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## Do Class and School Size Matter? A Crucial Issue to School Improvement

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### Abstract

Students in a first year Master's degree seminar were asked to find the answer to the question "Do Class and School Size Matter as A Crucial Issue to School Improvement?" The paper the students wrote is based on a review of the literature. The students determined that the question had several issues to be addressed before they could answer the question. The issues researched were Student to Teacher Ratio, Resource Availability, Test Scores, Minority students, Extracurricular Activities, Attitude, and Security. The research then led them to make a discussion of Class size, Schools within Schools, Small Schools, and Small is not Better.

**KeyWords:** School size, Large schools, Small schools, School Improvement

Do Class and School Size Matter? A Crucial Issue to School Improvement

### 1. Introduction

In today's academic world, a question of great significance and controversy looms: Is school size crucial to school improvement? There are some parents and educators who say small schools offer the greatest advantage, and there are

those who maintain that large schools are the only real option for a solid education. In order to decide which size school is best, it is necessary to qualify what is meant by "improvement." For the purposes of this paper, improvement will be defined as consistently raised test scores, lowered drop-out rates, a better overall student attitude towards school and learning, eliminated threats of violence within the school, and a longer lasting scholastic achievement. In order to gauge the overall improvement of a school, our group has studied in great detail the following facets involved in every public school across the nation: student to teacher ratio, resource availability, test scores, minority student placement, faculty's attitudes, security, and extracurricular activities. Although there are findings that support large schools as the way to educate America's youth, the majority of our research proved just the opposite. Our findings acknowledge the possible gains offered by the large schools but support small schools as the leading facet of school improvement. Here is our data.

## **2. Student to Teacher Ratio**

The first issue that generally arises in the large school versus small school debate is the student to teacher ratio. On the average, large schools do have a larger teacher to student ratio. Reducing the number of students in the classroom is not a magical solution, but studies suggest that smaller schools and classrooms create the conditions that improve classroom performance. Specifically, the studies point out, small schools enable closer collaboration among teachers and closer relationships between teachers and students which are factors that improve instruction and make schools more welcoming environments (Rotham, 2003). This can be viewed as concrete evidence when studying particular case studies. Fairmont High School in Ohio is a school of 2,500 students. The administration tried a new tactic for educating the students by incorporating smaller classrooms. In this way, small-scale schooling was used within a large school. The teachers and staff set out to change the climate from one where students felt they didn't belong to one that felt smaller and more welcoming for everyone. The school showed a marked improvement: dropout rates have gone from 32% to 13%, suspensions have declined by 25%, and after school functions attendance has doubled (Schoenlein, 2001). Another study in New York City broke a very large high school into four smaller high schools within the same building. Creating numerous schools within one larger school increased the small school feeling. The results of implementing smaller schools and smaller classrooms within those schools were amazing. Over 90% of the students who begin their schooling at one of the various new schools graduated. Of those graduates, over 95% went on to post-secondary school and did "very well," says curriculum developer Cook. "By all accounts, the new structured school is a huge success," (Hodgetts, 1997). A study conducted by the Toronto Board of Education concluded that students in smaller classes had increased math concept scores and verbal participation. It was found that overall, class size made a tremendous difference to the teachers. They found that with fewer students in the classroom there were less disciplinary problems, fewer interruptions, greater individualized instruction, and more on task behavior (Hollingworth, 1992). There is an interesting correlation between early implementation of small class size versus later implementation as well. It seems if children, particularly impoverished children, are placed in smaller classes early on, their chances drastically improve for academic success throughout their lives (Blatchford, 2003).

## **3. Resource Availability**

A second consideration which often plays a role in the drama between large and small school success is resource availability. Naturally the resource availability differs from large to small schools. Resources may be defined as the money available to the school district to pay teachers and adjunct personnel, to pay for textbooks, supplies, technology, and even the paint for the walls. Additionally, the word resource can apply to uniforms for teams and bleachers for the football field. Overall, the term applies to any expenditure the school incurs. It is a perpetuated idea that larger schools are more efficient because the price to educate each student is dramatically lower than the cost to educate fewer students in a smaller school. According to Cox, in "Big Trouble: Solving Education Problems Means Rethinking Super-Size Schools and Districts," there are a number of factors that must be considered to include: "Teacher and administrator's salaries, school rounds and facilities including desks, lockers, paint, football fields, etc, technological needs and costs of computers, printers, and software, and extracurricular activities which might include uniforms, field paint and goals, swimming pools, theatres, etc," (Cox, 2002). Armed with spread sheets full of figures and factors regarding all the public schools in Utah, Cox set out to determine just how much money is necessary to educate one student in a large school and how much different that amount of money is for a student at a small school. The results were surprising to most. The difference in costs between educating a student at a large school versus a small school is miniscule. In 1999, the Logan school district with 5,840 students had the lowest cost per student (cps) at \$181. A school almost half Logan's size, Sanpete, with 2,878 students needed \$198 to educate each student. Finally, Juab, a school district with 1,796 students, a number markedly lower than Logan needed \$207 per student. The big difference was discovered with an enormous school district with 45,208, Alpine, which required \$237 per student (Cox, 2002). In order to further educate himself on the topic, Cox found "paradoxically, the larger a school district gets, the more resources it devotes to secondary or even non-essential activities. As specialization in staff grows, program offerings expand, and administrative personnel increases so do the costs (Cox, 2002). Naturally, the more projects, sports, groups, and clubs offered to the students, there will need to be funding to cover all of it. Additionally, there will need to be teachers to

oversee the activity, and they must be paid as well. Smaller schools that do not offer all the bells and whistles that larger schools do, simply do not need the overhead to cover the extras, and the cost per head to educate can be lowered significantly. Cox's data indicates that there is not a large difference between the cost per student (CPS) in the large school versus the small school. As such, cost should not be a levying tool in deciding which size school is best. If anything, the *uber*-schools are less cost effective than small schools. Chalk another point up in the favor of small schools.

#### 4. Test Scores

Some of the most objective indicators of which size school is most successful are test scores. A study based in Tennessee called the Student/Teacher Achievement Ratio Project or Project STAR addressed various grade levels beginning in kindergarten and studied the students within the classes for four consecutive years. The students were broken down into classes of 13-17 students, 22-25 students, and "regular-sized class with a teacher-aid in addition to the teacher," (Robertson, 2001). When the students reached the third grade, they were re-integrated into an average sized classroom. The study sought to find the difference between local, in school test scores, and standardized test scores. The results were telling. In the first four years of the study, the African American students in the smallest classrooms "average test scores increased by 7-10 percentile points, and white students' scores increased by 3-4 percentile points," (Robertson, 2001). In addition, the students who studied for four years in smaller classrooms were more likely to take the SAT or ACT and apply to college. The exact numbers show that African Americans who were always in the regular sized classroom were 31.8% likely to take the college entrance exam, and their counterparts who studied in the smaller classroom were 41.3% likely to take the exam (Robertson, 2001). In Indiana a research group reported that amongst second graders, those in smaller classrooms containing 19 students scored significantly higher on the achievement tests than their counterparts in larger classrooms containing 26 students (Hollingworth, 1992). Together, these studies indicate that young children to high school aged students score higher on standardized testing and local testing when they are placed in smaller classrooms. Since smaller classrooms usually are found in smaller schools, this points to yet another benefit of the small school.

#### 5. Minority students

Minority students are addressed differently in large schools than they are in small schools. There is evidence that reducing class size might be beneficial for minorities and disadvantaged students. To know whether the policy of reducing class size will achieve the intended goal, one must know whether the differential class size-effects for minorities will persist over time or diminish. Again referencing Project STAR, the findings indicate that small classes in the primary grades can help close the achievement gap among minority and majority students. Minority students often experience even greater gains than white students when placed in small classes in the primary school years. Minority students tend to have lower achievement scores than white students before participating in small classes, but they make larger achievement gains by the end of the school year after being placed in smaller classes. In the case of reading achievement, the small class effect for minorities was consistently much larger than for white students in all grades. As in mathematics, the small class effect in reading was larger for boys in all grades. Thus, it appeared that boys had greater lasting benefits from small classes in mathematics and reading than did their female counterparts. Perhaps more important for this experiment, the average lasting effect of small classes was positive and statistically significant (Nye, 2004). Further testing indicated that minority students in inner-city schools, when placed in small classes, improved in their test scores dramatically particularly in the SAT-9 tests (Gilman, 2003). This may be the case because it has been found that minority students are often placed in large classes with under-trained teachers. When comparing that scenario with the small classroom scenario, the results should indicate higher test scores. In the smaller class the student does not stand the chance of falling between the cracks. Instead, he or she can be addressed one-on-one throughout the day by the instructor, and the progress (or lack-thereof) can be quickly ascertained. Needed change can be implemented in a timely manner to best help the minority student in the small classroom.

#### 6. Extracurricular Activities

What happens within the schoolroom is not the only consideration in a school's success; extracurricular activities can play a great role as well. Though larger schools often offer a greater number of after school activities including sports, clubs, theater groups, and band, the largest percentage of students per student body who participate are often found in the smaller school that offers fewer activities. This has nothing to do with the selection, but rather with the perceived student satisfaction. A study was done in the public high schools of Rhode Island. It was found that the students in the smaller high schools had higher attendance, lower dropout rates, higher grade point averages, and a greater satisfaction with their overall high school careers. Furthermore, extracurricular activities were more highly frequented in the small schools than in the larger high schools (Ark, 2002). Ark attributed these findings to the fact that the students were known by name and face within the school hours, and because they were accepted and recognized, they had an overall more confident and satisfied perception of their place within the school. When the students felt they belonged, they also felt they had something they could contribute to the school, whether that be in the band, playing on the sports teams, or

by acting on the stage. Thus higher percentiles of students in small schools became more involved in extracurricular activities (even though there were fewer to choose from) than those in the larger schools in Rhode Island. No matter the offerings of a school (classes, clubs, sports, size), each student must have some self-motivation to be successful and achieve goals (Kleiner, 2001). When combined with the costs of running so many programs that students may not be inclined to take advantage of in the large schools, perhaps small schools enjoy a more successful (and cost efficient) extracurricular program thus adding to the overall success of the school.

## 7. Attitude

Alluding to the old adage, "If Mama's not happy, ain't nobody happy," such is true where administration and teachers are concerned. In general, the attitude of the school trickles down from the top. That is to say, if the administration is negative, the teachers take their cue from the bosses, and it trickles down further to the students. Therefore, those attitudes held by the administration and teachers must be considered to be top priority. In 1996, studies were conducted on 13,000 Alaskan students and 20,000 Philadelphia high school students. It seems that there was a general feeling of well-being and satisfaction among the faculty in the small schools. That can be attributed to the more human scale, more satisfied and willing students, more committed teachers, opportunity for choice, relative autonomy, distance from bureaucracy, heightened responsiveness to constituents, and better school organization matters (Raywid, 1998). The National Association of Secondary School Principals endorse the idea of small schools. From a survey by Public Agenda Research and Education of 920 public high school teachers and 801 parents of high school students, results are in favor of small schools citing that 66% of parents and 79% of teachers say there is a stronger sense of community at small schools. Also 70% of parents and 56% of teachers say teachers personal interest in students increases at small schools (Johnson, 2002). If teachers feel more responsible to their students in a small school and a stronger sense of responsibility toward the community, then they are apt to take a more conscientious approach towards their teaching than their counterparts in larger schools.

## 8. Security

Finally, security risks are becoming increasingly worrisome in today's schools. To determine if violence is more prevalent in larger high schools, a series of surveys and samples were studied in Colorado. The questions asked to each school were, "What percentage of your schools reported any violent incidents, any serious violent incidents, incidents of rape, incidents of physical attack with a weapon, robbery, theft or vandal, and physical attack without a weapon occurred in the 1996-1997 school year?" (Kennedy, 2003). The findings of the questionnaire are pointed. Three point nine percent of high schools with less than three hundred students reported a serious violent incident happened in their school in the year 1996-1997. Continuing in the study, 2.5% of schools with 300-999 students reported a serious violent incident happened in their school building that same year. The numbers jump dramatically in the next bracket as 32.9 % of schools with over 1,000 students reported a serious violent incident (Kennedy, 2003). These numbers represent the entire state of Colorado and the students' therein safety. The study also indicated that the largest schools that had the most number of incidents reported also employed the greatest number of policemen and security personnel to patrol the halls (Kennedy, 2003). The cure to school violence seems to come from the relationship between students and teachers. If a student is able to fall between the cracks of the school society, then his or her problems can be allowed to escalate to the point where violence manifests itself within the school walls. On the other hand, those smaller schools where the students know each other more intimately and the teachers know their students by face and name, if a problem arises will have a greater chance at being resolved in a non-violent manner.

## 9. Class size

Borland, Howsen, and Trawick (2005) reviewed the literature on class size and found that the effect of *class size* on student achievement, the results of attempts to empirically identify the relationship between the variables *class size* and student achievement are mixed at best. The authors state that there are four factors that have a relationship on class size: (1) the use of a student/teacher ratio as the measure of *class size* resulting in measurement error; (2) the estimation of a mis-specified model resulting from the failure to control for family effects (i.e., student innate ability); (3) the general failure to take into account the endogeneity of class size with respect to student achievement; and (4) the employment of an incorrect functional form when specifying the relationship between class size and student achievement. Borland, Howsen, and Trawick found that the relationship between class size and student achievement is not only non-linear, but non-monotonic.

While Borland, Howsen, and Trawick (2005) did not find a definitive answer to class size as a promoter of student learning Pedder (2006) sights Blatchford and Mortimore's conclusion that a major problem with class size research was the lack of detailed studies of complex classroom processes that might mediate class size effects on pupils' learning. Pedder provides theoretical models of relationships between class size, classroom processes and pupils' learning. The author recommends incorporating sophisticated qualitative methods in order to adequately understand and represent the kinds of teacher and pupil expertise involved in promoting and maximizing opportunities for high quality learning in different large and small class contexts in primary and secondary schools.

## 10. Schools within Schools

Hart (2006) states large public schools are great for kids who are star athletes, talented performers, superior students, or are socially gregarious. However, most kids do not fit into these categories. It is easier to provide attention to these kids in a smaller high school. The Gates Foundation and the Michael and Susan Dell Foundation are questioning mega schools California, in the academic year 2003-2004 led the nation with 25 mega schools having more than 4,000 students. Texas had 6 mega schools. The author notes that mega schools are into "schools within a school." Hart believes that big urban and suburban districts are going to have to offer a menu of smaller high schools, theme high schools (such as a girls' school), or schools within a school based on career tracks (for instance, high tech) if they are to perform their mission of educating every student.

The American School Board (2006) describes how to divide an entire high school into smaller learning units. Using the Colorado Children's Campaign the article lists essential ingredients of small school reform that includes strong principal leadership, research-based school designs with an alignment between school culture and classroom practices, at least one year of planning time for principals and teachers, support for high-quality professional development, high expectations with flexible supports for students, personalized advising for every student, and high-quality data and accountability systems.

Steinberg and Allen (2002) report that the conversion of large urban high schools into small, focused learning centers is gaining currency as an education reform strategy. They authors provide a guide to creating small learning communities for blending youth development approaches with contextual and authentic learning to create effective learning environments.

DeJong and Locker (2006) look at a planning pattern of balancing small school goals with big school traditions and efficiencies. This planning concept goes side by side with educational research that shows students learn better when they feel safe and linked to responsible adults, when they have access to role models, and when they are well known by teachers and administrators.

## 11. Small Schools

Gerwetz (2007) confirms the value of the New York city's strategy of opening small schools. Many of the large high schools they replaced graduated fewer than 40 percent of their students. However, there is a need to fortify the high school curricula.

Hylden (2005) looked at the reasons why small schools have better academic achievement than large schools. The author then looked at North Dakota (ND) academic achievement data that showed ND small schools outperform ND large schools.

O'Neil (1996) says the consolidation of small school boards during the 1960s and 1970s has become a top heavy bureaucratic nightmare in both Canada and the United States. Educators in other countries, particularly Australia, Great Britain, and New Zealand, have come to the same conclusion. The author concludes movement to small schools will not work until there is a change of culture, there is a true divesting of power and restructuring must be taken seriously.

Black (2006) cites Paul Abramson, a consultant who advises school districts on facilities and planning, small schools can provide an enriched curriculum on par, or nearly on par, with large schools. It is said that the critical factor is how principals and teachers organize and manage instruction. The author discusses economies of scale and the relationship between school size and student achievement as part of the equation when determining school size.

Ancess (2008) states that in small schools relationships between adults and students are close. Making a large school smaller has nothing to do with increasing learning if the only change is size. We must move the conversation from size to substance ... look at how schools use their size to reach kids.

Ancess (2008) speaks to reaching kids. David (2008).believes the discussion on class and school size is not addressing a key element in education. All the current efforts are on school and class size and the other issues raised earlier in the paper. To reach kids only a substantial investment in teachers will provide school improvement. The investment in teachers should be directed toward personalization, relevance and rigor of coursework and teacher collaboration those aspects of reaching kids.

## 12. Small is Not Better

As in any discussion there are always two sides. Wainer and Zwerling (2006) state there is evidence that smaller schools do not improve student achievement. The authors see a "faulty logic of inference" that while many high-performing schools are smaller, you can not deduce that being small means providing a better-quality education

Lay (2007) uses the results of a nationwide survey to challenge the effect of school size on adolescent participation in school activities and volunteering. The author believes these outcomes are important because they are related to adulthood participation. However, the survey results show limited support for smaller schools.



Mertens, Flowers, and Mulhall (2001) studied 140 Michigan middle schools and found there is no simple answer to the school size issue. The authors did find teaming makes smaller schools better and larger schools smaller.

### 13. Conclusion

When examining the evidence, the question of what school size is optimal for success, perhaps the best answer is another question or two: Where can students have the opportunity to work closely with their teachers, score higher on standardized tests, feel safe in the schools and confident enough to get involved in extracurricular activities? Where can minorities be placed so that they benefit most and the cost per student is most efficient? Where do teachers and administrators enjoy a mutually beneficial working relationship and thus a greater responsibility to their students? The answer to all of these questions, is still a work in progress.

