research was the questionnaire to survey the type of software student teachers used to complete their assignments or academic writing. In Section A, respondents were required to provide their background. In Section B, ten most frequent tasks related to creativity that required the use of ICT software in their work were identified. The ten tasks were then mapped to the features of ICT in the Loveless Model as shown in table 2.

It is therefore clear that ICT plays an important supportive role in the creativity processes. For example, in the Shneiderman's Genex Framework's *Collect stage*, World Wide Web or the Internet has a vast amount of ideas and information in regard to a problem under investigation. This saves the researcher a great deal of time and cost as searching relevant materials in the libraries needs extensive travelling, energy, and financial cost. The internet technologies such as the browsers provide all the interfaces needed to accomplish the work.

In the *Relate stage*, internet communication tools such as e-mail, IRC, online forums, and video conferencing technologies provide users the means to consult and collaborate with peers and mentors to ensure speedier solutions. In contrast to this, without ICT, a user will need to get a big research funding to finance his travel to various destinations to get materials and confirm findings with his peers or mentors. In other words, nowadays, ICT contributes greatly to the creation of creative products.

In the *Create stage*, users have the choices of various ICT tools to achieve different purposes. For example, Microsoft Office has word processor (MS Word) for preparing reports, spreadsheet for computational work (MS Excel), presentational tool for creative presentation of the work done (MS PowerPoint) and data management purposes (MS Access). In the *Donate stage*, again MS Office provides all the necessary software for the storage and distribution of the work. For wide distribution of the work, internet technology such as network storage and personal websites on servers help greatly in achieving the sharing purposes of the work with the international research communities.

ICT skills are usually taught in secondary schools as discrete skills. The individual software that they learned is often for general use (word processing, spreadsheets, and presentational tools) and not specializing in educational software development. Nevertheless, Wheeler *et al.* (2001) find that the focus of computers is as an effective mind tool which can liberate and foster creativity in students. This study will likely provide answers that ICT supports creativity.

TABLE 2: The ten creativity tasks identified for the four features of ICT

Features of ICT	Items
Provisionality Types of software: MS Word, MS Excel, MS PowerPoint, MS Access	Task 3: Analyse and organise data (figures) or concepts/ideas into tables/charts/diagrams for presentation purposes. Task 9: Modify, categorise and synthesise data or information for improving my assignments/projects/academic writing.
Interactivity Types of software: MS Word, MS Excel, MS PowerPoint, MS Access, Macromedia Flash, Macromedia Authorware/Director, Asymetric Toolbook, MS Frontpage/Macromedia Dreamweaver, Internet, e-mail and online forums	Task 6: Prepare computer-based Teaching and Learning modules for ICT projects/Teaching Practicum. Task 10: Create simple database for standalone operation or online learning.
Capacity/Range Types of software: Internet, e-mail, online forums and digital library	Task 1: Search for new ideas or information for assignments/projects/academic writing on the internet. Task 2: Download charts, drawings, graphics or simple animations for assignments/projects. Task 7: Search for useful references in digital library for constructive or meaningful arguments (literature review) in assignments/reports/dissertation/academic writing. Task 8: Send/receive information/ideas/knowledge from my friends (course mates) for sharing using ICT.
Speed/Automatic functions Types of software: MS Word, MS Excel, MS PowerPoint, Macromedia Flash, Macromedia Authorware/Director, Asymetric Toolbook and MS Frontpage/Macromedia Dreamweaver	Task 4: Present assignment/projects creatively. Task 5: Present Teaching and Learning materials in a form of notes or simplified diagrams or modified/self-drawn graphics or cartoons or animations.

The inter-item reliability of the four features of ICT using Cronbach's Alpha is shown in table 3.

Task 3 and 9, which represent *Provisionality*, focus on word processing type of software (typing, editing, storing, and retrieving) while Task 6 and 10, which represent *Interactivity*, focus on the type of software that can create educational system or multimedia application. Task 1, 2, 7, and 8 (*Capacity/Range*) focus on software that is used for data or information gathering and sharing using the Internet while Task 4 and 5 (*Speed/Automatic functions*) focus on computational and presentation types of software.

Each of the four ICT features for the creativity model (Loveless) is given a score. If a respondent uses one type of software to accomplish a task, he is given one point. If he uses more software, for example three types of software to accomplish Task 1, he will score 3 points. The maximum score for each ICT feature is shown in table 4.