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## Confronting Asian Concerns in Engaging Learners to Online Education

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### Abstract

Researchers have theorized that cultural emphasis on education plays a major role in explaining Asian students' achievement. While Asian parents often view education as the main vehicle for upward social mobility, the social and cultural make-up of Asian societies and the context within which education is conducted in Asia often clash with the modern approaches and methodologies adopted into Asian classrooms. Contemporary approaches to education especially in relation to autonomous, learner-centred and online philosophies though theoretically supported and statistically proven successful in the west have been slow to capture Asian learners' interest and engagement. This paper discusses some of the reasons for the problems and challenges that need to be confronted prior to the introduction and effective implementation of autonomous online learning programmes. It further describes an attempt at confronting the above issues through a research project conducted by group of academics from the National University of Malaysia. The paper concludes by featuring some of the principles and strategies employed in the online programme developed for the research and the implication of their use on learner engagement to online autonomous learning programmes.

**Keywords:** Online learning, Learner autonomy, Online learning methodologies, Learner strategies, Learner preferences

### 1. Introduction

Education is becoming more and more a global phenomenon with nations and cultures attempting to keep up in the race to establish economic competitiveness in a world that continues to become borderless. Such competitiveness is mirrored in education by attempts to implement and enforce philosophies, theories, methods and practices that have been deemed have borne results in economically progressive and successful societies.

Forestier (1998:23) quoted these words of a South Korean business leader to echo the above sentiments:

The extent of the country's economic difficulties has highlighted the inadequacies of South Korean education. There is a need for a completely new type of schooling which is capable of producing the original thinkers, entrepreneurs and self-starters the country needs.

Even more evident is the push to learn the languages of the these successful societies not only because fruitful economic ventures may be drawn from them but also because these languages like English were the mediums in which current and cutting-edge knowledge is embodied.

The twentieth century witnessed drastic changes to age old traditions of the sage-disciple paradigm in the classroom. The period saw the development many new and innovative teaching-learning methodologies and environments. The age of the computer made the most significant impact with the incorporation of computer assisted and computer mediated methodologies. The birth of the World Wide Web further enhanced the use of computer technology in education and opened up avenues for its use in a multitude of ways transcending national borders.

In the western world very few people have escaped the incursion of technology into everyday life. In stating that technology has changed not only the work place, but also the classroom, Heeger (2002) illustrates the following statistics in support of the growing online education practices in the United States and Europe.

- The International Data Corporation estimates that about 2 million students took online courses from U.S. higher education institutions in 2002. By 2006, there will be 5 million - or more!
- A growing number of colleges and universities are offering fully online courses or degrees as well as web-based services to students. Almost all institutions include at least some web-enhanced or hybrid courses in their curriculum.

- Corporate spending on e-learning is expected to quadruple to \$18 billion in the next three years. Just-in-time virtual training reaches employees of American businesses and corporations worldwide.
- The European Union has established a \$13.3 billion “eLearning Action Plan;” Universitas 21, a multinational online consortium focused on Asian students, plans expansion to Africa and Latin America; and numerous Internet-based distance learning institutions are springing up from Tunisia to Sweden and from Indonesia to Uzbekistan.

## **2. The Asian Learner and Online Learning Methodologies**

The reaction of Asian students to approaches that are new and western in their orientation can only be understood upon gaining an understanding of the general characteristics of Asian students. Asian cultural and socialization characteristics are of primary interest here. An examination of researched generalizations in Asian learners’ cultural and socialization make-up against the primary constructs online learning methodologies helps highlight some of the anomalies.

Cultural and socialization practices identified are supported by finding from a research conducted by Littlewood (1999) in Hong Kong. Refer to Table 1 in the appendix for details. This research indicates that majority of Asian students:

- Like working in groups
- Attempt to maintain a sense of harmony
- Are hesitant to stand out as individuals
- Rely on teachers to impart knowledge
- Expect teachers to evaluate their learning
- Match success to the meeting of family and social group goals

Rao (2001:2) further elaborates that:

The teacher-centered classroom teaching in East Asia also leads to a closure-oriented style for most East Asian students. These closure-oriented students dislike ambiguity, uncertainty or fuzziness. To avoid these, they will sometimes jump to hasty conclusions about grammar rules or reading themes. Many Asian students, according to Sue and Kirk (1972), are less autonomous, more dependent on authority figures and more obedient and conforming to rules and deadlines.

Based on the above positions a national level research was conducted on Malaysian undergraduates in an attempt to locate solutions for online and autonomous learning challenges confronting Asian education.

## **3. The Malaysian Problem and Attempts at Solutions**

The use of online autonomous learning programmes has often been associated with proficiency-type courses. In Malaysia the teaching of content courses using the online mode is at infancy stages. Traditionally the education system in Malaysia has not provided much room for learner autonomy. The culture and tradition of the people too has not encouraged independence and autonomy among students. As such students are overly teacher dependent and have to be spoon fed with information. Even though attempts have been made by the Ministry of Education over the years to wean students away from total teacher dependence and towards greater self-reliance and peer dependence it has not been very fruitful. As a result even at tertiary levels students have not acquired autonomy and independence as revealed by Thang (2001).

## **4. Profile of the Malaysian Student**

The hypothesized that in order to prepare online material that would be most effective and attractive to a wide range of students, the material designers should have a detailed profile of the kind of students who would be subscribing to the course. The profiling would include the social, educational and economic backgrounds of the student, their learning habits, learning styles preferences and so on. The profiling of the literature student for this research was done with the aid of a questionnaire consisting of 82 questions, adapted from the Munby model (1978). It was piloted at National University of Malaysia before it was distributed nationwide.

The data collected through the questionnaire was analyzed using the SPSS software and provided wide range of information. For the purpose of this paper only selected information is used to profile Malaysian student.

In attempting to categorize the students according to learning styles, the data revealed that the respondents were equally distributed into the different learning styles such as inductive reflective intuitive deductive, electronic, and autonomous learning. This could be due to the fact that the literature students appropriate different learning styles for different purposes and normally do not subscribe to one or two particular learning styles. Informal interviews with some of the respondents confirmed this for a fact.

### **4.1 Race**

The study also wanted to investigate whether there were any particular patterns in terms of race in categorizing the students according to learning styles. The results were:

Malay Undergraduates

The analysis shows that a significant numbers of Malay students are inductive, reflective and intuitive learners. There is no significant numbers for deductive learners among Malay students.

Malay students also show significant preference for classroom learning.

However this is contrasted with findings that suggest a significant number also preference for autonomous learning. An explanation for this may be that in practice the Malay students are comfortable and confident in the traditional classroom but they realize the importance of independence and autonomy in all aspects of life as envisaged by the community leaders.

All Malay respondents show a significant correlation between learning styles, and electronic learning, teacher-centered learning, classroom learning, autonomous learning and individual learning.

Chinese Undergraduates

The analysis shows that the Chinese learners cut across all four learning styles grouping.

Chinese learners show significant preference for teacher-centered learning, classroom learning and individualized learning. This again could be attributed to their culture and social values which stresses on communal strength and working in groups. However, as students at tertiary level they are also aware of the importance of being independent and self-directed.

It is also interesting to note that Chinese deductive learners show the greatest correlated significantly towards autonomous and individualized learning, where else Chinese inductive learners show a correlation for classroom learning. This finding correlates with literature that suggests that inductive learners prefer and need more formal theoretical and conceptual input for learning to take place. In contrast, deductive learners are more comfortable in informal and self-directed learning situations.

Indian Undergraduates

The analysis shows significant numbers of Indian students as being inductive, reflective and intuitive learners. There is no significant number for deductive learning for Indian students.

Indian students generally show a greater correlation between learning styles and teacher centered learning, classroom learning, autonomous learning and individualized learning.

Indian reflective learners show no significant correlation to any of the variables.

Indians show a greater tendency (significance) for reflective learning in comparison to Chinese learners. This finding suggests that Indian undergraduates seem to require greater time on task for effective learning to take place through reflection and conceptualization. Hence, the online programme would work ideally with such students provided they are systematic and disciplined in working through the programme.

Bumiputra Undergraduates

The analysis shows significant numbers of Bumiputra (Bumiputra students are the members of native ethnic groups of Malaysia) students are inductive, deductive and intuitive learners. There is no significance for reflective learning for Bumiputra students.

Bumiputra learners show significance in correlations between learning styles and teacher-centered learning as well as autonomous learning

Bumiputra students also show greater significance for electronic learning compared to Indian students. This surprising finding has been ascertained through interviews to Bumiputra belief that they need to work extra hard to succeed with their challenging environment. Many Bumiputra students in universities have also had the opportunity to spend their secondary education years in boarding schools or matriculation centers.

4.2 GenderMale

The data shows male students are significantly distributed across inductive, reflective and intuitive learning styles groupings.

Male's students show a greater correlation to reflective learning styles.

They also show a significant preference for classroom learning, autonomous learning and individualized learning.

Female

Female learners show significant distribution across all four learning styles. They also show significant correlation between learning styles and electronic learning, teacher centered learning, classroom learning, autonomous learning and individualized learning.

Female students show a greater correlation to intuitive learning.

#### General conclusions:

Both genders show greater significant preference to teacher centered learning compared to electronic learning and classroom learning.

This generally suggests that Malaysian learners prefer linear, systematic and progressively organized and developed learning patterns.

#### *4.3 Computer Usage*

The general pattern of computer usage among all learners is between 5-9 hours per week. This is due to the fact that most students still rely very heavily on the faculty's computer labs to do most of their work. They also find that it is extremely expensive to use the cybercafés at their halls of residence. As for those who own their computers, they are unable to connect to the internet as there is no LAN or WAN facilities in their rooms.

Only 17% of the total populous seems to be spending more than 20 hours per week in front of the computer and these are students who travel from home or those staying outside campus.

A significant number of students (more than 30%) spend less than 5 hrs a week working with computers. These are students who either are not computer savvy or cannot afford the high cost of cybercafés.

As with other studies (e.g. Biggs 1994), this research also identified three general categories of learners: Participant learners, Achievement learners, and the Knowledge learners. Table 2 in the appendix below describes each kind.

Based on the above learner profile and their associative needs, a team of researchers, Ruzy, Thang, Ganakumaran.S., and Nackeeran S. funded by an IRPA (Intensified Research in Priority Area) grant embarked on a project to develop an online programme, for the undergraduate students of Bachelor of Arts of English Language Studies (B.A.ELS). The focus of this paper will be findings from the online programme for the B.A ELS students. This online programme demands the students to register themselves with the ***Learning Care Platform*** to have access to the online notes, resources and exercises. The purpose of this programme is to provide further information, resources and assistance to help students have a better understanding of the literary texts and theories. The programme is also designed to develop students' autonomy, awareness and motivation in analyzing various genres of writing. This online programme worked in tandem with normal face to face class teaching.

There may be many reasons for the wide spread apprehension and resistance towards online autonomous study among Malaysian learners. Research has identified amongst others the following reasons

#### **5. Fundamental Skill and Psycho-social Deficiencies**

Within this category are subsumed basic computer (PC) and typing skills. Good typing skills help learners access information and to key in entries fast in text chat sections. Learner training on the goals and expectations of online programmes is also vital to ensure that socialization problems do not occur. Many learners find it difficult and lonely working by themselves on tasks and educational objectives delivered through computer screens. They find the challenge of fending for themselves and being responsible for their own learning without a readily available teacher, daunting. In addition Malaysian students often rely on group support for learning in understanding new concepts and language forms which is absent in online programmes.

#### **6. Re-orientation Challenge**

Most online programmes are designed targeting total learner autonomy. This means that students can and may work alone and at their own pace. One challenge that this model poses is that it often totally contradicts conventional classroom teaching methodologies which encourage social learning approaches through cooperative and collaborative learning. Students, who have over the years become accustomed to such learning environments, find it challenging to adapt to online programme expectations, implementation and goals. Furthermore, the conventional online autonomous learning programme often is also often in conflict with learning styles and intelligences that are interpersonal.

#### **7. Motivation Deficiencies**

Therefore it is not surprising that the greatest challenge to online autonomous learning is not as much the technology or the subject matter but learner motivation for sustained participation in online learning. Harasim et al. (1995) believes that the most important characteristic for students' success in this mode of learning is motivation. Much of the reasons for the lack of motivation have already been discussed in the sections above and are related to lack of competencies, literacies and conflicts of culture and with personal learning styles and intelligences.

#### **8. Responses to Learning and Feedback Deficiencies**

Giving immediate feedback and responses to learner tasks and contributions has always been strongly advocated in conventional classroom settings. This enables learners to be corrected or to self-correct and progress smoothly along the

learning continuum. Online learning programmes which propagate independence from traditional boundaries of teaching-learning time and space may be unable to meet the learners' needs for immediate responses or feedback to their work. Delayed feedback leads to frustration and loss of motivation because learners are unable to proceed along their respective learning curves.

This research project explored several ways to sustain learner interest and participation on the literature online programme. The risk that learners would remain in the comfort zones because of the availability of face-to-face teaching was a fear. Hence the online programme was designed with continuum of learning experiences in mind which would lead learners through controlled participation to totally free engagement with literary material in the Learning Care Platform.

The illustration in Diagram 1 below shows how the literature online programme is tailored in such a way that at initial stages learners have little option but to engage with the Learning Care Platform. This situation is created in the following modes:

### **9. Lecture Notes**

In the early weeks of the course (weeks 1-5) learners are introduced to topics through face-to-face lectures following which lecture notes are placed in the Learning Care Platform. Consequently, learners are asked to log on and download the notes they require. Malaysian students having been totally reliant on notes and hand-outs from their teachers never fail to do the expected. As the weeks progress, certain topics are not covered through face-to-face teaching and notes related to the topics are however placed on the platform. Learners are required to read these notes before participating in small group tutorials with the course instructor.

### **10. Supplementary Guidance and Notes**

Apart from lecture notes the platform also contains supplementary material that may be used by learners to better understand the language text, elements or issues featured in the course. Though it is not compulsory or a necessary for students to access and use these note, majority of the students do for simple fact that they do not want to lose out on valuable information available to other course members.

### **11. Guided Learning Activities**

The aspect of the Learning Care focuses on helping learners work out and interpret language texts through a systematic series of progressively designed learning activities. The focus of these activities is learning and helping learners develop language skills and competencies necessary to succeed in the course. It is noted that many students prefer to attempt these learning activities rather than be reliant on course mates or instructors who work to time. It is only in instances when these activities fail to help that they venture to seek the instructor's assistance. Often these activities are designed to prepare learners for course assessments.

### **12. Course Assessment based Self-Assessment**

This section on self-assessment contains activities that cover the skills and competencies that are addressed in the actual course assessment. Learners are informed of this feature at the beginning of the course. Self-assessment activities are varied and cover all topics offered in the course. Learners never fail to engage in these activities as they understand the value the practice may offer to their eventual performance in course exams. This section works well with Malaysian students who have all along been focused on examination performance and achievement. Students who are not examination oriented tend to visit this section in last minute efforts to prepare for exams.

In the sections on guided learning activities and course assessment-based self assessment the researches utilized activities developed based on Elbaum, Havvind & Tinker's (2000:143) five full-spectrum questions:

- Questions that probe the "so what!" response- relevance, interest level, urgency and context
- Questions that clarify meaning or conceptual vocabulary- ambiguity or vagueness and common concepts
- Questions that explore assumptions, sources and rationale- qualities assumed and study evidence
- Questions that seek to identify causes and effects or outcomes-primary
- or secondary and causes, internal or external factors
- Questions that consider appropriate action- weigh different courses of action

### **12. Blogging**

Blogging or chatting with a specific purpose on a fixed topic is another feature of the Learning Care Platform. The course instructor normally initiates discussion topics based pertinent areas/texts in the course. Learners are told that their participation is monitored and may feature in the award of 10% of the course marks set aside for class participation. After an initial period of apprehension and lack of confidence learners begin engaging in the blogging activity. Slowly the activity takes life and many students begin participating enthusiastically. The instructor simply plays the role of a

moderator and can participate either as himself or using a pseudonym. Ultimately many students find a liberating and enriching experience as they do not have to content with matters related to “face”, language limitations and competence.

Complementing all the above techniques and strategies is the platforms capacity for interactivity and multimedia support. Initial interests in most students are drawn towards sophisticated but useful multimedia elements that support their learning.

The Learning Care discussions take learners beyond the context of one literary text, creating hypothetical situations for intertextual engagement. In the above example a problem situation is created through simulation where a female character each from a different novel/short story is engaged in a discussion of their positions and challenges in their respective communities. Such activities not only require learners to be critical and analytical but also creative in working out the possible discourses that traverse between the characters.

Correlation between learner participation in the Learning Care environment and the students learning style preferences and personality explain why some students feel comfortable working on online programmes almost immediately, whereas others slow to warm-up to such learning environments. Data at initial stages of the programme suggests that only a small number of students showed clear preference for online learning. The apprehension in the majority indicated a preference for face-to-face classes and real-time discussion.

On the other hand, students whose profile described them as shy or introverted and had difficulty participating in face-to-face classroom interaction found the online environment liberating as it allowed them the luxury of time to plan and contribute, without the competition from more vocal students. As the online programme was time-independent it allowed learners to be reflective, critical and creative, and compose thoughtful rather than spontaneous responses. These features endowed the learning environment with a democratising atmosphere.

The data also highlighted two types of participation in the blogging activity. Henri (1989, 1992) categories such messages as independent and interactive messages. Independent messages deal with the topic of discussion, but make no implicit or explicit reference to any other messages. Interactive messages deal with the topic, but also refer to other messages by responding to them, elaborating on them, or building on them in some fashion. At initial periods of the blogging activity most messages were independent, i.e. addressing only the topic of discussion or discussion question. However, as learners became bolder and confident about their ability to make sense regarding the topic they began to engage with comments made by other learners regarding the topic.

Comments made by students at the end of the course regarding the value of the online programme has been organized and listed below according importance.

Enables the enrichment of knowledge and better understanding of language use

- Provides viable opportunities to exchange ideas with others
- Offers opportunities express own views without fear of failure
- Allows opportunities to creatively engage in the communicative process
- Creates opportunities to read other points of view and comment on them
- Improves critical and creative thinking
- Improves skills of writing
- Allows for whole-class participation

### 13. Conclusion

Primarily the success of an online course or program is impacted by the readiness of the students to embrace this method of delivery. Students must have the necessary technological knowledge and skills available to them in addition to access to suitable hardware, software and Internet access before they can benefit from this type of program. Furthermore students must be self-directed learners and responsible for their own learning. They may also be frustrated by technical delays through server breakdowns or loss of internet connections. Culture may also affect the success of online courses or programs. It has been found that even some Asian students, whose command of the English language is reasonably good, are reluctant to participate in the online discussions and collaborative assignments.

A major adult education goal is helping students become independent learners with the ability to monitor and improve their thinking skills. Courses and programmes that integrate online courseware need to integrate meaningful instructional activities that promote internalization of critical and creative thinking skills and knowledge. This study concludes that although the technology may have attributes that have the potential to create a dynamic and interactive educational experience, it requires more than technology to create effective and enriching learning experiences. Other factors that have significant influence include student characteristics, their learning preferences, their cognitive maturity,



and their ability to participate in interaction, and critical thinking. The results of this study support the view of Harasim et al. (1995) and others that these attributes must be exploited by using appropriate design and facilitation techniques.

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Table 1. Cultural and Socialization Practices

Asian Cultural and Socialization Practices	Online Learning Methodologies
Asian culture is more conservative and constrained	Requires aggressive and independent engagements
Allegiance to native language	Mostly requires English or other European languages
Group consciousness – cooperative and collaborative learning culture	Individual and independent learning responsibilities
"Sibling" learning support system - mentorship	Personalized learning and learning assessment
Authority directed learning – fixed curriculum	Self-directed learning - flexible curriculum
Teacher sage and fountain of knowledge	Autonomous learning guided by learning programmes

Table 2. General Categories of Learners

Type of learner	Motivation	Strategies
<b>Participant Learner</b>	Just wants to pass	Focuses on surface meaning. Does the minimum amount of study and reading. Studies at the last minute. Memorizes information. Reproduces ideas from source texts.
<b>Achievement Learner</b>	Wants to get good grades	Focuses on the task demands. Finds out what the lecturer wants. Follows up all the required references. Manages time carefully and hands in assignments on time. Accesses learning support services. Keeps good notes.
<b>Knowledge Learner</b>	Excited by learning	Focuses on the topic. Reads widely. Relates new ideas to previous knowledge. Thinks analytically. Discusses the topic whenever possible.

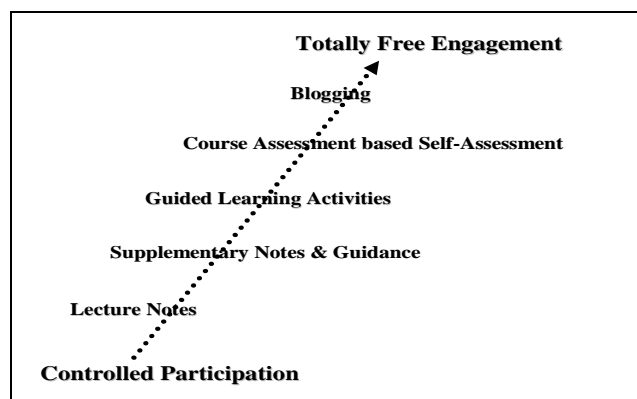


Figure 1. The Literature Online Programme Model

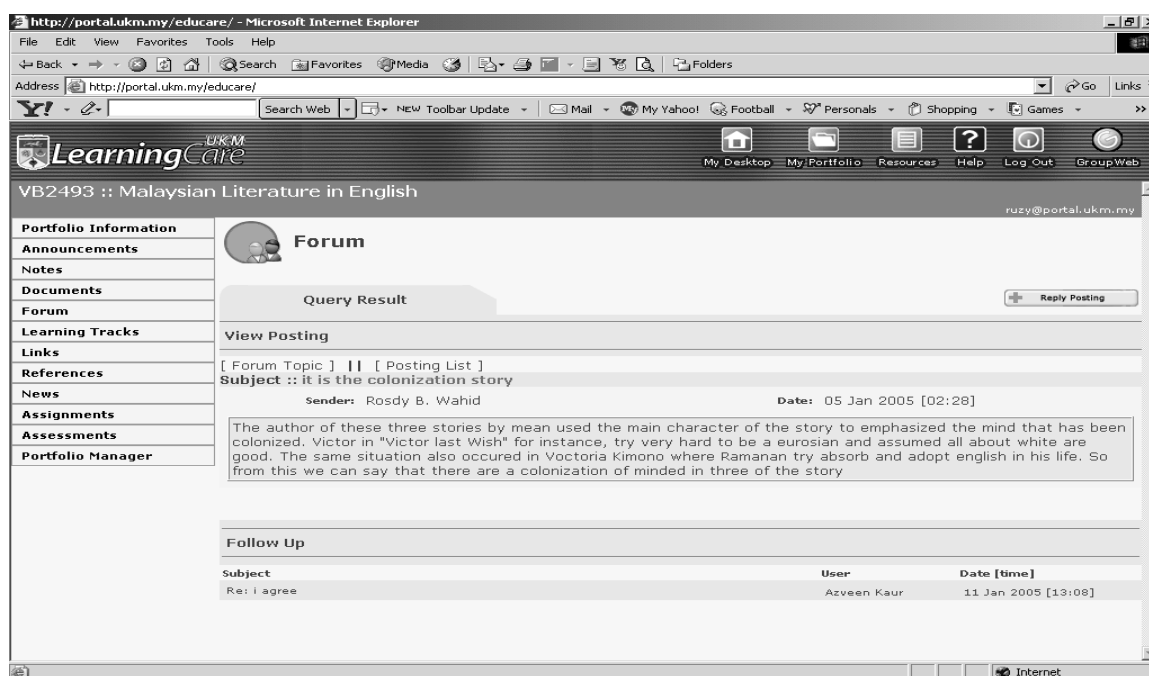


Figure 2. Screen Captures of Learner Engagements



## A Case Study of New Teachers' Role Identity in China

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### Abstract

In the context of social expectation and identification, it is worthy of studying the construction of new teacher's role identity. As a case study, this paper adopted the methods of observation, interview, and open-ended questionnaire to examine a new teacher's daily life in schooling context. It has been found that the new teacher's role-identity differs greatly from social expectation. It is concluded that the role awareness and role behavior of the new teacher are, to some extent, conflicted, especially in the understanding and identification of a teacher and his own career development. This conflict should be reflected and given more emphasis in the teachers' continuing education and training.

**Keywords:** New teacher, Role-identity, Role awareness

### 1. Introduction

For a long period, teacher is regarded to play the roles of knowledge initiator, learning director, educational scientific researcher, strict governor, the model of students and etc. (Luo, 2004). Meanwhile, Chen investigates and analyses the teachers' role from multiform metaphorical views of engineer theory, gardener theory, barrel theory and candle theory etc (Chen, 2000). But they are only the social cognitions for this career, or we can say that they are the social expectations and demands for teachers. Generally speaking, due to the effects of social norms and public opinions, quasi-teacher enters their occupational field with the amalgamation between social expectations and their own recognitions. So, this paper will be greatly concerned with two problems as follows: what kind of condition does the new teacher state in real school context? And what is the influence of the condition on teachers' career and professional development?

### 2. Role Identity

Role identity is a psychological term, which means one tends to be the same with other individuals or groups according to imitating and internalizing the behavior manner, attitudinal notion and value criteria. Self-identity is formed as a reflective self by one's own experience. It is the continuity of the actor's reflective explanation. The self is divided into the "I" and "me", which is based on the conclusions of earlier generations studied by George. Mead. "I" means the organism's responses to others' attitudes, while "me" is a set of organized others' attitudes adopted by the organism himself. "I" is formed by others' attitudes organically, and then, the organism reflects it as the "me" (Mead, 2005). Mead thought that we could not recognize "I" completely, thus we would still be surprised at some behavior (Turner, 2004:39). If we can say that it is possible for the social reform because of the "I", the "me" will be an important assurance for the society to carry out its function.

Social identity is a common identity of a certain group. It emphasizes the similitudes among the collective members and some certain common or similar features which they believe. Some researchers indicate that we had better admit that there are some sub-identities while defining the identity (Mishler, 1999). To this point, role identity is formed by the development of some sub-identities which are embedded in different social contexts. The teacher's identity is also relative to some sub-identities under the certain context. As Cooper and Olson (1996) said, the feelings to be a teacher will be influenced by historical, social, psychological and cultural factors.

In essence, new teachers' role identity is a process through re-cognizing oneself between social and self identity. In this process, several facets on the new teachers' role identity will experience some changes such as the understandings on role position and norm. Teachers' attitude and behavior, in addition, are based on how they recognize and interpret the lifestyle in school. Thus, the primary occupational role identity of new teacher is influenced by school culture, social

expectation, power relation, and self-portraits on career development.

### 3. Methods

Social science is a terminological jungle where many labels compete, and no single label has been able to command the particular domain before us. Often, researchers simply “do it” without worrying about giving “it” a name (Lofland and Lofland, 1984). Even so, every research has its own theoretical and methodological braces. Methodology can be understood as a kind of thinking to formulate and make explicit inquiry procedures and reflect on instruments obtained in practice (Weber, 1968). According to the basic rules on qualitative research, this case study chose a math teacher who had experienced his career life only 6 months since the research started. In order to gather effective data, this research employed the methods of observation, interview and open-ended questionnaire to examine a new teacher’s daily life in schooling context. In this paper, the math teacher is referred to Hu as a pseudonym, according to his own wish.

### 4. Data Collection

For teachers, school is an important field to carry out their occupational roles. In other words, the interplay between peer group and teacher-student interaction shape or reshape the original role consciousness. As a math teacher, Hu teaches in a senior school which comprises 50 teaching classes including about 4200 students and 162 teachers now.

#### 4.1 To be a skilled worker

Hu teaches in Class 1 and Class 2 in first grade, which contain 127 students in total. The average marks in math are 67 for class 1 and 61.5 for class 2 in the mid-term examination. It lies in a medium level among the 18 classes of first grade in this school. The following excerpt shows a snapshot on Hu and his students:

Having a butch haircut, Hu was medium height, a little thin, and speaking in a moderate tone. Hu told me that the first class would begin at 7:40 a.m. When we already sat down in the classroom and the bell was screaming to tell us “It’s time for class”, some students still strolled outside the classroom or went towards their seats very slowly without knocking the door or explaining the reasons to Hu. Hu started his lesson without saying anything else.

It was a new lesson about the formulas of trigonometric function. At 8:10 a.m., nine students became sleepy and embedded their heads into a heap of books on the desk. Hu walked around the room to remind these students not to be asleep again and to catch up with others. But it seemed to be ineffective. The students were still enjoying their sweet nap. Then Hu didn’t supervise and accelerate again. When the bell of finishing ringed at 8:20 a.m., more than 20 students were already at roost. It seemed that they didn’t care about what the homework the teacher had arranged.

After returning the office, I asked Hu about the problem that the students were sleeping in class. He said out his views:

“It’s not easy to know what the current students think. I have thought that it would be OK if one could teach well and have a high capacity to be a teacher when I was at college. But it seems not to be the same as what I think. The students do not listen to me. It’s also useless even though one teaches well. Now I feel that teachers, to some extent, are workers in the streamline and it’s all right to achieve the acceptance rate, because high marks in exams are everything we should focus on. So we do not need to make all of the students be up to standard, what we should or must do is ignoring some of the students to guarantee others’ academic achievement”

According to his own words, it is easy to find that Hu’s cognition about teachers’ occupation differs greatly from the social expectations. In his opinion, teachers are just skilled workers who focus on checking. Hu’s strong task orientation proved his opinion.

#### 4.2 To be a babysitter or not

Hu often refers two statements, one is “I’m a babysitter, not a teacher,” the other is “I’m wanna be a friend with the students, but is that true?” Hu has tried to be a nice teacher, but the reality is not as simple as his expectation. He told his confusion below:

9:10 a.m., the finishing bell was ringing on time. Hu spoke a little quicker. Without saying that the class is over, the students had been in a lazy state. Some whispered to others, some laughed loudly, and some already stood up, ready to go outside the room. Hu did not say anything else, even forgot to say “guys, class is over.” He went to a boy’s seat in the sixth row, asking him to hand in his handheld game console. The boy showed his cunning smile and said, “what’s the game machine? I’ve no idea what are you saying about, sir.” Hu commanded sternly, but the boy was not afraid of him and suddenly passed the game machine to another student. Then the game machine had been passed one by one among the students, they screamed, laughed, like having a party. Hu was boiling and losing his head a bit. Then, a boy caught the chance to tease, “Mr. Hu, aren’t you down with him?” Hu turned to the right aisle from the left in the classroom and said in a low voice while passing me, “I still can punish you, you son of bitch.” After a round of chasing, Hu finally caught the student and his game machine.

It indicates that the students are not identified Hu as a teacher. In another word, Hu does not have the necessary authority in order to keep students not crossing the line. Here is the reason for this in the follow interview:

"I think it would be good for teaching if I can get along well with the students at the beginning of working. At that time, I was really wanna be a friend with the students, but was that true? I have found that if a teacher treats the students as friends, they will not regard him as a teacher in class, and then, the order of class also will be disturbed."

So how do the students treat this? A survey has been made for the two classes taught by Hu, including 127 students with open-ended questionnaires. There are two open-ended questions examined:

1. In your opinion, what are the differences between the veteran and novice teacher, and what kind of teachers do you prefer to ask questions, why?
2. If you were a middle school teacher, just graduating from college, how would you deal with the relation with the students, and how would you be appraised by them?

In the 108 effective questionnaires reclaimed, four key words have been highlighted in students' description about the novice teacher, which are "lacking experience", "energetic", "approachable" and "unobtrusive" respectively. For the second question, the method of "making friends with students" is mentioned directly or indirectly in the 92 questionnaires. (See Table 1)

These key words are "native concepts" which means "people use these concepts to interact with each other in their particular social context" (Chen, 2000). Thus, to understand these concepts should go back to the students who use them. That is to say, to know what these concepts means needs to interview the students who ever grasp these words. Based on this point, a group interview has been made in Hu's two classes. The interview employed the way of team-discussion. There are 15 to 20 students in a team which had a spokesman, and others could only tell him their opinions and then the spokesman would speak them out to the interviewer. From the group interview, native understandings about the four native concepts are detailed in Table 2.

About Hu, students in the two classes hold a very similar view below:

"In the beginning, he was nice and usually chatted or played football with us, but later he was stern to us and there were no jokes in class or out. There is nothing else except teaching now. As a matter of face, it was very boring."

#### 4.3 Too close to official hour

For new teachers, colleagues who effect greatly for their professional development are the important others in the process of shaping their role identity. To communicate with colleagues and to learn from school culture or sub-culture is beneficial to establish one's identity on career. In addition, learning from veteran teachers as an apprentice is in fashion in many Chinese schools. It is all there for a reason that novice teachers can learn the basic rules to survive in daily schooling life. But Hu flatly complained this mechanism in strong terms stating that veteran colleagues had given him nothing but trouble and that he viewed them as competitors.

"Now, the results of students' exams are like traffic lights which lead teachers' career development. When students did not get the approving grade, the zebra lines were not available for the teacher who was responsible for their academic achievement. This is the root of problems. We are alone here, no one wants to care about others. At the very beginning when I came to this school to teach math, I did not know these sub-rules very well. About a month later, the first grade had a usual test for students. The teachers marked the test papers of others' class. Well, maybe I was a bit severe, the marks of the papers which I took charge are lower than the average. Consequently, the scores of my class were very low in the next test because of revenge. It sounds ridiculous, right? But it is true, it is the damn sub-rules in school. I cannot change it, so I have to follow it."

The senior middle school where Hu earns his living, ranks the third place among 8 senior middle schools in N.A., a small town in Jilin province in China. Its notion of school management updates more frequently than others, especially in how to improve teachers' professional abilities. Thus, it encourages people to establish support groups for cooperative learning, such as sharing advanced teaching skills, discussing psychological problems, and forcing identities in the learning community. During the process of professionalization, the teachers have to attend a meeting monthly according to the ideas mentioned above. Here is a snapshot for one of the meetings:

Time: 4:10 p.m.

Site: Room 305 in the main building

Members: First-grade math teachers

Meeting process: The leader of the teaching group presided and spoke firstly. There were two points in main content. Firstly, to sum up the quantity of the task that each teacher had accomplished for the students' homework, mainly about exercise papers for last month. Secondly, to arrange new teaching tasks. Then the leader asked whether there were any questions or not. No one responded. During the whole meeting, the leader was like a lonely dancer without any partners, even no spectators.

It seems that the meeting is one bane of teachers' life in school. The administrators urge teachers to take the meeting as

a chance to improve themselves, but this does not lessen their very real, often poignant experience of the “official affairs”. Hu provides his opinions on this:

“It is really important to fix some problems together, that we have encountered commonly in school. But everyone is busy on his or her own business. And you know, no one likes attending a meeting, no one can put up with it. It is so boring.”

## 5. Discussion and Conclusion

Upon experiencing paradoxes in school life and reflecting on the interplay through others, it seems clear to Hu that his emotions — his hopes, fears, and passions — had at least as heavy a role to play as did his cognitive grasp of the work in how he came to, planned for, and carried out. This is not only his confusion, but also an important topic discussed in different academic fields. Wu(2002) points out that teachers have the right to choose their own lifestyle and view on this career. In Wu’s opinion, teachers are not just “spokesmen”, but also “public intelligentsia”. It becomes a tendency to define the teachers’ role more pragmatically on account of focusing on a teacher as a person and listening to the teachers’ group. Zhou (2006) further claims that teacher is not only a role person in teaching but also a nature person.

As a novice teacher, students and colleagues are the most important others through Hu’s experience in school context. As a very important view from symbolic interactionism school in Sociology, it argues that individuals often construct their identities through the interactive process and context which needs the important others to be the reference to integrate the “I” and “me”. It claims that not only can the contexts construct individuals’ role identity but also individuals’ identity through its action can reconstruct the contexts. That is to say, role identity is not just the product of contexts, but it also produces contexts of its own. In summary, role identity is constructed in the interaction between individuals and important others. It can change with the changes of contexts in which individuals and others exist. Among these changes, one of the most important factors is the cultural characteristics and experiences that individuals and other colleagues or students hold in school. Another critical point is how individuals and others perceive themselves and how they respond to others’ perception of them in interaction processes on the basis of their respective school experience.

Based on the data being collected, Hu did not achieve the essential identity from the interaction with important others. On contrary, the evaluation system pushes Hu to expose under the great pressure that he must be responsible for students’ achievement. It also makes some delicate changes between students and him. In terms of the confusion Hu faces, how to form an appropriate identity for new teachers becomes a very serious problem.

Briefly speaking, we have to reflect the current normal education in China. Zhu (2005) points out that the education and training in normal colleges only focus on professional skills and knowledge without paying essential attention to cultural visions. It will put normal education into a critical dangerous situation because of the tool rationality which makes individuals devote their attention to how to do things well, not why to do or where to go.