The score for each ICT feature for each respondent ($n = 198$) will be compared. For comparison purposes, each respondent's score is first converted to 100 per cent. The conversion formula is the following:

$$\text{Usage of software (\%)} = (\text{Score} / \text{maximum score respectively}) \times 100$$

For example, if a respondent scores 6 for *Provisionality*, his percentage for usage of software is 66.67 percent $([6/9] \times 100)$. The mean percentage for usage of software for each ICT feature is therefore *the sum of all "percentage for usage of software" for all the 198 respondents and then divided by 198*. After calculating the means, the number of respondents (f) who have *scores more than the mean of each ICT feature* is recorded and converted to percentage ($\text{Percentage} = [f/n] \times 100$ where $n = 198$). If the percentage is high, it indicates high usage of ICT for that particular feature and vice versa.

TABLE 3: Cronbach's Alpha for four features of ICT

Features of ICT	Questionnaire Items	Cronbach's Alpha
Provisionality	Task 3 and 9	.73
Interactivity	Task 6 and 10	.77
Capacity/Range	Task 1, 2, 7, and 8	.70
Speed/Automatic functions	Task 4 and 5	.78

TABLE 4: Features of ICT and maximum score for software used

Features of ICT	Maximum Score
Task 3 and 9 (Provisionality)	9
Task 6 and 10 (Interactivity)	6
Task 1, 2, 7, and 8 (Capacity/Range)	16
Task 4 and 5 (Speed/Automatic functions)	6

Results and Discussion

The survey data yielded findings for the most frequently used software for the creativity process based on Loveless Model (Loveless 2002). The result is revealed in table 5.

The most frequently used software is MS Word with a total score of 1005 with MS PowerPoint coming up next at 650. This is due to the fact that MS Word and MS PowerPoint are commonly used by student teachers to accomplish given assignments and projects. MS Word is most suitable for typing and editing information and to create reports or dissertations. To present their work, MS PowerPoint is normally used to prepare the presentation slides. Both MS Word and PowerPoint were taught to all student teachers when they were in secondary schools prior to their university education.

Internet (browser) and MS Excel are third and fourth with total score of 477 and 397 respectively. Student teachers normally search the web for information to finish their assignments or projects. As for MS Excel, most student teachers have some knowledge because it is taught during their secondary schooling days. The knowledge helps them to keep data in numerical format for further analysis or graph creations.

Next on the list is the usage of Macromedia Flash with a total score of 304. Flash is taught in this faculty as part of the computer literacy programme to produce student teachers who can create useful animations for educational purposes (teaching and learning activities).

The result also revealed that other software is not so frequently used by the student teachers to accomplish the ten identified tasks. Although e-mail and digital library are also sources of information besides the internet, the result indicated that their usage is only at medium level. Other software such as Asymetric Toolbook and Authorware are rarely used because these authoring tools are not badly needed by the student teachers for their assignments or projects.

TABLE 5: Total usage of software for creativity according to types

Types of Software	Frequency of usage (Total Score)
MS Word	1005
MS PowerPoint	650
Internet	477
MS Excel	397
Macromedia Flash	304
E-mail	269
Digital library	186
Online forums	62
Asymmetric Toolbook	44
MS Frontpage or Macromedia Dreamweaver	22
MS Access	22
Macromedia Authorware/Director	9

The Role of ICT in the Loveless's Model of Five Elements of Creativity

Table 6 shows the role of ICT in the Loveless's Model of Five Elements of Creativity. The overall mean percentage usage of ICT by student teachers for producing creative assignments or projects is considered average (less than 55%) with *Speed/Automatic functions* having the highest mean percentage for the usage of software at 54.97 ($SD = 12.19$), followed by *Provisionality* at 50.95 ($SD = 13.15$), *Capacity/Range* at 46.40 ($SD = 9.66$), and *Interactivity* at 36.45 ($SD = 16.37$).

According to table 6, the percentage number of respondents with scores more than the mean percentage usage for *Capacity/Range* is the highest at 70.20 percent. This is because the web serves as the greatest data and information provider, and also the internet which makes collaborative sharing (such as e-mail and online forums) highly available and accessible.

The next on the list is *Provisionality* at 55.56 percent. The high usage of ICT for *Provisionality* in producing their creative works is because

most of them use word processors (such as MS Word) to arrange, analyse and present data and information creatively in their assignments and projects. The evidence of tables, charts, useful arguments, and all type of data analysis found in the assignments/projects lend proof to this finding.