In conclusion, how to form a scientific role consciousness for teachers especially the new teachers, how to find a suitable point of equilibrium between social expectation and individual identity for new teachers, and how to guide new teachers in school context ideologically or culturally are critical problems. They need to be taken into account seriously and to be resolved promptly.

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### Notes

Note 1: The number of the students who refer to the relative key words is noted in the brackets.

Table 1. The results of the survey (See Note 1)

Questions	Key words mentioned in questionnaires			
Differences between veteran and novice	Lacking experience(87)	Energetic (81)	Approachable (74)	Unobtrusive (66)
How to get along with students	Making friends with students(92)	No sternness(86)	Talking privately (74)	Skilled and humorous in teaching(45)

Table 2. Understandings of native concepts

Local Concepts	Comprehension
Lacking experience	be dogmatic on textbook; teach little about skills of passing exams; have no idea what students think about.
Energetic	Young; joke with students; play football together.
Approachable	communicate with students after class; not be stern.
Unobtrusive	discuss with students; correct the his own mistakes without being angry.





## Research and Exploration into the Development of Students' Practical and Innovative Abilities in Engineering Colleges

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### Abstract

Practical teaching plays an important role in developing students' practical and innovative abilities. Starting from the idea of "emphasis on practice and ability", this article proposes to take a series of measures to improve students' practical ability in undergraduate teaching. In addition, a platform should be built to develop students' innovative abilities. Our practice has shown that these measures have taken favorable effects.

**Keywords:** Practical teaching, Practical ability, Innovative ability, Teaching reform

Due to the great significance of practice in college students' development, colleges have been putting much importance on improving students' practical and innovative abilities. Based on its guideline of "solidifying foundation, emphasizing ability, paying attention to innovation and achieving all-round development" as well as its objective to develop students "with strong practical, innovative and development abilities", North China Electric Power University have taken great efforts to conduct research on experimental and practical teaching system, promote its reform in talent cultivation pattern, optimize its experimental and practical teaching system, establish its practice bases, hence promoting the development of students' practical and innovative abilities to a large extent.

### 1. Optimizing Talent Cultivation Scheme and Establishing Experimental and Practical Teaching System with Four Modules and Three Layers

It is particularly important for engineering colleges to establish perfect experimental and practical teaching system to equip their students with necessary practical abilities. Our school has conducted research on such a system according to the basic rule of "basic experiment--engineering practice on and off campus-- comprehensive professional practice", enhanced the construction of such a system with four modules, characterized by simulation, relying on practice bases and supported by open management. In this system, the four modules include basic experimental teaching, on-campus practical teaching, simulation practical teaching and off-campus practical teaching. To be specific, the average periods of experimental and practical teaching take up over 33% of the total. In addition, a lot of optional practice has been offered to students to give them sufficient training in experiment and practice. In the recent years, our school has conducted practical teaching reform to develop students' practical and innovative abilities.

#### 1.1. Reforming Verification Experiment and Emphasizing Design Experiment

In the basic experimental teaching module, great efforts have been made to reduce verification experiments and increase design and comprehensive ones: (1) eliminating those old-fashioned facilities and adding those facilities related to new contents and methods, such as EDA lab, mathematics lab, electromagnetic measurement simulation lab and so on. (2) encouraging teachers to develop their own experimental facilities, especially those design and comprehensive ones, such as auto-control experimental teaching system, computer-line auto-protection experimental system and so on. Up to now, over 320 sets of facilities developed by teachers themselves have produced favorable economic and social benefits as well as fulfilling our own demands for experiment. (3) integrating experimental resources and constructing comprehensive experimental teaching center, such as the construction of electrical engineering and electronics experimental teaching center by combing the former electrical engineering lab, electronic lab and a variety of measurement labs in different colleges and departments. This center has done a lot in exerting the advantages of professors-in-charge in teaching and research and coordinating strong and weak points, hardware and software, theory and practice. In addition to basic experiments in electrical engineering and electronics, a series of comprehensive and design experiments have been conducted, such as comprehensive design of electronic system, comprehensive electromagnetic measurement, sensor measurement and control and so on. By integrating teaching resources, the utility of resources as well as the construction of labs and practical teaching have been improved.

### *1.2. Reforming Monotonous Skill Training and Emphasizing Systematic Engineering Practice*

In our on-campus engineering practice, the former monotonous skill training has given way to some comprehensive and systematic practical projects related to research and development, such as the design, manufacturing, installation and testing of mechanic devices in the engineering training center; the series design projects of low-voltage set switchgear equipment in the electrical engineering practice base; the installation, debugging, operation of heating system, the design of air-conditioning system and the design and manufacturing of gas top and so on. By taking part in these practical activities including basic practice, project design, project budget, engineering production, engineering experiment, failure elimination and so on, students have got all-round practical training.

### *1.3. Introducing Simulation Technology into Practical Teaching and Emphasizing Advanced Practical Methods*

As a technology-and-capital-intensive industry, electric power, with continuous and safe manufacturing process, requires technicians to remove possible breakdowns. Based on this feature, our university have introduced modern simulation technology into practical teaching and established "practical teaching simulation module" in those main majors. Up to now, we have established a simulation system of electric power production and transportation including the largest thermal power installation simulation, nuclear power installation simulation, electric power system simulation, power grid scheduling simulation in China and we have been qualified to award relevant certificates. This system is equipped with systematic virtual reality environment similar to real production, in which students are able to set system failures and learn how to eliminate them. Students trained in this practice will adapt themselves to their new jobs soon, hence popular with employing units.

In addition, our university has developed other series of simulation systems in experimental teaching, such as electric dust remover simulation system, smoke desulfurization simulation system, dynamic virtual system of electric power, simulation device of computer-line protection and so on. It has become a distinguishing feature in the practical teaching of North China Electric Power University to introduce simulation practical teaching into the teaching process as an independent module.

### *1.4 Improving the Cooperation between University and Enterprise and Emphasizing Interactive Enterprise Local Practical Teaching*

In order to change the former situation in which enterprises accepted trainees passively, cooperative and mutual beneficial system should be established between university and enterprise. In our university, the board of directors has been taken advantage of to establish such favorable relationship with enterprises in talent cultivation, technological service, staff training and other aspects and declare it in the form of agreements. In addition, over 100 off-campus practice bases have been established in the surrounding areas. It has been our usual practice to organize and arrange off-campus practice in teaching schedule and to hold regular meetings with those teachers in charge of practice bases to coordinate practice contents and timetable. At any practice base, students are made to be responsible for certain posts and are managed by both the university and the base.

## **2. Constructing On-campus Practice Base and Providing Students with Favorable Places for Practical and Innovative Activities**

Favorable places play an important part in the cultivation of students' practical and innovative abilities. Based on the former labs, our university has constructed a series of open practice bases according to different characteristics of different grades, providing good environment and platform for students to conduct innovative and practical activities.

### *2.1 Establishing Basic Course Innovative Practice Bases*

With mathematics and physics as compulsory basic courses for all engineering students, our university has established some relevant innovative practice bases to encourage students to take part in innovative practice from the very beginning. In the physics innovative practice base are established a research hall of physical phenomena and a design and making room. There are some famous demonstrative experiments and students' science and technology works on display in the former and some tools used for mechanic processing and circuit welding in the latter. In the teaching process, teachers will begin with guiding students to observe physical phenomena and lead them to develop some instruments for physical teaching and some minor inventions and further to conduct technological innovations and grasp scientific research methods. At the mathematics innovative practice base, students have developed a variety of calculation software related to advanced mathematics, engineering mathematics, modern mathematics and a mathematics experiment system based on campus web. In this way, online calculation and visual output of mathematical curve can be achieved. Up to now, it has become an important place for students' mathematics modeling activities and has helped students to achieve prizes in some international and national competitions.

### *2.2 Constructing On-campus Practice Bases*

In order to overcome some difficulties and shortcomings in off-campus practice and achieve better effect in practice, our school has done a lot in constructing a series of practical training bases.

(1) strengthening the construction of engineering training center. In order to train students in metalworking practice in a better way, our school has introduced numerical-control processing center, graphic studio, industrial robots, comprehensive electrical engineering and electronics experimental system and some other facilities to form a modern engineering technology training center integrating some comprehensive technologies such as computer, mechanics, electronics, electric appliance transmission and control. There students are able to conduct their comprehensive innovative practice such as computer-aided design and manufacturing, typical industrial mechanical and electrical equipment monitor and control as well as some basic skill training in metalworking, electrical engineering and electronics.

(2) constructing simulation practice bases. An on-campus practice base for building environment has been established, including simulation heating system with mechanically recirculating hot water, simulation experimental system of air-conditioning, simulation experimental system of large-scale central air-conditioner, to provide students with an experimental and practical place quite similar to different working conditions. After learning about the factual conditions in real working places, students will conduct their data collection, analysis and study at these practice bases. Better effects have been achieved in this way.

(3) making full use of multi-media technology to construct virtual production sites. We have constructed a virtual power generation scene to help students to have a complete understanding of a power plant and give them a chance to observe some critical operations such as overhaul, start and stop of power generation facilities. First, we have produced some models for critical parts as well as used some old parts discarded by power plants to give a detailed introduction of the structure and operation process of power generation facilities. Second, we have recorded the processes of installation, start and stop of some critical systems in the audio and video forms and publicize them on our campus web to give students an access to the production, the structure of critical facilities and critical technological processes in a real power plant, hence helping a lot in improving the effect of our practical activities.

### *2.3 Establishing On-campus Engineering-type Practice Bases*

Our school has established an on-campus electrical engineering practice base with some donated as well as purchased facilities. With 37 sets of facilities including motor, transformer, circuit breaker, electric power distribution cabinet and so on, students will be able to design and practice 36 plans including mechanical and electrical drive and control, large-scale disposable facilities of electric power system and to conduct design experiments in over 40 series such as low-voltage set switchgear facilities. All these programs are optional for students in different majors and at different levels. With these facilities, students will not only learn and use relevant national and industrial standards to design and draw shop drawing but also learn to operate some typical facilities and eliminate some failures in them and design and make low-voltage transformation and distribution facilities.

### *2.4 Establishing Research-type Innovative Practice Bases*

In order to develop and improve senior students' research abilities, our school has established a simulation and control innovative practice base, an EDA innovative practice base based on the former key lab of industrial control and simulation at the ministerial level and EDA lab. Three research categories have been planned according to the characteristics of undergraduates and some existing research projects in our labs. The first category is equivalent to graduation project, such as the development of module neural network model based on simulation platform and the analysis and research on unit plant load control system at the simulation base, and the design of self-adapting filter and the EFGA of interleave and deinterleave in telecommunication system; the second is equivalent to course design, such as the analysis and research on single circuit feedback control system and so on; the third includes other minor projects, such as the start-stop control of pulverizers and so on. Some excellent projects are chosen to be made use of in the development of new facilities in our laboratory work.

## **3. Deepening Management System Reform and Establishing Open Operation System**

In order to provide undergraduates with favorable environment and conditions for innovative and practical activities, our school has taken measures to establish open operation system of labs (bases).

### *3.1 Establishing Professor-in-charge Post to Attract Excellent Teachers to Laboratory Work*

To encourage and attract excellent teachers to construct and manage labs, our school has set the professor-in-charge post in key labs at different levels, laboratory teaching center and engineering training center. Allowance will be given to those professors-in-charge with high academic achievements, rich experience in teaching and research and strong sense of responsibility. Now the first batch of professors-in-charge have been allocated to different labs including the electric power intelligent protection and control lab, the electromagnetic field analysis and testing and electromagnetic compatibility lab, the simulation control center, the electrical engineering and electronic experiment teaching center and the engineering training center. The above measures have improved our experimental team construction and our practical teaching.

### *3.2 Establishing Extracurricular Optional Practical Projects to Enrich Open Lab Contents*

The key in opening the lab lies in having enough research and practical projects for students to conduct their practical

activities and therefore to improve their relevant abilities. We have done some beneficial attempts in this aspect, requiring all labs and practice bases to open themselves by repeating some experiments conforming to the teaching plan, or disintegrating teachers' research projects into some specific experimental subjects or working out some comprehensive and design experiments. In addition, we have laid down the project credit assessment standard in which certain credits are given according to the difficulty and content in different lab tasks and have publicized some information such as the brief introduction, reference, requirements of applicants, credit on the campus web. Besides, students can work out their own projects of scientific and technological activities and conduct their practical activities by booking in advance.

### 3.3 Establishing Special Opening Fund to Improve Teachers' Enthusiasm in Opening Labs

Now, special opening fund has been set aside to encourage lab staff and instructors to take part in the opening work of labs. Besides for materials, this fund is also used to pay teachers for their extra work in instructing students' experiments. At the beginning of each term, open labs are expected to submit their plans for open experiment projects and budget. At the end of each term, a result report should be submitted, which includes students' attendance and report cards, instructors' workload and so on. This fund has given necessary financial support to labs for their opening work, encouraging teachers' enthusiasm effectively.

### 3.4 Setting Extracurricular Ability and Quality Credit to Encourage Students' Enthusiasm for Extracurricular Practice

Students being the center of opening labs, only by encouraging students as well as teachers' enthusiasm can we establish a constant lab opening system. Therefore, our school has set extracurricular ability and quality credit system, according to which certain credit will be recorded into students' documents if they have finished a practice project as required. This credit will take a part in annual competition for prizes and awards, sometimes replace that of some optional courses or even replace course design or graduation project if a project has been approved in oral defense. In addition, according to our new regulation of recommending students to be postgraduates without national exam, students' innovative abilities are emphasized. Accordingly, their grades in extracurricular practical and innovative activities are regarded one of the important requirements during the course.

Due to our optimized practical teaching system, favorable practical teaching conditions, open management and support system, students' enthusiasm for practice and their practical and innovative abilities have been improved. Therefore, with our graduates quite popular with employing units with their solid foundation, strong ability, originality and devotion, our employment rate has been remaining above 98%. In the recent years, more than 80% students have taken part in all kinds of sci-tech and cultural activities every year and have achieved great achievements. And due to our multi-channel, multi-form and large-scale innovative activities for students, our school has been given the title of "Youth Sci-Tech Innovative Education Base"

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## Binary Coded Web Access Pattern Tree in Education Domain

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### Abstract

Web Access Pattern (WAP), which is the sequence of accesses pursued by users frequently, is a kind of interesting and useful knowledge in practice. Sequential Pattern mining is the process of applying data mining techniques to a sequential database for the purposes of discovering the correlation relationships that exist among an ordered list of events. WAP tree mining is a sequential pattern mining technique for web log access sequences, which first stores the original web access sequence database on a prefix tree. WAP-tree algorithm then, mines the frequent sequences from the WAP-tree by recursively re-constructing intermediate trees.

In this paper, we propose efficient sequential pattern techniques called **BC-WAP** (Binary Coded WAP). The proposed algorithm uses Kongu Arts and Science College web logs for sequential pattern mining. It eliminates recursively reconstructing intermediate WAP trees during the mining by assigning the **binary codes to each node in the WAP tree**. The results of the experiments show the efficiency of the improved algorithm.

**Keywords:** WAP tree, Data mining, Sequential pattern mining, Web log files

### 1. Introduction

Data Mining is the non-trivial process of identifying valid, novel, potentially useful, and ultimately understandable patterns in data. With the wide spread use of databases and the explosive growth in their sizes, organization is faced with the problem of information overload. The problem of effectively utilizing these massive volumes of data is becoming a major problem for all enterprises. Traditionally, we have been using data for querying a reliable databases repository via some well-circumscribed application for canned report generating utility. Data mining attempts to source out patterns and trends in the data and infers rules from these patterns. With these rules the user will be able to support, review and examine decisions in some related business or scientific area. This opens up the possibility of a new way of interacting with databases and data warehouses. Sequential mining is the process of applying data mining techniques to a sequential database for the purposes of discovering the correlation relationships that exist among an ordered list of events which is the objective of this paper. The application of sequential pattern mining are in areas like Medical treatment, science & engineering processes, telephone calling patterns. Sequential pattern mining Web usage mining for automatic discovery of user access patterns from web servers.

It is used by education domain, this means detecting the behavior of the students, which pages seen many times and which is to improve etc.

The rest of this paper is organized as follows. In Section 2, we introduce sequential access pattern mining techniques and its related works. The proposed BC-WAP mine algorithm is then presented in Section 3. The experiment results are shown in Section 4. Finally, the conclusions of the paper are given in Section 5.

## 2. Sequential Access Pattern Mining

As an important branch of data mining, sequential pattern mining, which finds high-frequency patterns with respect to time or other patterns, was first introduced by (Agrawal R., and Srikant R.(1994)) as follows: given a sequence database where each sequence is a list of transactions ordered by transaction time and each transaction consists of a set of items, find all sequential patterns with a user specified minimum support, where the support is the number of data sequences that contain the pattern. Since the access patterns from web log take on obvious time sequence characteristic, it is natural to apply the technology of sequential pattern mining to web mining. According to the downward closure property of frequent sequences, to some extent, maximal frequent sequences have already included all frequent sequences. The space to store maximum frequent sequences is much lower than to store complete set, and web mining applications partly only depend on maximum frequent sequences rather than the complete set of frequent sequences so that mining maximum frequent access sequences is of essential practicability.

Sequential access pattern mining techniques are mainly based on two approaches: Apriori-based mining algorithms and WAP tree based mining algorithms.

### 2.1 Apriori-based Mining Algorithms

The AprioriAll (Pei J., Han J., Mortazavi-asl B., and Zhu H.(2000)) algorithm proposed a three-step approach for mining sequential patterns. It first finds all frequent itemsets. Then, it transforms the database such that each original transaction is replaced by the set of all frequent itemsets contained in the transaction. And finally, it finds the sequential patterns. However, this algorithm does not scale well due to the costly transformation step. In (Hafidh Ba-Omar, Ilias Petrounias and Fahad Anwar(ICALT 2007)), a generalized sequential pattern mining algorithm known as GSP mining algorithm was proposed. Similar to the AprioriAll algorithm, GSP scans the database several times. In the first scan, it finds all frequent items and forms a set of frequent sequences of length one. In subsequent scans, it generates candidate sequences from a set of frequent sequences obtained from the pervious scan and checks their supports. The process terminates when no candidate is found to be frequent. So this algorithm requires multiple scans of database. So now we discuss WAP tree based mining algorithm.