The software usage for features such as *Interactivity* and *Speed/Automatic functions* are the least with only 38.38 percent and 38.89 percent respectively of the number of respondents with scores more than the mean. *Interactivity* feature requires student teachers to create or use software that provides interactive functions such as those created with multimedia authoring tools such as Toolbook or Authorware. However, data in table 5 proves that the usage of these two authoring software is quite limited. Educational programmes are also quite difficult to create because authoring tools are not easy to master and it requires some programming basics. Another possible reason for this is the fewer assignments or projects that are related to the use of these tools, and thus, the low percentage of usage as compared to other features.

As for *Speed/Automatic functions* feature, it requires student teachers to present and share creative work with peers and friends at the university. It is worthwhile to take note that most of their presentations and quality of displayed information (analysed data) are given marks by their course lecturers and therefore, ample use of ICT tools are needed to accomplish the tasks creatively. The low percentage of usage may be due to fewer assignments or projects that require the use of authoring tools and hence, the low score for usage under this feature.

The conclusion for this section is that the pattern of ICT usage as mapped to the four features of ICT clearly shows that ICT supports the five elements of creativity—*using imagination, fashioning process, pursuing purpose, being original, and judging value*. It helps to promote creativity to a higher level. This is to say ICT improves the student teachers' work (assignments/projects) tremendously in creative ways such as to be able to display data/information tables, charts, and graphics. They are also able to analyse and present data creatively.

TABLE 6: The percentage of software usage for features of ICT in the Loveless's Model of Five Elements of Creativity

Characteristics of creativity	Features of ICT	Usage of software (Mean Percentage)	SD	Number of respondents (f) with score more than the mean (n = 198)	Percentage number of respondents with score more than the mean ($f/198 * 100$)
Using imagination Being original	Provisionality	50.95	13.15	110	55.56
Fashioning process Pursuing purpose Judging value	Interactivity	36.45	16.37	76	38.38
Pursuing purpose	Capacity / Range	46.40	9.66	139	70.20
Pursuing purpose Being original	Speed / Automatic functions	54.97	12.19	77	38.89

Limitations and Suggestions

The first limitation of this study is the sampling technique used. There are six programmes in the faculty. However, as a result of purposive sampling, only two groups (two cohorts of students taking two undergraduate courses) of student teachers were selected. Therefore, the findings cannot be generalised to the population of this study.

The next is the assumption that the student teachers' answers to the survey are accurate. However, there exist possibilities where a student teacher may not give accurate answers due to factors like lack of cooperation, honesty, etc.

This study also makes some suggestions to the Ministry of Education (MoE), universities, or institutions of higher learning where similar situations are applicable. The results indicate that the high usage of ICT to produce creative work (which includes presentation and collaborative sharing via

e-mail, etc.) are featured in the four features of ICT in the Loveless Model. Therefore, it is recommended that the MoE, universities, or institutions of higher learning produce learning modules that utilise computer skills in projects or learning activities. The training should focus on data/information searching strategies via the web, data arrangement, sorting and analysis (computational software), and graphical as well as presentational software.

The study also clearly demonstrates that the student teachers' pattern of ICT usage in the creativity process as featured in Loveless's Model of Five Elements of Creativity is indeed in accordance with the four features of ICT (*Provisionality, Interactivity, Capacity/Range, and Speed/Automatic functions*). As a result, the role of ICT in the creativity process cannot be singled out. In other words, ICT plays an important and supportive role in creativity. The suggestion here is that schools or colleges must ensure that every student teacher has attended some minimal computer literacy training, preferably prior to entering the universities to further study so that creativity and innovations can be further enhanced with ICT skills.

Conclusion

This study has proven that ICT features are also important in the creativity process (Loveless Model). The data shows that ICT is an important supportive tool for the basic creativity process or cycle. ICT is used in the data gathering or searching stage through the help of the Web, and further helps in providing software for typing or keeping data. The data is then further processed or manipulated through data arranging (in tables), sorting and analysis (computational), and create presentable charts via presentational software. The final creative product (assignments or projects) is then shared with peers and friends via internet (e-mail, online forums, etc.). This confirms previous studies (Loveless 2002) that ICT has a big supportive role in creativity.

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GURU SEBAGAI PENYELIDIK

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Guru sebagai penyelidik adalah isu penting dan wajib dilaksanakan dalam pendidikan masa kini. Aktiviti penyelidikan dalam kalangan guru banyak menyentuh permasalahan pengajaran dan pembelajaran dalam kelas. Dengan kata lain, penyelidikan membantu guru mengatasi masalah pengajaran dan selanjutnya dapat meningkatkan pencapaian pelajar. Oleh itu, guru dianggap sebagai masyarakat reflektif terhadap rutin harian mereka di sekolah. Buku setebal 122 muka, tulisan Abdul Rahman Abdul Majid Khan, membicarakan topik guru sebagai penyelidik yang mencakupi aspek pengertian penyelidikan, proses kajian tindakan, pelan tindakan pengurusan projek dan kertas cadangan, pendokumentasian laporan, penyeliaan pengajaran dan kajian tindakan.

Pada awal bab buku ini, penulis membicarakan empat jenis kajian, iaitu kajian asas, kajian gunaan, kajian deskriptif dan kajian tindakan. Menurut penulis, kajian asas atau kajian fundamental adalah diluar kemampuan guru-guru sekolah manakala kajian gunaan (*applied research*) berkemungkinan dilibatkan guru-guru tetapi di bawah seliaan pakar. Kajian deskriptif juga dikenali sebagai kajian status yang seringkali melibatkan guru atau memerlukan bantuan guru. Penulis berpendapat kajian tindakan adalah kajian berbentuk ilmiah berkaitan teori-teori atau metodologi pembelajaran dalam kelas. Kajian yang dijalankan adalah hasil daripada aktiviti-aktiviti menambah baik pengajaran.

Bab 2 buku ini mengupas model-model perkembangan profesional yang mampu mencetus anjakan paradigma yang lebih praktikal hasil pengaruh idea-idea terkini seperti pendidikan berasaskan hasil, pemikiran sistem dan konstruktivisme. Model-model kontemporari yang dinyatakan dalam buku ini berkaitan dengan perkembangan profesional antaranya perkembangan staf ke arah sendiri, pemerhatian dan pentaksiran, penglibatan dalam proses pembangunan atau penambahbaikan, latihan dan inkuiri. Penulis mempercayai usaha seorang guru yang terlibat secara aktif dan praktikal dapat meningkatkan profesionalismenya berasaskan pengaruh idea-idea terkini serta model-model kontemporari yang telah disebutkan di atas. Lanjutan dengan itu, kajian tindakan sebagai komponen perkembangan profesional yang menitikberatkan tiga ciri khusus, iaitu intervensi, penglibatan dan penambahbaikan. Beberapa kepentingan kajian tindakan dari segi penambahbaikan sekolah yang disenaraikan dalam buku ini ialah penglibatan dalam langkah proses kajian secara langsung dapat mendedahkan pengalaman berkaitan perubahan dan

maksud-maksud tersurat dan tersirat, aspek penilaian kebaikan dan keburukan akibat intervensi perubahan dapat dikesan melalui hasil kajian tindakan mampu menambah kemampuan mereflek pengalaman serta meningkatkan keupayaan ke arah perubahan dan berlakunya penambahan teori-teori peribadi individu. Pendekatan dan model-model kajian tindakan yang dibincangkan dalam buku ini ialah Model Gelungan Skema Tindakan Berterusan dan Model Gelungan Skema Generatif. Kedua-duanya mempunyai penekanan yang berbeza tetapi tetap menuju ke arah penambahbaikan.

Bab 3 buku ini mengupas proses kajian tindakan dari aspek merancang kajian, merancang tindakan, pelaksanaan tindakan, pemerhatian bagi mengutip data serta mereflek. Menurut penulis, perancangan kajian melibatkan persoalan seperti: *Apa yang hendak dikaji? Apa penambahbaikan yang dilakukan? Siapa? Bila? dan Apa instrumen pengukurannya?* Semua persoalan ini perlu difikirkan dengan sistematik.