### 2.2 WAP Mining Algorithm

The WAP-tree is a very effective compressed data structure designed for storing the data obtained from web logs. To construct a WAP-tree, we need two scans of the web access sequence database: (1) Scan database once, find all frequent individual events; (2) Scan database again, construct the WAP-tree over the sub-sequences with only frequent individual events of each sequence, which are also called frequent subsequences, by merging their common prefixes,. At the same time, all nodes that contain the same frequent event are linked into an event queue and the Header Table with all frequent events is created for this WAP-tree with the head of each event queue registered in it. Then, all the nodes labeled with the same event can be visited by following the related event queue, starting from the Header Table.

The FS-tree (Pei J., Han J., Mortazavi-asl B., and Zhu H.(2000)) extends the WAP-tree structure for incremental and interactive mining. The corresponding mining algorithm FS-mine (Frequent Sequence mining) is used to analyze the FS-tree to discover frequent sequences.

J Han puts forward a web access pattern tree structure (WAP-tree) and an algorithm for mining frequent access path based on WAP-tree (WAP-mine) in (Zhou B.Y., Hui,S.C. and A.C.M. Fong(2004)). This algorithm and not producing candidate frequent patterns. Consequently, WAP-mine algorithm is an order of magnitude faster than Apriori algorithm (B Zhou B.Y., Hui,S.C. and A.C.M. Fong(2004)) put forward by Agrawal at earlier stage. Nevertheless, WAP-mine needs to produce a mass of conditional WAP-tree, which influences the efficiency of WAP-mine in a certain degree.

In recent years, some classical algorithms applied to mine maximum patterns include MaxMiner, DethProject, MAFIA and GenMax etc.

## 3. Prototype – BC-WAP

The proposed approach is based on WAP-tree, but avoids recursively re-constructing intermediate WAP-trees during mining of the original WAP tree for frequent patterns. The modified WAP algorithm is able to quickly determine the suffix of any frequent pattern prefix under consideration by comparing the assigned binary position codes of nodes of the tree. A tree is a data structure accessed starting at its root node and each node of a tree is either a leaf or an interior node. A leaf is an item with no child. An interior node has one or more child nodes and is called the parent of its child nodes. All children of the same node are siblings. Like WAP-tree mining, every frequent sequence in the database can be represented on a branch of a tree. Thus, from the root to any node in the tree defines a frequent sequence. For any node labeled e in the WAP-tree, all nodes in the path from root of the tree to this node (itself excluded) form a prefix

sequence of  $e$ . The count of this node  $e$  is called the count of the prefix sequence. Any node in the prefix sequence of  $e$  is an ancestor of  $e$ . On the other hand, the nodes from  $e$  (itself excluded) to leaves form the suffix sequences of  $e$ .

Given a WAP-tree with some nodes, the binary code of each node can simply be assigned following the rule that the root has null position code, and the leftmost child of the root has a code of 1, but the code of any other node is derived by appending 1 to the position code of its parent, if this node is the leftmost child, or appending 10 to the position code of the parent if this node is the second leftmost child, the third leftmost child has 100 appended, etc. In general, for the  $n$ th leftmost child, the position code is obtained by appending the binary number for  $2n-1$  to the parent's code. A node  $\alpha$  is an ancestor of another node  $\beta$  if and only if the position code of  $\alpha$  with "1" appended to its end, equals the first  $x$  number of bits in the position code of  $\beta$ , where  $x$  is the ((number of bits in the position code of  $\alpha$ ) + 1).

The tree data structure, similar to WAP-tree, is used to store access sequences in the database, and the corresponding counts of frequent events compactly, so that the tedious support counting is avoided during mining. A Binary code is assigned to each node in proposed WAP-tree. These codes are used during mining for identifying the position of the nodes in the tree. The header table is constructed by linking the nodes in sequential events fashion. Here the linking is used to keep track of nodes with the same label for traversing prefix sequences. This mining algorithm is prefix sequence search rather than suffix search.

The algorithm scans the access sequence database first time to obtain the support of all events in the event set,  $E$ . All events that have a support greater than or equal to the minimum support are frequent. Each node in a modified tree registers three pieces of information: node label, node count and node code, denoted as label: count: position. The root of the tree is a special virtual node with an empty label and count 0. Every other node is labeled by an event in the event set  $E$ . Then it scans the database a second time to obtain the frequent sequences in each transaction. The non-frequent events in each sequence are deleted from the sequence. This algorithm also builds a prefix tree data structure by inserting the frequent sequence of each transaction in the tree the same way the WAP-tree algorithm would insert them.

Once the frequent sequence of the last database transaction is inserted in the tree, the tree is traversed to build the frequent header node linkages. All the nodes in the tree with the same label are linked by shared-label linkages into a queue. Then, the algorithm recursively mines the tree using prefix conditional sequence search to find all web frequent access patterns. Starting with an event,  $ei$  on the header list, it finds the next prefix frequent event to be appended to an already computed  $m$ -sequence frequent subsequence, which confirms an  $en$  node in the root set of  $ei$ , frequent only if the count of all current suffix trees of  $en$  is frequent. It continues the search for each next prefix event along the path, using subsequent suffix trees of some  $en$  (a frequent 1-event in the header table), until there are no more suffix trees to search. To mine the tree, the algorithm starts with an empty list of already discovered frequent patterns and the list of frequent events in the head linkage table. Then, for each event,  $ei$ , in the head table, it follows its linkage to first mine 1-sequences, which are recursively extended until the  $m$ -sequences are discovered. The algorithm finds the next tree node,  $en$ ; to be appended to the last discovered sequence, by counting the support of  $en$  in the current suffix tree of  $ei$  (header linkage event). Note that  $ei$  and  $en$  could be the same events. The mining process would start with an  $ei$  event and given the tree, it first mines the first event in the frequent pattern by obtaining the sum of the counts of the first  $en$  nodes in the suffix subtrees of the Root. This event is confirmed frequent if this count is greater than or equal to minimum support. To find frequent 2-sequences that start with this event, the next suffix trees of  $ei$  are mined in turn to possibly obtain frequent 2-sequences respectively if support thresholds are met. Frequent 3-sequences are computed using frequent 2-sequences and the appropriate suffix subtrees. All frequent events in the header list are searched for, in each round of mining in each suffix tree set. Once the mining of the suffix subtrees near the leaves of the tree are completed, it recursively backtracks to the suffix trees towards the root of the tree until the mining of all suffix trees of all patterns starting with all elements in the header link table are completed.

### 3.1 The BC-WAP Algorithm

**Input :** Access sequence database  $D(i)$ , min support  $MS$  ( $0 < MS \leq 1$ )

**Output :** frequent sequential patterns in  $D(i)$ .

**Variables :**  $C_n$  stores total number of events in suffix trees,  $A$  stores whether a node is ancestor in queue.

**Method:**

**Step 1 :** Construct a initial WAP tree.

**Step 2 :** Assign code to each node

- (i) Root has null position code
- (ii) Left child = 1

**Step 3 :** Repeat step-2 in order to find pattern

#### 4. Experimental Result

The proposed algorithm is implemented in VB.NET and all experiments were found on Intel Pentium running on Microsoft Window XP profession. The web server log file dated on Nov 2007 from KASC (Kongu Arts and Science College) web server after preprocessed (Gomathi.C., Moorthi M., Duraiswamy K. (2008),) has been selected for our experiments. This KASC log file size is 100KB. The proposed method was applied on this web log files to prepare sequence pattern. The proposed mining algorithm has significant advantages when compared with the original WAP-mine algorithm. First, it avoids the costly construction of the initial WAP-trees. Second, the position code assigned is more efficient than the method based on the conditional WAP-trees. These special features of the proposed algorithm help improve the efficiency of the mining process significantly. The experiments showed that the proposed methodology needs less time to find frequent sequence and needs only minimum storage area. The complete sequence pattern with minimum support 31% is shown in Figure 1.

#### 5. Conclusion

In this paper, BC-WAP mine tool developed using VB.NET for sequential access pattern from KASC web log files. The proposed system eliminates the need to store numerous intermediate WAP trees during mining. Since only the original tree is stored, it cuts off huge memory access costs. This new system assigns binary position code to each node in the WAP tree.

The focus of the framework was utilizing web usage mining with learning styles for pedagogically effective and technologically possible personalized e-learning courses. Results suggest that dimensions of learning styles, i.e. preferences to learning material, can be modeled using suitable attributes and can be detected using data mining techniques. We are currently investigating using the output of the mining tool into personalized learning scenarios, in which the learners are assisted by the system based on the patterns and the preferred learning styles. We plan to compare our work with others (Zhou B.Y., Hui S.C. and A.C.M. Fong(2004)), which has used other techniques, such as the Bayesian model or genetic algorithms.

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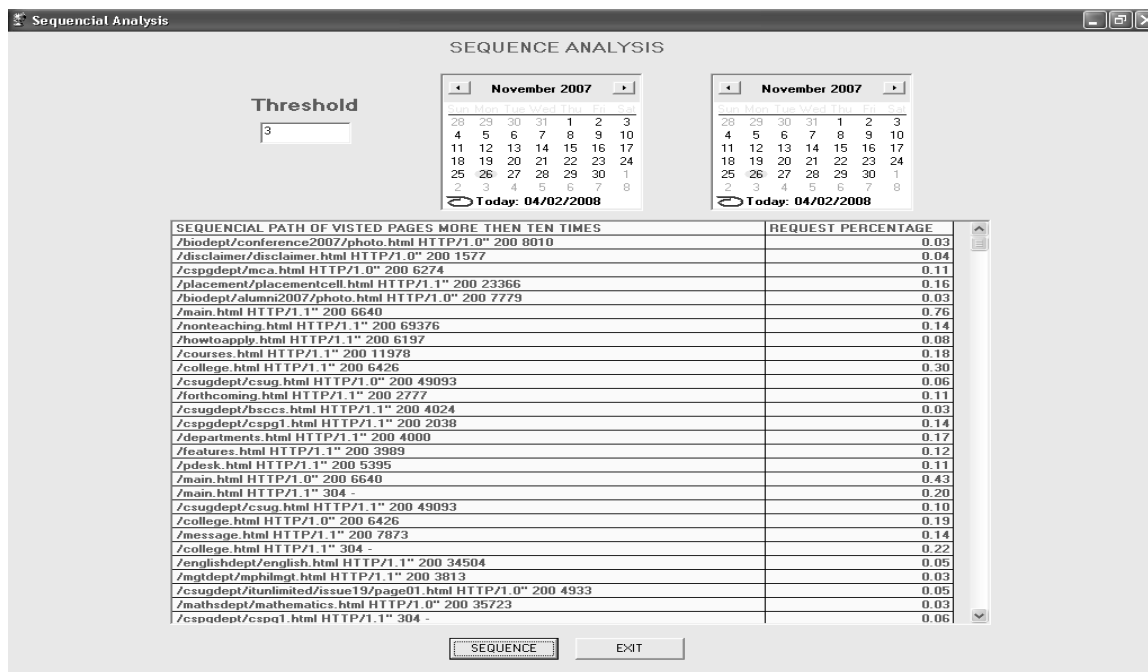


Figure 1. Sequence Pattern with minimum support 31%



## Study on the Intuitive Introduction in Calculus Teaching

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### Abstract

In the popularization course of higher education, students entering into the higher colleges are not those excellent students with excellent achievements in the senior school, so the teaching of college mathematics in higher colleges should transform from the learning emphasis to popularization emphasis for traditional excellent higher education. In the transformation process, as a main basic course for the students of the engineering course, the calculus has many problems in the teaching. Based on many years' teaching practice and theoretic research, in this article, we first analyze the problems and antinomies faced by calculus teaching, demonstrate the feasibility of intuitive introduction method from the mathematical essential and the rule of human thinking, and finally explain the implementation method of the intuitive introduction combining with concrete teaching cases.

**Keywords:** Higher education popularization, Calculus, Intuitive introduction

Calculus is one of core courses of various specialties for engineering course appointed by State Education Commission of China, and it is one of the most important basic courses, and it not only relates with the learning of various professional courses, but has very important function to cultivate students' cultural and thinking qualities, and every student should study it well. However, the calculus has many characters such as strictness, abstract and system, and it is much higher than the elementary mathematics whether for method or for objective, many students feel it is very difficult. Under the present popularization background of higher education, teachers should emphasize the intuitive of calculus and adopt intuitive introduction to make students deeply understand the concept, theorem, argument and solution, which could cultivate students' study interests, enhance their study efficiencies and enhance the quality of calculus education to some extents.

### 1. Problems and antinomies faced by calculus teaching

(1) The separation of basic education and higher education. Though China middle and primary schools implemented abundant teaching reforms at present, but they could not round the baton of college entrance exam all the while, and the teaching content, mode and requirement of middle and primary schools are not connected with college well, and comparing with the teaching reform of middle and primary schools, the teaching reform of basic college course is lagged, which is adverse for the cultivation of talents.

(2) The college expansion plan brought the problem of uneven student qualities. In recent year, the business of higher education develops very quickly, and the scale of enrollment is continually expanding, and the expansion of freshmen brings the inequality of teaching degree. At present, certain problems exist in some part of students' cognitive ability, quality and study habits.

(3) Single teaching mode. The teaching mode basically adopts the way of "definition+ theorem (character, formula) + example (computation)", always emphasizes utilizing formula and reasoning to describe mathematical problems, i.e. "emphasizing the training of signal figure and solution technology, and ignoring the introduction from intuitive aspect and background of problem".

(4) The antinomy between increasing teaching requirements and deficient experienced young teachers. Now many young teachers directly begin to teach after graduation, and though they have higher school experiences and degrees, but they lack certain teaching experiences. Some young teachers thought they are from regular professional training and "grasp" the theory of calculus, but they study few teaching materials and teaching methods, so they are know few to "teach this course well".

(5) Students' dread mentality for mathematical study. Because of improper teaching method and idea, bald teaching content and teaching materials, the deficiency of fascination materials, "over" emphasizing the strictness of mathematical knowledge and the abstract thinking character of mathematical theory and the deficiency of intuitive introduction especial for the geometric intuitive teaching, students lack in study enthusiasm because students have not

fully realized the support function of mathematics for the development of scientific technology and other subjects, and they thought it is not very important to study the mathematics well.

## 2. The feasibility of intuitive introduction in the process of calculus teaching

The intuitive teaching is to offer abundant cognitions and concrete knowledge and make the formation of concept establish on the base of fact, practicality and idea in the teaching. Some primers in the ancient of China had the character of “the combination of drawing and words”. China ancient ideologist Xunkuang said “it is better to hear a thing than not to hear it, still better to see it,” “only to know it but not see it, even if erudition is false”. In the 17th century, Czech educationalist Johann Amos Comennius alleged that the intuitive teaching is one of golden rules of teaching, “if possible, we should accept everything by our sensibilities”, “the dayspring of wisdom is not to learn the items of things, but to really feel the thing itself”. Switzerland educationalist J.H. Johann Heinrich Pestalozzi, German educationalist E.A.M. Diesterweg, Russian educationalist Konstantin Ushiksy et al all discussed the intuitive principle and developed the formers’ ideas. From the layer of psychology, the intuitive character of teaching is that it is better to see for oneself rather than to hear for many times. In the process of teaching, the implementation of intuitive principle could help to solve many antinomies such as the concept breaks away the thing, the abstract generalization breaks away the concrete image and the understanding breaks away the cognition. Bright and lively image could easily arouse students’ attentions, study interests and enthusiasm, promote the understanding and transfer of knowledge, develop students’ observation ability, thinking ability and form the opinion of dialectical materialism.

The introduction of mathematicians’ work is mathematicians’ deep feeling to the mathematics and the mathematical intuition produced from this feeling. In the study of mathematics, we should try to establish the association between abstract the mathematical conclusions and intuitive image. Because the intuitive image is clear and stable in the memory, so it is very easy to remember abstract mathematical conclusions, enhance the memory quality and the study efficiency through it. The intuitive teaching, especially the geometric intuitive teaching should be strengthened. For example, the intuitive teachings of the condition (sufficient and necessary) of function extremum, the definition and application of derivative, the concept and character of convex function, differential coefficient and integral median theorem should be strengthened. Teachers should emphasize the teaching measures and teaching modes, and many intuitive teaching measures such as figure, teaching video, teaching module and computer cartoon could give intuitive feelings for students in the concept, theorem, agreement and solution, and they are helpful to implement intuitive teaching.

## 3. Concrete cases

(1) Before teachers introduce the geometric meaning of derivative, they can give students such as problem, and as seen in Figure 1, the beeline AB is the tangent of the curve  $y = x^n$ , ask for the slope of the beeline AB.

First let students drew the figures of  $n = 2, 3, 4, 5$ , then measure the line segments OC and AC, compute the proportion, and finally obtain the conclusion  $\frac{|OC|}{|AC|} = n$ , but  $|OC| = x, |BC| = y$ , so the slope  $k = \frac{|BC|}{|AC|} = \frac{x^n}{\frac{x}{n}} = nx^{n-1}$ . It is just the

derivative of the power function  $y = x^n$ . On the one hand, we can get the derivation of the power function by the method of primary mathematics, and on the other hand, the real process of intuitively simulating the mathematical discovering could deepen students’ understanding for the geometric meaning of derivative and make students enjoy the pleasure of mathematical discovering.

(2) We can use the normal method to beg the integral  $\int_0^1 (\sqrt{1-x^2} - x + 1) dx$ , but it is more simple from the geometric meaning of definite integral. As seen in Figure 2, the integral could be taken as the area of the plane figure surrounded by curves  $x = 0, x^2 + y^2 = 1, y = x - 1$ , so it is easy to know the area is  $\frac{\pi}{4} + \frac{1}{2}$ . This method is very intuitive, and it could deepen students’ understanding for the definite integral and inspire students’ study enthusiasm for mathematics, and establish strong base for the successive course.

Another example is to compute the dual integral  $\iint_D (5x + 3y) dx dy$ , where D is the plane field surrounded by the curve  $x^2 + y^2 + 2x - 4y - 4 = 0$ .

As seen in Figure 3, the integral area is  $(x+1)^2 + (y-2)^2 \leq 3^2$ , and its centroid coordinates is  $\bar{x} = -1, \bar{y} = 2$ , the area is  $A = 9\pi$ , and the formulas of centroid coordinates are  $\bar{x} = \frac{1}{A} \iint_D x dx dy$  and  $\bar{y} = \frac{1}{A} \iint_D y dx dy$ , so it is very easy to solve the integral by the centroid coordinates combining the integral area.

$$\text{formula} = 5 \iint_D x \, dx \, dy + 3 \iint_D y \, dx \, dy = 5 \cdot \bar{x} A + 3 \cdot \bar{y} A = [5 \cdot (-1) + 3 \cdot 2] A = 9\pi$$

(3) About the conclusion that the partial derivative of multivariate function can not be ensured to be consecutive, though the counterexample is in the book, but some students are difficult to understand it, and they still thought the derivative is necessarily consecutive, so here the intuitive analysis is very effective. Taking the dual function as the example, the partial derivative of  $z = f(x, y)$  exists at the point of  $(x_0, y_0)$ , i.e.  $\lim_{x \rightarrow x_0} \frac{f(x, y_0) - f(x_0, y_0)}{x - x_0}$  and

$\lim_{y \rightarrow y_0} \frac{f(x_0, y) - f(x_0, y_0)}{y - y_0}$  exist, and here the variable range of the variables we should consider respectively are two intervals seen in Figure 4.

$z = f(x, y)$  is consecutive at the point of  $(x_0, y_0)$ , i.e.  $\lim_{\substack{x \rightarrow x_0 \\ y \rightarrow y_0}} f(x, y) = f(x_0, y_0) = A$ , and here the variable

range we should consider is the circular field seen in Figure 5.

When it is consecutive, the change range of variable is much than the derivative range, so it is obvious that the partial derivative exists and it can not be ensured to be consecutive.

In a word, if we emphasize the intuitive introduction in daily teaching process and teachers could discuss and communicate their experiences, the quality of calculus teaching could be enhanced largely.

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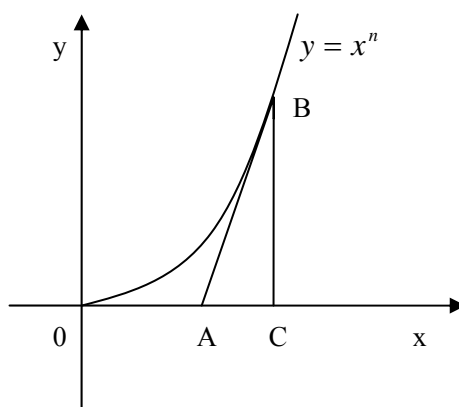


Figure 1

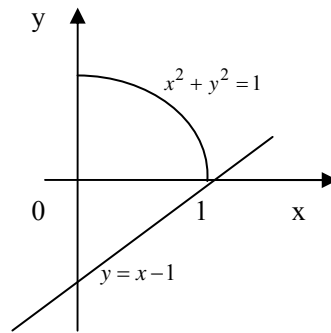


Figure 2

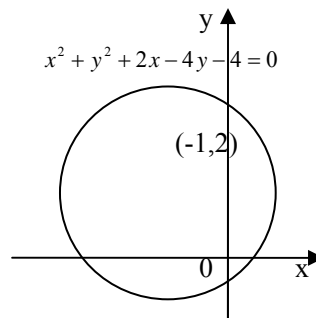


Figure 3

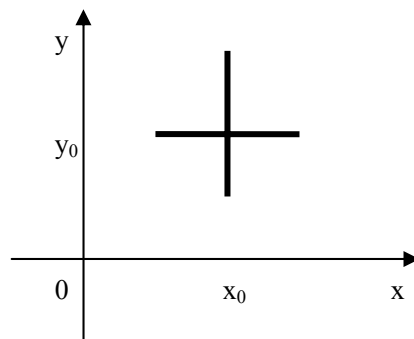


Figure 4

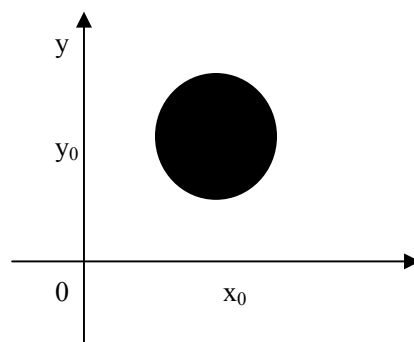


Figure 5



## Market Distortion and the Tuition Pricing Mechanism of Higher Education in China

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### Abstract

Higher education in the market economy is inevitable affected by the higher education market. The tuition of higher education in china had become the personal price performance of higher education in certain degrees and exerts some certain functions of price mechanism. Because the higher education market distortion that tuition pricing cannot completely become market behaviour. Tuition pricing had been affected by some factors such as the externality of higher education, the monopoly of higher education resources, the demand of higher education had lack elasticity, the information among the market main part are asymmetric and the price regulation of government. Therefore it is a practical choose for the tuition pricing at present stage that government should effectively intervene the higher education market and supervise the tuition of higher education.

**Keywords:** Higher education, Tuition, Market distortion, Public sector pricing

### 1. Introduction

Higher education is a kind of typical to-be public product. And tuition, the cost compensation to the private benefit from higher education, plays the role of price mechanism to allotment of higher education resource under market economy. On the one hand, tuition can optimize the allotment of higher education resource and accelerate education development. On the other hand, tuition is affected by higher education market, non-market and other factors. The tuition pricing mechanism can't be complete market behavior in china. Among those conflicts and factors, what principle and method can be used to determine tuition pricing is one of difficulties for research on the theory of educational economy and policy making on tuition for the government.

### 2. The ideal model for tuition pricing mechanism of higher education under the condition of market economy

The modern higher education often has natural relationship that can't be partitioned easily with market economy. Though the influences of market mechanism in various periods, countries and regions are different to higher education, the effect always exists in the mode of running, management and operation mechanism of a college.

As the fee paid by students or their families to colleges for service on higher education under the market economy, tuition is partly regarded as the price students or their families pay for private benefit. Besides it is an instant measure for the cost compensation to the personal benefit in higher education, it is partly the price of educational product when

the individual clients (students or their families) of service on higher education and the suppliers (colleges) negotiate.

The ideal mode of tuition pricing of higher education is based on the hypothesis that there are no external factors which will affect the tuition pricing of higher education. Its basic thought for pricing is the partition of benefit of higher education decides that of cost of higher education, that is to say, the principle for tuition pricing is how much tuition will be used to make up educational cost is determined by how much the benefits are after the educates accept higher education, As shows in Figure 1.

In the Figure 1, there are four assumptions. Firstly, the benefit from higher education can be divided accurately. One part is social, and the other is personal. In terms of the principle of benefit obtaining, the basic requirement of the theory of cost compensation on higher education, the governments and individuals should pay for the cost of higher education according to the proportion of the benefit they enjoy. Secondly, the cost of higher education is scientific, reasonable and can be measured accurately. As a result, we can calculate the sum of education cost that individuals and the governments should be responsible for respectively exactly by the standard of benefit proportion. The governments as the representative of public interest shoulder the education cost they should pay by the way of financial allowance. Thirdly, individuals can choose education opportunity in the wholly competitive educational market in light of their expected benefit. Tuition is the very compensation for educational cost of educates for their benefits. Fourthly, higher education market is totally open and competitive. In the ideal mode of tuition pricing, the tuition of higher education is shaped by the free purchase of the higher education consumers in the market. It means that services for higher education provided by different suppliers are the same. The monopoly of education resources doesn't exist, and there are plenty of consumers and higher education suppliers in the market. During the process of purchasing educational service, two sides of the deal possess complete information.

Only in the ideal mode of tuition pricing of higher education, the tuition of higher education is regarded as the cost compensation of the individual benefit from higher education which is a kind of to-be public product. This is in accordance with the basic requirement of the theory of cost sharing on education and that of public product pricing. It is the most effective tuition generating under the condition of ideal market.

### **3. The influence of market distortion to tuition pricing mechanism of higher education**

In fact, the market in which higher education lies always deviates the ideal condition mentioned above and the market itself is not perfect enough, the ideal hypothesis of tuition pricing of higher education will fail. It mainly shows in the aspects as following:

#### *3.1 The Benefit from Higher Education Can't Be Divided Precisely and the Risk of Personal Benefit*

The benefit from higher education includes personal one and social one. Personal benefit mainly shows by the improvement of social civilization and increasing of social fortune. Generally speaking, individual civilization always affects and promotes the social one. The increasing of personal income will result in that of general social fortune. Therefore, personal benefit and social benefit can't be divided precisely.

Educates pay the tuition for obtaining future benefit. However, the private benefit has certain risk on education and will affect the individual choice for opportunity on higher education. And as the dominant part of individual investment on higher education, tuition will influence individual to decide whether he will take part in higher education or not, what kind of college he will be enrolled, what major he will take, and other issues to great extent. Because the tuitions of colleges are on different levels and the preferences for individuals to risk are various too, those who are prefer to risk will choose colleges with higher tuition and those who avoid risk will choose colleges with lower tuition. The risk of educational benefit means that the relationship between education investment and benefit is not a linetype. The failure of education investment probably leads to excessive education.

#### *3.2 The Conflict between Supply and Demand of Higher Education and Demand Are Inflexible*

There is a phenomenon of market distortion on higher education: demand increases endlessly and supply is relatively inadequate. The demands for higher education come from the society (governments and enterprises) and the private (students). The demand of modern society for individual civilization and quality is higher and higher. The demand for higher education is always infinite. The more supply on higher education the better. On the other hand, higher education is a kind of expensive product. The effect supply of higher education, that is, the capability for market to provide the scale, amount and quality of higher education is affected by the investment of educational resource and the educational cost. The insufficient effective investment of higher education and expensive educational cost will cause the relative deficiency of supply of higher education.

The flexibility of education demand reflects how much the influence of tuition to education demand is. Though the demand flexibility of groups with different levels of incomes to higher education is various, the education demands of families with salaries on high or medium level are lack of flexibility or inflexible generally. That of families with lower income may be stronger. However, the demand flexibility of higher education is weaker or more inflexible compared

with other common merchandises.

If according to the price mechanism completely, tuition is supposed to be the balanced price of private demand for higher education and education supply. But, because the demand for higher education is limitless, inflexible, and the supply of it is relatively insufficient, the price function of tuition is limited in a long term and leads to education equity and other social problems even tuition can halt the increasing demand on education effectively in a short term, we can balance the supply and demand of higher education and optimize the allotment of educational resource by making use of the price function of tuition. As a result, the governments can't depend on tuition pricing to adjust the supply and demand of higher education absolutely; they should interfere higher education market, supervise tuition pricing and guarantee education equity.

### *3.3 The Highly Insufficiency and Monopoly of Higher Education Resource*

Higher education resources are quite rare. These resources, including teaching staff with high quality, academic status, majors and subjects, experimental devices, fame, etc, especially excellent ones are always controlled by a few universities.

Yet the occupancy and shape of such resources can't come true in a short period. It maybe will take hundreds, even thousands of years. Once the status is settled, it is hard to change in a short time. Thus, higher education resources are of natural monopoly. The resources of colleges and majors are unable to compare with each other. Colleges owning resources with high quality obtain benefits from monopoly by their monopolized positions, while tuition, the price after the co-effect of private demand and education supply, its level probably is continuous high. In the end, the optimizing of higher education resources allotment is difficult to come true, and it may cause the loss of social welfare.

The ideal market environment condition requests that the market is completely competitive. Only under this condition can the price mechanism be effective. Monopoly leads to the break of market definitely. The price of higher education which takes shape under the monopoly is higher than the balanced price under completely competitive condition undoubtedly. It will cause the loss of social welfare, lower efficiency of education resources and the damage to education equity. In such market environment, tuition loses its function foundation for adjusting price. So it is defective to only depend on the market to decide tuition, the price of private demand for higher education.

### *3.4 The Highly Insufficiency and Monopoly of Higher Education Resource*

Information of higher education easily for the independence of colleges and the specialty of the teaching process. If the governments don't set strict regulations on the declaration of educational information, tuition pricing of higher education will be the game of blind boxing.

The dissymmetry of educational information shows in four aspects. Firstly, the information on the price, quality, cost and efficiency of educational service provided by colleges gained by the direct beneficent of education, students and their families and information of labor market are not correct. Secondly, the information of educational cost, educational quality, majors and comprehensive quantity of students owned by enterprises are not complete. Thirdly, as the representative of public interest, the governments can't control the information on the supply and demand of higher education, internal operation and cost of colleges totally. Fourthly, the information on demands and competition of colleges in the market are asymmetrical too.

If tuition is regarded as the price education consumers pay for the service on higher education, it needs in accordance with the cost and quality of educational service it provides. But the dissymmetry of educational information causes the ineffectiveness of tuition mechanism based on cost pricing directly, and the mass will have doubt on the standard for tuition level.

In the same way, the dissymmetry of relative educational information owned by main bodies in higher education market will also make the standard for tuition deviate the objective level. For example, the information possessed by students and colleges is dissymmetrical. Students don't know well about the scientific research strength, the quality of teaching staff, software and hardware environment for teaching. Some colleges just make use of such dissymmetry to get higher tuition and gain unrighteous benefit. Therefore, the dissymmetry of information about higher education market decides that tuition pricing of higher education depends on non-market factors, such as governments, social agencies to build up the mechanism for declaration of higher education information to strengthen the necessity of supervision on tuition.

## **4. The less-optimized tuition pricing mechanism of higher education under the condition of market distortion**

In terms of the theory of public pricing, the best way for pricing of public products that are in the ideal market environment (totally competitive market and information is complete) is the rule of pricing on margin cost, that is to say, price on the margin cost will lead to the maximum of social welfare. If higher education as a kind of to-be public product exists in the distorted market, monopoly on educational resources and incomplete market information make the price of higher education deviate its margin cost. Thus, tuition pricing can't be carried on according to the rule of pricing on margin cost but less-optimized pricing instead.



#### 4.1 The Less-optimized Mode for Tuition pricing mechanism

The mode of Ramsey (1927) was used to do research on the optimized tax theory in an early time. It has been applied on the issue of pricing for industries with natural monopoly to explain how to adjust the pricing on margin cost effectively since the 1970's. In this article, the authors attempt to study how to make tuition pricing to enable colleges to get the maximum social welfare under the balanced condition on the basis of the model and take the influence of higher education market distortion to tuition pricing into consideration.

Supposing the colleges with monopoly provide  $n$  items of educational services, the prices are  $(p_1, p_2, \dots, p_n)$ . It means that educational services with different academic standards and majors will be paid by different tuitions. The welfare functions for educates are  $Z(p_1, p_2, \dots, p_n)$ ; The surplus Functions of colleges (the part income is more than outcome) are  $\pi(p_1, p_2, \dots, p_n)$ . Under the condition of distortion of higher education market, the goal for tuition pricing is to fulfill the maximum of general welfare of educates when colleges with monopoly obtain certain surplus  $K$ . Therefore, the issue of optimizing can be transferred to seek the maximum of Lagrange Function.

$$L = \max_{(p_1, p_2, \dots, p_n, \lambda)} Z(p_1, p_2, \dots, p_n) + \lambda(K - \pi(p_1, p_2, \dots, p_n)) \quad (1)$$

$\lambda$  is gene of Lagrange, when seeking deflect to  $Z$ , we can get:

$$\frac{\partial Z}{\partial p_i} = \lambda \frac{\partial \pi}{\partial p_i}; i = 1, 2, \dots, n \quad (2)$$

Form (2) means that the margin benefits of educates and that of colleges are proportional. According to the Hicks Theory, the change of consumers benefit caused by changes on price is equal to the decreasing consuming quantity. That is:

$$\frac{\partial Z}{\partial p_i} = -x_i \quad (3)$$

If we ask local derivation to price by the surplus function of colleges, it is:

$$\frac{\partial \pi}{\partial p_i} = (MR_i - MC_i) \frac{\partial x_i}{\partial p_i} \quad (4)$$

In addition, supposing the flexibility of across price for all kinds of major education is zero, and then the margin benefit of colleges is:

$$MR_i = p_i + x_i \frac{\partial p_i}{\partial x_i} \quad (5)$$

Put form (3), (4) and (5) into form (2), we can get:

$$\frac{p_i - MC_i}{p_i} = \frac{1 + \lambda}{\lambda \varepsilon_i} \quad (6)$$

In the form,  $\varepsilon_i$  is flexibility of demand on price. Form (6) is the less-optimized price Model Ramsey to higher education tuition under market distortion. The pricing strategy requires each price on higher education service and the deviation of its margin cost are varied inversely as the flexibility of demand on the price of educational service. Under the condition of satisfying the surplus restriction in colleges, the economic distortion caused by the deviation price to margin cost is minimum. Generally we set  $\alpha = (1 + \lambda) / \lambda$ , call  $\alpha$  as the value of Ramsey, the common expression of price is:

$$p_i = \frac{MC_i}{1 - \alpha / \varepsilon_i} \quad (7)$$

Supposing that various values of Ramsey are used on different educatees from families with different level of income in this model, they show the different welfare weights of different educatees in the general welfare function. Because the value of Ramsey is a real number between 0 and 1, the bigger welfare weight given to certain kind of educatees equals the smaller value of Ramsey in Equation (6).

The demand flexibilities for higher education of higher education consumers are dissimilar due to their different incomes level. As a result, to families with higher or medium level of income, higher education is necessity, the demand flexibility is much smaller, the price of higher education they should pay can be obviously higher than margin cost without plenty of efficiency loss. On the contrary, to poorer families with low income, higher education is such a kind of luxury, the demand flexibility is much larger. A large amount of loss on efficiency will be involved in the policy for pricing. Most of them will be excluded from the higher education system.

In summary, under the condition of distortion of higher education market, tuition pricing should consider education

equity, the efficiency for resource allotment and other issues. So we can draw following conclusions according to the analysis on tuition pricing under the monopoly of educational resources by the Ramsey model: to families with income on high or medium level, tuition higher than the margin cost will be charged. To families with income on low level, tuition lower than the margin cost will be charged. It means different levels of tuition will be charged according to different income level. Such pricing policies will minimum the loss of educational resource and maximum the comprehensive welfare of educatees.

#### *4.2 The Limitation of the Less-optimized Model for Tuition Price Mechanism*

After analyzing with the model of Ramsey, we can get the less-optimized model for tuition pricing under the monopoly on educational resources. The pricing model has some limitation considering the real situation of higher education market. Firstly, educational cost is hard to be measured precisely. We don't have a set of scientific measure system for educational cost yet. The accurate measure for margin cost is even harder. Secondly, it is difficult for us to tell the income level of the educatees' family. It is hard to charge different tuitions according to various income levels on operation. The last, the model just takes the distortion of higher education market and verified demand flexibility for education into consideration. Therefore, only the coordination of market mechanism and government is in full play, the model of less-optimized pricing can play the best role.