Selain itu, persoalan-persoalan selepas sesuatu sesi pengajaran ialah: *Apakah yang hendak dicapai? Apakah yang sudah dicapai setakat ini? Apakah yang sudah dilaksanakan dalam mencapai keputusan di atas? Apakah yang perlu dilakukan selanjutnya bagi memastikan pencapaian yang lebih baik?* Perancangan tindakan dibuat setelah data-data dikutip dan dianalisis agar lebih menjurus kepada tindakan penambahbaikan seperti garis panduan untuk sesuatu topik pengajaran yang mengoptimumkan minat terhadap sesuatu topik, kaedah berkesan dalam menayakan sesuatu objektif pengajaran, dan rekabentuk alat-alat bantu mengajar secara kreatif dan inovatif. Penulis mencadangkan dalam menjana alternatif-alternatif penyelesaian perbincangan dalam kumpulan adalah sebaik-baiknya dibuat, agar input dapat dimaksimumkan selain menimbulkan perasaan kepunyaan bersama. Pelaksanaan tindakan bertujuan untuk merealisasikan aktiviti atau pendekatan penambahbaikan yang difikirkan dan dirancang secara kemas. Penulis juga menegaskan sebarang perubahan sememangnya ada risikonya di mana aktiviti-aktiviti penambahbaikan bukanlah sesuatu yang rigid. Pemerhatian bagi mengutip data dapat dimantapkan sekiranya pengkaji mempunyai amalan mencatat dan merekod perkembangan-perkembangan signifikan yang berlaku semasa aktiviti dilaksanakan bagi menghindari keciciran maklumat. Menurut penulis lagi, pengutipan data berlaku dalam dua peringkat, iaitu pada peringkat awal kajian tindakan dan seterusnya ketika dan selepas tindakan menangani isu dijalankan. Data-data yang diperoleh dianalisis untuk direfleksikan bagi merumus keberkesanan tindakan dan sebagai persediaan kitaran-kitaran berikutnya.

Bab 4 mengupas penyediaan pelan tindakan pengurusan projek dan kertas cadangan. Ini termasuklah entiti-entiti seperti menganalisis masalah, menjana pelan tindakan, pelan operasi, penetapan tarikh sasaran, pemantauan dan penilaian projek, penilaian sumatif dan ringkasan penyediaan kertas kerja kajian tindakan. Penulis berpendapat penganalisan masalah dirumus dalam bentuk-bentuk seperti analisis medan daya (*force field*), sumbang saran, jaringan afiniti, kaedah Delphi, rajah tulang ikan, pencartaan proses, carta alir, rajah Pareto, rajah sebaran (*scatterplot*), penandaarasan, pemetaan saluran kerjaya bagi tujuan memfokuskan kepada isu-isu

kritikal (Sallis 1996, dalam Abdul Rahman Abdul Majid Khan 2008, 53). Menjana pelan tindakan melibatkan aspek membuat keputusan; teknik yang bersesuaian untuk ini ialah sumbang saran dan kumpulan nominal kerana melibatkan ramai peserta. Pelan operasi merupakan lanjutan daripada aktiviti utama yang mungkin terdiri daripada aktiviti kompleks yang perlu dileraikan menjadi komponen-komponen yang dapat dioperasikan secara sistematik. Lanjutan daripada ini, penulis menyatakan, penetapan tarikh sasaran, pemantauan dan penilaian projek sebaik-baiknya dibuat dalam Carta Gantt yang bertindak sebagai penstimulasi dan pemaklum balas yang berkesan. Dalam menyediakan kertas cadangan kajian tindakan, penulis menyatakan tidak ada format khusus namun guru-guru dan para penyelidik boleh menggunakan format cadangan Bahagian Perancangan dan Penyelidikan Dasar Pendidikan, Kementerian Pelajaran Malaysia (2006, 71–76) sebagai panduan.

Bab 5 dalam buku ini mengupas tentang pendokumentasian laporan yang menitikberatkan spesifikasi penulisan ilmiah yang konvensional bagi memenuhi kehendak penerbitan dalam jurnal. Penulis menurunkan satu siri urutan yang biasa dijadikan panduan umum, iaitu bahagian preliminari (muka surat tajuk, abstrak, penghargaan, isi kandungan, senarai rajah, senarai jadual), bahagian rangka utama/teks (pengenalan/latar belakang kajian, tinjauan literatur berkaitan, metodologi, keputusan atau dapatan, perbincangan dan kesimpulan), bahagian penutup atau suplementari (lampiran, rujukan atau bibliografi). Ringkasnya, laporan kajian tindakan perlu mencakupi bahagian pengenalan, kaedah kajian dan penemuan. Penulis juga melampirkan contoh penulisan kajian tindakan sebenar yang pernah dilaksanakan olehnya sebagai panduan kepada pembaca.

Bab 6 pula mengupas aspek penyeliaan yang difokuskan adalah penyeliaan pengajaran yang wajar dilaksanakan oleh warga akademik sekolah. Umumnya, penyeliaan pengajaran dewasa ini ialah kajian tindakan yang perlu dilaksanakan secara ilmiah agar proses penambahbaikan berjalan sistematik dan berasas. Penulis mencadangkan pendekatan-pendekatan penyeliaan perlu bersifat mengarah, mengkolaborasi, dan mendelegasi untuk kumpulan-kumpulan sasaran.

Kekuatan buku ini dapat dilihat dari aspek cadangan-cadangan yang diutarakan oleh penulis dalam setiap bab penulisan namun masih kekurangan contoh-contoh dari setiap aspek perbincangan terutama sekali dalam membimbing para guru menjalankan kajian tindakan secara khusus. Penekanan perlu diutamakan dalam aspek pemberian beberapa contoh dalam perincian menu kajian tindakan.

Secara keseluruhannya, buku ini dapat dimanfaatkan kepada warga pendidik yang terdiri daripada pihak pentadbir dan guru-guru. Justeru, kandungan buku dapat dimantapkan sekiranya penulis dapat memfokuskan setiap bab perbincangan kepada perincian yang ada dalam kajian tindakan secara khusus beserta contoh-contoh memandangkan buku ini bertujuan untuk membimbing para guru menjalankan kajian tindakan secara sistematik, terancang, dan jelas prosedurnya seperti yang tertera pada kulit buku.

PENILAIAN DALAM PENDIDIKAN

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Mohd Yusof bin Abdullah

Buku ini telah dihasilkan oleh dua orang penulis, iaitu Vincent Pang, seorang profesor bidang penilaian dalam pendidikan bersama Denis Lajium, seorang pensyarah, dan kedua-duanya merupakan kakitangan akademik di Sekolah Pendidikan dan Pembangunan Sosial, Universiti Malaysia Sabah. Secara umum, fokus buku ini adalah terhadap konsep asas penilaian dalam pendidikan yang perlu diketahui dan dikuasai bakal-bakal guru dari institut pengajian tinggi awam dan swasta yang memilih pengkhususan dalam bidang perguruan. Bahan-bahan yang disediakan dipersembahkan secara mudah difahami bakal-bakal guru dan pembaca. Namun begitu, tidak dapat dinafikan, buku ini juga boleh membantu kakitangan akademik yang giat mendalami konsep penilaian dalam pendidikan, khususnya bagi melaksanakan proses pengajaran dan pembelajaran yang lebih berkesan.

Buku terbitan 2008 hasil kedua-dua penulis ini telah berusaha mengupas dan menjelaskan dengan begitu terperinci berkaitan konsep penilaian dalam pendidikan yang perlu difahami semua individu yang bergelar insan guru dalam proses pengajaran dan pembelajaran masing-masing. Tidak dapat dinafikan lagi, penilaian dalam pendidikan dianggap sebagai aspek terpenting dan merupakan mekanisme tersusun bagi menjamin kualiti pendidikan yang mampu menepati hasil pembelajaran yang ingin dicapai oleh guru-guru. Buku ini meliputi 14 bab kesemuanya, tersusun secara berstruktur dalam tiga fasa penyampaian bagi memudahkan bakal-bakal guru dan pembaca memahami dan menguasai kandungan yang ingin disampaikan.

Fasa pertama melibatkan bab 1 dan bab 2, memberikan fokus kepada Pengenalan dan Penilaian Program Pendidikan. Dalam bab 1, tumpuan diberikan kepada penjelasan konsep-konsep asas berkaitan pengukuran, pengujian, penaksiran, penilaian di samping jenis-jenis penilaian dalam pendidikan. Aspek ini seharusnya diketahui dan difahami insan guru semasa melaksanakan penilaian dalam proses pengajaran dan pembelajaran di bilik-bilik darjah. Manakala, bab 2 tertumpu kepada maksud, tujuan dan dimensi penilaian program. Bab ini turut tidak mengabaikan penjelasan tentang perbezaan maksud penilaian dan penyelidikan.