### **5. Countermeasures to improve the tuition sub-optimal pricing mechanism under market distortion**

The distorting factors of higher education market have certain impact on tuition pricing, but the current pricing mechanism of Chinese higher education tuition has not yet fully considered the market-distorting factors, and itself is not a sound mechanism. So in order to rectify the market-distorting factors and improve the tuition sub-optimal pricing mechanism of higher education, we can explore this issue from the aspects of market and government:

#### *5.1 Combine Independent Pricing of School and Uniform Pricing Mechanism of Government*

The product provided by higher education is a kind of educational service, while different colleges and universities in china, as the suppliers of such service, will provide differential products, which is mainly demonstrated in the differences of educational concepts of schools, academic levels of education, majors, curriculums and faculty, etc. Apparently, the unified tuition standard established by the government will become invalid due to the discrepancies of schools. In the market-oriented tuition pricing model, colleges and universities are treated as the micro-bodies of educational services, and they independently decide the price of their products, i.e. the price of educational services according to the Market demand and supply. From the experience of current policy reform of foreign higher education tuition, we can see that colleges and universities are gradually obtaining the autonomy of tuition pricing. For example, according to the current U.S. policy of higher education tuition, both public and private schools possess the right to constitute their tuition standards. Meanwhile, the provision that "if the tuition fee exceeds a" cap ", the government will reduce the funding accordingly." is applicable to public colleges. Since the implementation of higher education reform in 2003, the reform of tuition system in Britain is the most significant. Ever since 2006, the British government has abolished the unified tuition standard, which means differential tuition pricing, but the nation has also set up an upper boundary of tuition standard (the annual tuition fee for each student shall not exceed 3,000 pounds) to restrict the independent pricing of universities.

Independent tuition pricing in china can make the impact of tuition price mechanism on the efficiency of education resource allocation to a greater extent, so that the quality of higher education services becomes the key point of the competition among colleges and universities. Namely, the level of tuition not only reflects people's pursuit of quality education products, but also reflects the quality of higher education products. Consequently, in such a market, colleges and universities will keep strengthening their sense of competition, make full use of resources to improve the quality of higher education products, reduce the cost of education products, expanding the competition among colleges and universities, and further the effective functioning of the market mechanism of higher education.

#### *5.2 Corrective Actions Taken by Market & Government Intervention on Tuition Pricing*

Though market mechanism in china affects the tuition pricing of higher education, the tuition pricing should be a public pricing behavior under the guidance of government because of its externalism and publicity.

Firstly, increase higher education input, boost education supply and release demand pressure. A major factor of higher education market distortion in china is the imbalance between supply and demand. The demand increases fast while the supply is relatively limited. The main source of higher education input includes educational appropriations from the State, tuition and other investment from the society. As the representative of public interests, the government should expand educational fund, improve condition of schooling and regulate the balance between supply and demand of higher education market.

Secondly, accelerate the competition among institutions of higher education. Under the condition of monopoly, institutions of higher education may make use of the monopoly situation to charge tuition unfairly (the so called

“arbitrary collection of fees”) so as to gain monopoly income. Therefore, government should not only regulate the tuition pricing rigidly, but also shatter the monopoly and expand the competition among institutions of higher education.

Thirdly, innovate in the mode of running a school, encourage the development of private schools, and stimulate the higher education market. Private schools could increase the higher education supply. Moreover, comparing with public schools, private schools have more market vitality, including competition pressure, cost-consciousness and quality-mindedness. It is a helpful enlightenment for us that many high qualified higher education resources center on private schools. The government should provide private schools sound system and environment and make them share the equal policies with public schools so as to guide public welfare fund transferring to private schools.

Fourthly, improve the disclosure system of educational information and establish system for disclosing educational costs, quality and tuition. According to the theory of information transmission, information always transfers from intensive part to sparse part. It is certain that the superior one is not willing to share its information with the society gratuitously so as to keep a favorable position in asymmetric information. However, as public organizations in china, the institutions of higher education use the public resources, so it should be compulsory for them to make schooling information known to the public. At present, one reason why the educational information is not complete is that institutions of higher education have not established the disclosure system of higher educational information yet. As a result, the society takes up on the schooling activities of higher education and tuition pricing of government. The government should perfect the legal system and ensure that the public could get the information about educational costs, quality and tuition through certain channels. Meanwhile, the government should establish hearing system of tuition pricing and public the basis of tuition pricing.

Fifthly, establish endowment and security systems for students which match tuition pricing in china. Many factors of higher education market malfunction leads to the malfunction of higher education tuition pricing system. Meanwhile, it may lead to over-priced tuition or more “poor students” (i.e. the matter of equal educational opportunities and fairness doctrine). It is obvious that reliance on market forces to solve these problems will further expand the educational inequalities. Therefore, the government in china could take the following steps for relieving the unfairness: establish and improve social security system of higher education; ensure that everyone has the right to receive education; establish and perfect the state loan system; improve the tuition subsidy system for poor students, increase opportunities for such students to participate in work-study program; establish and improve the state system of higher education scholarships and grants; charge different groups of students with different tuition standards, etc.

To sum up, in order to perfect the sub-optimal pricing mechanism of higher education tuition in china, it is necessary to consider the role market mechanism plays, at the same time, the government should strengthen the supervision of tuition fees, rectify the distortions of higher education market, reduce the negative impact of distorting factors on the function of the tuition price, and give full play to the function of higher education tuition fees on optimizing the allocation of higher education resources and realizing educational equality.

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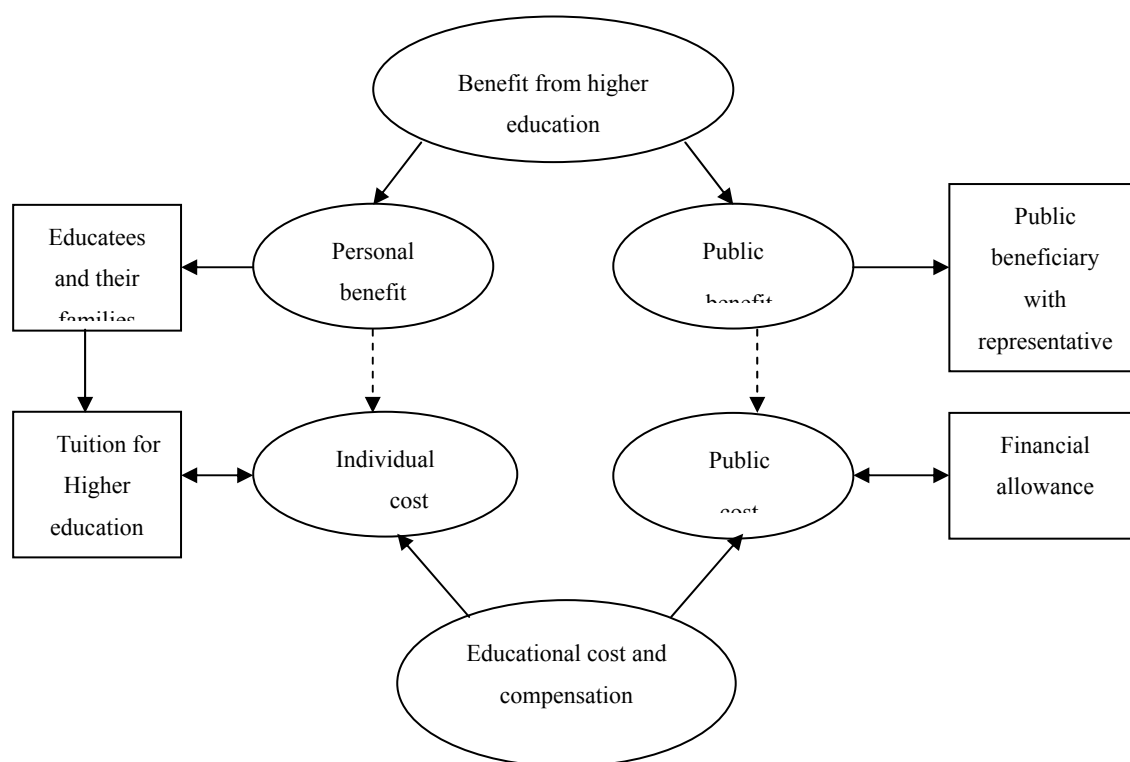


Figure 1. The Basic Thought of the Ideal Mode for Tuition Pricing of Higher Education



## Challenges of Chinese Language Education in Multi-lingual Societies:

### Hong Kong and Singapore

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#### Abstract

This paper aims to study the current challenges of Chinese language education in the multilingual societies of Hong Kong and Singapore through policy documents. After the handover of Hong Kong to China in 1997, the role of *Putonghua* is far more important than before due to political and economic reasons. However, the medium of instruction for the Chinese Language subject in Hong Kong has long been Cantonese since the British colony days. A change in the medium of instruction from mother-tongue Cantonese to *Putonghua* is a shift from L1 to L2. This paper will discuss the feasibility of this long term policy of Hong Kong Education Bureau with reference to Singapore's experience. Currently, Singapore faces the problem of declining standard of reading and writing in *Huayu* (*Putonghua* in China) and this paper will investigate the reason for that and suggest possible remedies..

**Keywords:** Chinese language education, Hong Kong, Singapore, Multi-lingual societies, L2 learning

#### 1. Hong Kong and Singapore as multilingual societies

Being the ex-colonies of British, Hong Kong and Singapore share very similar historical and social background but with significant variation in Chinese education. Hong Kong was a colony of the United Kingdom from 1842 until the handover of its sovereignty back to the People's Republic of China in 1997 and was then renamed Hong Kong Special Administrative Region. Beginning as a trading port in the 19th century, Hong Kong has developed into a leading financial centre in Asia. In 1963, Singapore left British and merged with Malaya, Sabah and Sarawak to form Malaysia and less than two years after that it became an independent republic on 9 August 1965. Under this historical association with Britain, both Hong Kong and Singapore share a lot of similarities in terms of social context: (1) multi-lingual societies with a high population of Chinese and some minorities; (2) bi-lingual or multi-lingual language education is implemented in schools; (3) both English and Chinese are adopted as official languages.

However, due to different political developments, the term "Chinese" bears different meanings in these two regions. In Hong Kong, the general term "Chinese" means: (1) Cantonese and *Putonghua*; (2) classical Chinese and modern standard written Chinese; (3) traditional and simplified characters. In the schools, the subjects *Putonghua* and Chinese Language are put under the Chinese Language Education Key Learning Area. The subject *Putonghua* positioned as L2 only deals with listening and speaking of *Putonghua* but the subject Chinese Language positioned as L1 offers listening and speaking skills in Cantonese and reading and writing skills in modern standard Chinese (written form of *Putonghua*) to students. In contrast, Singapore government has officially adopted the *Putonghua* of China as "Chinese" (*Huayu* or *Huawen*) in Singapore.

### 1.1 Language context and Chinese Language Education in Hong Kong

In Hong Kong, English is the main official language since the coming of British rule in 1842. After the handover in 1997, Hong Kong is now a special administrative region under the “one country, two system” arrangement. According to this system, Hong Kong is able to have autonomy in all matters other than foreign affairs and defense. With 98% of its population in the Chinese ethnic group, Chinese has been the co-official language besides English since the declaration of the Official Languages Ordinance of 1974. The term “Chinese” was not defined in the Ordinance. That might be a political decision as Hong Kong was still under the rule of British and China was undergoing “cultural revolution” at that time. A strict definition of “Chinese” might lead to political problems. In addition, as a British colony, English was the supreme language in the government and commercial sectors, very few people were concerned about the definition of “Chinese” in Hong Kong at that time. Although English maintains its supreme language in Hong Kong even after 1997, there is still “no social or cultural role for English ..... among the Hong Kong Chinese.” (Johnson, 1994: p.182). It is very strange to hear the Chinese people of Hong Kong speak English among themselves but if there is an English speaking person in the group they are willing to communicate in English.

The new 3-3-4 education system will be implemented at Secondary 4 in September 2009. Chinese Language, English Language, Mathematics and Liberal Studies are four core subjects for all local secondary schools in Hong Kong. By then, students can enjoy free education from primary 1 to secondary 6. University education will also be changed from three years to four years for most undergraduate degree programmes in 2012. Regarding the medium of instruction (MoI) in Hong Kong, Cantonese is commonly used in most primary schools even though there are a few primary schools using *Putonghua* or English as MoI. In the secondary sector, currently only 114 secondary schools are permitted to use English as MoI although there are more than four hundred secondary schools in Hong Kong. However, in March 2008, the Secretary of the Education Bureau announced the review of the MoI policy and tried to set guidelines for schools to choose their own MoI according to the need and ability of their students.

The MoI for the Chinese Language subject has also been a hotly debated topic in Hong Kong since 1997. Facing the growing political and economic importance of *Putonghua* and low birth rate, many primary schools have already used *Putonghua* as MoI in the Chinese Language subject as a measure to attract students to keep the schools alive. In October 2007, when research findings showed that the use of *Putonghua* to learn Chinese could develop better writing skills, the Standing Committee on Language Education Research (SCOLAR) of Hong Kong allocated a budget of HK\$200 million to encourage schools to develop *Putonghua* as MoI for the Chinese Language subject. The relationship between the Chinese Language subject and *Putonghua* in the school curriculum will definitely be a debated language education issue in the coming years. It is obvious that English is considered a L2 in Hong Kong and that raises the question on the status of *Putonghua*. Auyang (1998) argues that *Putonghua* should be positioned between L1 and L2 as Chinese people in Hong Kong all read and write Modern Standard Chinese (written mode of *Putonghua*) and speak Cantonese (a dialect).

In terms of pedagogy, teachers are trained to apply L1 methods in teaching the Chinese Language subject even though its written form is *Putonghua*. However, for the *Putonghua* subject that focuses only on listening and speaking, most teachers are trained to apply L2 teaching strategies in their teaching (Ho 2005). In the long run, if the *Putonghua* subject is merged with the Chinese Language subject, the role of the latter had to be adjusted to L2 accordingly. If this is the trend, then what should Chinese Language teachers do during this transitional period? The teaching of *Putonghua* and the teaching of Chinese Language in *Putonghua* are two independent but related topics. The former is a training of L2 listening and speaking skills while the latter is really an academic subject on Chinese. Ho (2002) comments that due to the rich linguistic experience in *Putonghua*, students learning Chinese in *Putonghua* will enhance their *Putonghua* competency, particularly listening competency. However, if you apply *Putonghua* as MoI to school subjects other than the Chinese Language, the *Putonghua* standard in students can also be improved. As the nature of the two subjects, Chinese Language and *Putonghua* is different, teachers of these two subjects need to have two different sets of academic knowledge and professional skills. Moreover, a qualified *Putonghua* teacher may not be qualified to teach Chinese in Hong Kong. According to the *Action Plan to raise Language Standards in Hong Kong* published by the SCOLAR in 2003, all new teachers of Chinese subject must have a Bachelor of Education (BEd) degree with a major in Chinese or a Bachelor of Arts (BA) degree plus a Postgraduate Diploma in Education (PGDE) all majoring in Chinese or equivalent. Those who want to teach the Chinese Language subject in *Putonghua* must pass the proficiency test on “classroom language usage” in the *Putonghua* Language Proficiency Assessment Test or achieve “class two level two” in the State *Putonghua* Proficiency Test.

### 1.2 Language context and Chinese Language Education in Singapore

With a population of 4.48 million in 2006, Singapore is formed by three major ethnic groups: Chinese (75.2%), Malay (13.6%), Indian (8.8%) (Department of Statistics, Singapore 2007). However, the above figures do not reflect the complexity of linguistic situation in Singapore as the Chinese, Malays and Indians speak a variety of languages or dialects. English is used for inter-ethnic communication. Ho and Wong (2004, 21) suggest that Singapore’s language

policy may be described as one of “pragmatic multilingualism” as there are four official languages in Singapore: English, Malay, Mandarin (*Huayu* or *Putonghua*) and Tamil. English is recognized as the country's master language of administration because of political, economic, legal and historical reasons. The use of English became widespread in Singapore after it was implemented as a key MoI for major content subjects in the current unified educational system. Major public signs and government publications are in English with some translated versions in other official languages. The functions of the three other official languages are mainly for communication within ethnical communities and transmission of ethnical cultures. All the four official languages are taught in the schools. Ho and Wong (2004) claim that as the ethnic “mother tongues” are used to teach moral education in primary schools, bilingual education in Singapore conforms to the classic model.

The early Chinese migrants in Singapore were mainly from the southern China provinces and most of them could only communicate amongst themselves via their own dialects such as Hokkien, Teochew, Cantonese, Hakka and Hainanese. In order to facilitate communication within the Chinese group, the Singapore government launched the “Speak Mandarin Campaign” in 1979. The campaign encourages Chinese to speak Mandarin instead of Chinese dialects which brings a drastic language shift in the Chinese group. From 1979 to 1989, the aim of the campaign was to make Mandarin a lingua franca among Chinese but after 1989, its nature changed from a functional approach to a cultural transmission approach. With reference to Leow's statistical report, the Chinese families which mainly speak dialects at home dropped from 81.4% in 1980 to 50.6% in 1990 and then to 30.7% in 2000 (Department of Statistics, Singapore 1993; Leow 2001). This rapid and sharp decrease of dialect-speaking Chinese family situation is also accompanied by a drastic increase of Mandarin-speaking Chinese family. The ratio of Mandarin-speaking Chinese family increases from the 10.2% in 1980 to 29.8% in 1990 and then to 45.1% in 2000 (Department of Statistics, Singapore 1993; Leow 2001). This is clear that the trend of deserting dialects for Mandarin has already been established. Mandarin has become the lingua franca of Chinese ethnic group in Singapore. The term “*Huayu*” in Singapore carries similar meaning of “*Hanyu*” which is also known as *Putonghua* or Mandarin. *Putonghua* is the national language in China which is written in simplified Chinese characters and the Chinese phonetic transcription called *Hanyu pinyin*.

Pakir (2004, 286) summarizes Singapore's history of education into three stages: (1) survival-driven education (1965-78); (2) efficiency-driven education system (1979-91); (3) ability-driven education system (1992 to date). She also points out that the aim of current education system is to “nurture talent and develop individual potential to the fullest” as well as to “include flexibility to allow children of different abilities the opportunity to develop themselves fully” (Pakir 2004, 286). Yip and Sim (1990) claim that there are three foci which have remained constant in the Singapore education system: (1) to provide the best form of education to her people; (2) to ensure that education served the purpose of national cohesion; (3) to ensure that schooling population is given the opportunity to become bilingual in English and a mother tongue. Therefore “language in education beliefs and practices are often taken for granted in a schooling system that emphasizes a national bilingual policy” (Pakar 2004).