Fasa kedua melibatkan bab 3 hingga bab 11, memberikan fokus kepada Objektif Pengajaran, Prinsip Asas Pengujian, Merancang Pengujian, Pembinaan Item Ujian, Pentadbiran Ujian, Kaedah Pemarkahan, Statistik Asas, Interpretasi Skor Ujian dan Analisis Item. Secara spesifik, bab 3 telah berjaya menjelaskan maksud dan kriteria objektif pengajaran dan hasil pembelajaran. Sesuatu yang menarik perhatian adalah keupayaan penulis menjelaskan dengan baik tentang hubungan objektif pengajaran dan penilaian serta taksonomi dalam objektif pengajaran. Umum semua maklum, bahawa bakal-bakal guru perlu menguasai taksonomi dalam objektif pengajaran yang meliputi domain kognitif, afektif dan psikomotor. Penjelasan yang lanjut telah disampaikan berdasarkan Bloom (1956) dan Krathwohl (2002) bagi memudahkan kefahaman bakal-bakal guru dan pembaca berkaitan taksonomi objektif kognitif. Keenam-enam aras dalam domain kognitif ini perlu dikuasai dan penjelasan dalam buku ini mampu membantu bakal-bakal guru dan pembaca meningkatkan penguasaan tersebut. Bab 3 dilengkapi juga dengan huraian dan penjelasan tentang taksonomi SOLO (*Structure of the Observed Learning Outcomes*) oleh Biggs dan Collis (1989), di samping penghuraian lanjut tentang aspek taksonomi objektif afektif berdasarkan Bloom, Krathwohl dan Masia (1964) yang meliputi lima aras dalam proses pengajaran dan pembelajaran. Malah dalam bab ini, penjelasan tentang taksonomi objektif psikomotor berdasarkan Simpson (1972) turut dibentangkan bagi membantu bakal-bakal guru dan pembaca meningkatkan kefahaman tentang kepentingan penguasaan domain psikomotor dalam kalangan murid semasa mengikut proses pembelajaran di bilik darjah. Fasa kedua ini terus dilengkapi dengan huraian dan penjelasan tentang prinsip asas pengujian dalam bab 4 yang menitikberatkan huraian tentang kesahan, kebolehpercayaan, keobjektifan, kebolehtadbiran dan kemudahtafsiran. Seterusnya, penjelasan tentang kepentingan merancang pengujian, tujuan ujian dan keperluan menentukan jadual spesifikasi ujian (JSU) bagi setiap penilaian yang ingin dilaksanakan oleh guru diuraikan dalam bab 5. Kaedah membina item atau soalan penilaian diuraikan dalam bab 6 yang menjelaskan maksud ujian objektif dan subjektif. Di samping itu, huraian lanjut turut disediakan bagi menjelaskan kaedah pentadbiran ujian dan kaedah memberi markah yang mempunyai tahap kesahan dan kebolehpercayaan yang tinggi kepada bakal-bakal guru dan pembaca disediakan dalam bab 7 dan bab 8. Fasa kedua ini diperkayakan lagi dengan huraian berkaitan kepentingan memahami maksud Statistik Asas yang terdapat dalam bab 9. Dalam bab 10, bakal-bakal guru dan pembaca didedahkan dengan prinsip-prinsip meningkatkan kebolehpupayaan melakukan Interpretasi Skor Ujian yang tepat berdasarkan rujukan kriteria dan norma. Malah penilaian yang dilakukan oleh bakal-bakal guru akan menjadi lebih tinggi tahap kesahan dan kebolehpercayaan, jika menepati syarat semasa membina item berdasarkan analisis item yang mampu melihat tahap indeks kesukaran dan indeks diskriminasi bagi setiap item. Aspek ini telah diuraikan dengan jelas dan panjang lebar dalam bab 11.

Fasa terakhir pula menjelaskan kepentingan bakal-bakal guru dan pembaca mendapatkan maklumat yang tepat melalui analisis data kualitatif, kerationalan penggunaan portfolio dan instrumen soal selidik sebagai mekanisme tersusun bagi mendapatkan maklumat tiada kepincangan. Aspek-aspek ini dihuraikan dengan jelas dalam bab 12, bab 13 dan bab 14. Kredit berganda perlu diberikan kepada usaha kedua-dua penulis kerana mewujudkan seksyen Semak Kendiri dalam setiap bab bagi mengesan tahap kefahaman bakal-bakal guru dan pembaca setelah selesai mentelaah bab-bab berkaitan. Secara keseluruhan, buku ini bukanlah sekadar buku semata-mata, malah boleh dijadikan pakej pembelajaran asas yang lengkap bagi mendalami ilmu penilaian dalam pendidikan, khususnya kepada bakal-bakal guru di institut pengajian tinggi sama ada awam atau swasta.

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