Since 1987, Singapore has offered an unified national education by using English as key medium of instruction (EMI). Three “mother tongues” are also available in the regular curriculum. However, there are a small number of Special Assistance Programme (SAP) schools offering Chinese at higher level. According to the census records in year 2000, distribution of most frequently spoken family languages (aged 5 years and over) is: English (23%), Mandarin (35%), Chinese dialects (23.8%), Malay (14.1%), Tamil (3.2%), others (0.9%). Leow (2001) highlights the following language phenomenon in Singapore: (1) the proportion literate in two or more languages increased from 45% in 1990 to 56% in 2000; (2) a high proportion of 71% was literate in English in 2000, compared with 63% in 1990; (3) English as family language increased from 19% in 1990 to 23% in 2000; (4) more Chinese residents spoke Mandarin instead of dialects at home. This is the outcome of the bilingual language education in the schools and government's encouragement to speak Mandarin in the Chinese community.

The leading position of Chinese language in the Chinese community was challenged by English language recently. Starting from 1965, English has been the master and dominant language in Singapore and therefore more and more Chinese families speak English at home. The figure increases from 7.9% in 1980 to 19.2% in 1990 and then to 23.9% in 2000 (Department of Statistics, Singapore 1993; Leow 2001). However a recent survey conducted by the Ministry of Education finds that the population ratio of primary one Chinese children who speak Chinese at home increases from 25.9% in 1980 to 67.9% in 1990 but drops to 45.4% in 2000 and then further drops to 43.6% in 2004 (Ministry of Education, Singapore 2004b). On the other hand, the population ratio of primary one Chinese children who speak English at home increases steadily from 9.3% in 1980 to 26.3% in 1990, then to 40.3% in 2000 and even reaches 47.3% in 2004 (Ministry of Education, Singapore 2004), a figure higher than Chinese. In fact, English has become a dominant language in the age group of primary one Chinese children. Moreover, according to Leow's report, 35.8% of the age group 5-14 Chinese children speak English at home although only 21.5% of the age group 15-24 Chinese youth speak English at home (Ministry of Education, Singapore 2004b). If the trend continues, English will become the acquired “mother tongue” of Singaporean Chinese and Chinese will only be a foreign language learned in the classroom in 10 to 20 years' time. The byproduct of this phenomenon is the declining of Chinese standard in young Singaporean

Chinese. Is the high status of English the only factor for declining Chinese standard? Are there any other learning and teaching factors that lead to the fall of Chinese standard even set at L2 level?

## 2. Challenges of Chinese Language Education in Hong Kong: integration of *Putonghua* to Chinese Language

### 2.1 The position of *Putonghua* in the curriculum

As Hong Kong is an international city, in order to facilitate communication with global societies and Mainland people, a “biliterate trilingual” language education policy was first proposed in the *Education Commission Report* (1996) and announced by the Chief Executive Tung Chee Hwa in the first policy address in October 1997. “Biliterate trilingual” refers to two written languages (Modern Standard Chinese and English) and three spoken languages (Cantonese, *Putonghua* and English). School graduates are expected to have biliterate trilingual proficiency. Although *Putonghua* has been an independent subject since 1940s, it is not a major language subject in Hong Kong.

From 1980s, there was a high demand for *Putonghua* from the workforce and both employers and employees anticipated to have publicly recognized certificates on the standard of *Putonghua* for job placement. The Hong Kong Examination Authority (now The Hong Kong Examination and Assessment Authority) implemented the first *Putonghua Proficiency Test* in 1988 followed by the *Advanced Putonghua Proficiency Test*. These two standard-referencing public examinations were designed for all sectors and people whose L1 is Cantonese. The main testing areas were listening and speaking skills as well as the Chinese phonetic transcription. In the 1990s, as Hong Kong had to face the handover of sovereignty in 1997 and frequent trade activities with China, more and more people learned *Putonghua*. The current hotly debated issue of using *Putonghua* to teach Chinese was also raised in that period. The Hong Kong government has been very active in promoting *Putonghua* in schools and communities since then. In 1993, the Language Fund was established with the aim to raise the standard of Chinese (including *Putonghua*) and English of the people in Hong Kong. This fund has supported a series of projects related to the teaching, learning and promotion of *Putonghua*. In 1996, the *Education Commission No.6 – Enhancing Language Proficiency: a Comprehensive Strategy* was published by Education Commission. In the report, it is suggested that: (1) *Putonghua* should be offered as a core subject in primary and secondary schools in 1998; (2) *Putonghua* should be an independent subject in the Hong Kong Certificate of Education Examination in 2000; (3) all Chinese Language teachers should be trained to be able to teach *Putonghua* as well in the long term. The government has endorsed the suggestion and *Putonghua* has become a core subject in primary and secondary school level since then. The *Syllabus for Putonghua (Primary 1 to 6)* 1997 and *Syllabus for Putonghua (Secondary 1 to 5)* 1997 state clearly that the main aim of the subject is to develop the listening and speaking competency of *Putonghua* in students while the development of their competency on reading aloud and transcription, enrichment of linguistic and cultural knowledge are only complimentary aims (Curriculum Development Council 1997a, Curriculum Development Council 1997b). The role of *Putonghua* in the Chinese language education learning area is just a proficiency-based subject in supplement to the Chinese Language subject. Regarding the qualification of the *Putonghua* teacher, *The Education Commission No.6 – Enhancing Language Proficiency: a Comprehensive Strategy* introduced the requirements on *Putonghua* teachers and received support from the Advisory Committee on Teacher Education and Qualification (Education Commission 1996). A consultancy group was established to conduct research into the standards of *Putonghua* for teachers. According to the recommendation of the group, the Education and Manpower Bureau co-organized the first Language Proficiency Assessment Test for Teachers (*Putonghua*) in March 2001. This test still continues to date. There are altogether four papers in the test comprising of (1) listening and transcription; (2) phonetic skills; (3) oral competency; (4) classroom language and usage. The passing standard is set at level three (level one is the lowest and level five is the highest).

Since 1998, as students in Hong Kong are required to learn *Putonghua* from primary 1 to secondary 3, Ho (2005) believes that after nine-year’s training of *Putonghua*, students should have acquired the competency for further study and work in the society. I strongly support his point. In 1997, Ho predicted that after 2010 the Chinese Language subject in Hong Kong would be taught in *Putonghua* and the *Putonghua* subject would finally merge to the Chinese Language subject (Ho 1997). According to the new secondary school curriculum, secondary 3 students will be required to sit for a public examination on *Putonghua* proficiency by 2012 and the *Putonghua* subject will be merged to the Chinese Language subject as elective modules.

### 2.2 The challenges and the ways forward

The key challenge of *Putonghua* education in Hong Kong is its unresolved relation with the Chinese Language. It seems that the Chinese Language subject under the 2009 new senior secondary curriculum, to some extent, may resolve the problem. The *Putonghua* will be an independent subject from primary 1 to secondary 3 and then merged to the Chinese Language subject as elective modules (Curriculum Development Council & The Hong Kong Examinations and Assessment Authority 2007). That means that schools have the choice to select Cantonese or *Putonghua* as their MoI for the Chinese Language subject.

However, since the policy documents have already announced that the Chinese Language subject will be taught in



*Putonghua* in future, some pro-active schools have already started to make *Putonghua* as MoI for the Chinese Language subject. The change is either for the purpose of image-building or to enhance the learning outcome in students. Moreover, as supported by HK\$200 million funding from the SCOLAR, more and more schools will use *Putonghua* as MoI in the Chinese Language subject. The policy and funding support will eventually facilitate the merging of the two subjects to form a new Chinese Language subject.

This new Chinese subject in Hong Kong will be quite similar to the Chinese courses which are positioned as L2 in Singapore. The Chinese courses like “Chinese”, “Basic Chinese” and “Special Chinese” are taught in L1 methods instead of L2 pedagogies. Eventually, the overall Chinese standard of Singaporean Chinese is far behind other Chinese speaking regions like China, Hong Kong and Taiwan. Scholars in Singapore are now exploring L2 pedagogies such as the feasibility of using English (L1) as a supplementary tool to help students learn Chinese (L2), particularly those who come from English-speaking home. Singapore’s experience is a good reference to Hong Kong as a shift from L1 to L2 position of the Chinese Language subject, leading to adjustment in teachers’ training, pedagogy and learning and teaching materials. This adjustment may take some time. To make the story more complicated is the new L2 Chinese syllabus developed in response to the request from non-Chinese ethnic groups in 2008 (Curriculum Development Council 2008). In this syllabus, non-Chinese ethnic groups are expected to achieve the L1 standard of Chinese eventually. Should these non-Chinese ethnic groups learn Cantonese or *Putonghua*? Can they also learn English, *Putonghua* and Cantonese in addition to their ethnic mother-tongues?

Chew (2007) predicts that Hong Kong will be forced to revise the “biliterate trilingual” language education policy due to the pressure of globalization and the fact that only very few people can really be “biliterate trilingual” according to Singapore’s experience. However, since Hong Kong students have already got used to learning Chinese via Cantonese, one more spoken language with the same written form may not be too difficult for them. Therefore, the real challenge for Hong Kong will be on the promotion of *Putonghua* as L2 in schools and communities and the review of the MoI policy for secondary schools.

In Hong Kong, *Putonghua* is taught as a spoken language in L2 mode. The L2 methods like grammar-translation method, direct method, audio-lingual method and communicative approach are commonly used by *Putonghua* teachers in Hong Kong (Guo 2005). Currently academics in Hong Kong are debating on the negative effect of CMI schools on the standard of English of secondary school students. The story will repeat itself on the standard of Chinese again for over emphasis on the role of *Putonghua* on the Chinese Language subject in Hong Kong. As *Putonghua* is just a L2 in Hong Kong, some frontline teachers who are required to teach the Chinese Language subject in *Putonghua* confirm that they have to sacrifice their class time to teach *Putonghua* pronunciation instead of the subject knowledge of Chinese Language. The nine-year *Putonghua* education plus twelve-year Chinese Language education in the new curriculum may be able to produce school graduates who are bilingual in Cantonese and *Putonghua*. Can students learn the Chinese Language subject well in *Putonghua*? Why is the next generation discouraged from learning the Chinese Language in Cantonese, their mother tongue? Should we not let regional culture and dialects co-exist with the common language and culture? In Hong Kong, *Putonghua* is learned as a spoken language only since people have already acquired basic language proficiency of Chinese in Cantonese. What the people of Hong Kong need is the phonetic transcription of *Putonghua* and skills in converting Cantonese into *Putonghua*.

### 3. Challenges of Chinese Language Education in Singapore: declining Chinese standard

#### 3.1 The position of Chinese courses in the school curriculum

There are three Primary and five Secondary Chinese courses listed in Table 1 and Table 2. The primary Chinese courses aim to guide students to develop good human quality, language competency (listening, speaking, reading and writing) and common ability (Curriculum and Planning Division 2006a). The curriculum is structured as follows: core module (70-80%) and bridging modules or school-based modules or enrichment modules (20-30%).

At secondary level, the two main aims of Chinese language education at secondary level are: (1) to develop students’ language competency through the learning of listening, speaking, reading and writing skills of Chinese language; (2) to transmit Chinese culture and cultivate traditional values to students through the learning of Chinese language (Curriculum and Planning Division 2002).

The “Higher Chinese”, “Chinese”, “Basic Chinese” and “Chinese B” are listed in the 2002 Chinese Language Syllabus at secondary level (Curriculum and Planning Division 2002). However, the “Chinese Special” that was launched in 2004 was revised to be a L3 programme for students whose mother tongue is not Chinese in 2006 (Curriculum and Planning Division 2006b). The “Higher Chinese” course is offered to students with very good results in Chinese, English and Mathematics in their primary education. It adopts an integrated approach to develop the students’ listening, speaking, reading and writing competency with priority given to reading and writing. The “Chinese” course is offered to students with average performance. It also adopts an integrated approach to develop the students’ four language skills and priority is also given to reading and writing. The “Chinese B” course is offered to secondary 3 to secondary 4/5

students with poor performance in the Chinese course with priority on developing the students' listening, speaking and reading skills. In addition to the above four courses, a less demanding course, the "Basic Chinese" is offered to students of the technical stream. All the above Chinese courses are positioned at L2 in terms of language acquisition in Singapore's special multilingual context.

### 3.2 *The challenges and the ways forward*

The overall Chinese standard of Singaporean Chinese is far behind other Chinese speaking regions like China, Hong Kong and Taiwan. Currently, the position of Chinese in Singapore is still controversial as frontline teachers have different interpretation on the position of the "Higher Chinese" course. In 1992, in order to raise the standard of Chinese in Chinese students, the Singapore Ministry of Education changed the course titles of "Chinese as second language" to "Chinese" and "Chinese as first Language" to "Higher Chinese" so as to release the uneasy feeling in parents on the term "second language". However, the change of course titles did not change the mindset of frontline teachers since some or most of them still take the "Higher Chinese" as L1. They teach the "Higher Chinese" via L1 pedagogy although the Chinese subjects should only be regarded as L2 in terms of curriculum design in the education system in Singapore. Hence, the inappropriate conception of Chinese courses and misuse of L1 pedagogies lead to the current poor reading and writing standard of Chinese amongst young Singaporean Chinese.

In western countries, over the last several decades, scholars such as Bloomfield (1942), Krashen (1982), Leech and Svartvik (1994), Ellis (1985, 1997, 1999), Prabhu (1987), Cui (1993), Lantolf (2000), Kumaravadivelu (2003), Xing (2006) have generated grammar-translation, audio-lingual, communicative, functional-notional, proficiency and layering-stratification approaches on learning and teaching Chinese as foreign language (CFL). The introduction of pedagogical grammar of Chinese (PGC) to the communicative approach makes it the most popular method on CFL in recent years (Little 1994). Regarding the content of PGC, Xing (2006, 30) proposes:

The scope of PGC includes, but not be limited to, the rules teaching and learning the five major areas: pronunciation, characters and words, sentences, discourse- pragmatic and culture. The first two areas are set for foundational skills; without them, students cannot speak, understand, read or write. The last three areas are instrumental for students to be successful in communicating with the language.

From the perspective of instructors, Xing further suggests that CFL teachers have to integrate the following eight learning factors of PGC well in curriculum design: sequencing factor, autonomy and simplification factor, accumulation factor, discourse and pragmatic factor, cultural factor, psychological factor, motivational factor and learning environment factor (Xing 2006, 61-63). Xing (2006) has developed a layering-stratification approach towards teaching CFL to students from kindergarten to college in the United States based on the above learning factors of PGC. However, Xing's eight learning factors can be re-grouped into five factors according to their nature in Table 3.

The pedagogical rationales of "sequencing and accumulation" are principles for curriculum design while "autonomy and simplification" is talking about instructors' training on PGC. The factors "discourse and pragmatic" and "cultural elements" are strategies of teaching and learning on PGC. The different psychological and motivational status of learners reflects the importance of the quality of the learner on designing teaching strategies and learning materials.

Last but not least, language development is most effective in authentic context. As Xing's approach is developed from the perspective of instructors, how about research trends on the learners' side? To western learners, Chinese is considered to be: (1) a logographic script, where each character represents a word or morpheme (Everson 2002); (2) learned effectively through strategies like memorizing and continually practicing the writing of characters (Ke 1998). Everson (2002) has summarized some theoretical developments in the process of learning to read in CFL by Ke (1998), Lin (2000), Shen (2000), Mori and Nagy (1999), and proposed to expand the CFL research in three areas: (1) nature of processing words and text in orthographies qualitatively different from alphabetic systems; (2) nature of Chinese orthography and how it is learned; (3) effects of learners' belief system on learning outcome. Everson has set the path for research into reading but how about other areas like listening, speaking and writing? There is still a lot of room for development in the western world on CFL.

The L2 Chinese for Chinese students in Singapore is different from the CFL for non-Chinese students in western countries. Can Xing's approach and Everson's research frameworks validate the learning and teaching of L2/L3 Chinese in primary and secondary schools of Singapore? Singapore's current stage of catering for diversity in Chinese language education creates a very good opportunity for academics to work with schools to research into the above questions. The five areas listed in Table 5: curriculum design, quality of instructor, teaching and learning strategy, quality of learner and learning context, can be taken into consideration as Singapore faces the challenge of increasing number of English-speaking primary 1 Chinese students. How to improve the Chinese proficiency of these students? Should English be used to assist them to learn Chinese? Do they have a suitable L2 or bilingual learning materials? It is indeed a great opportunity for Singapore policy makers, academics, schools and teachers!

#### 4. Conclusion

Academics have interpreted the term “globalization” in different ways (Albrow 1996; Giddens, 1990) and Tsui and Tollsfsen (2007) summarizes the connotation of “globalization” as “global village” featured with interconnectivity, intensity, simultaneity, and instantaneity of knowledge generation, information transmission, and interaction. Tsui and Tollsfsen (2007, 1) also argue that “globalization is effected by two inseparable mediational tools, technology and English; proficiencies in these tools have been referred to as global literacy skills”. Policy makers in Hong Kong and Singapore not only know the importance of English globalization but also the growing role of *Putonghua* as another global language after English. English is L1 in Singapore but a foreign language in Hong Kong. Regarding Chinese, Cantonese is L1 while *Putonghua* is L2 in Hong Kong. In Singapore, Chinese is L2 for Singaporean Chinese. The different position marks the different standard of proficiency levels between Hong Kong and Singapore. The Chinese standard of Singaporean Chinese can be enhanced by specific L2 pedagogies based on her unique multilingual context. The merge of *Putonghua* to the Chinese Language subject in Hong Kong is in fact a shift from L1 to L2. Does Hong Kong really need this long term policy if the new Chinese Language curriculum can achieve the “biliterate trilingual” expectation? Otherwise, a lot of work on research into L2 pedagogies, teacher training, learning material development must be completed to face the challenge of a new L2 Chinese Language subject. This will not be a short process.

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Table 1. Chinese Language Course at Primary Level

Course Title	Target
Chinese	Students with average performance
Higher Chinese	Students with high performance
Basic Chinese	Students with poor performance (from primary 5 to 6)

Table 2. Chinese Course at Secondary Level

Programme	Course Title
Special	Higher Chinese
Express	Higher Chinese Chinese
Normal (Academic)	Chinese
Normal (Technical)	Basic Chinese
All programmes	Chinese B (S3 to S4/S5)
	Chinese Special

Table 3. Revised version of Xing's Learning Factors of PGC

Nature	Factor	Pedagogical Rationale
Curriculum design	Sequencing and Accumulation	<ul style="list-style-type: none"> <li>◆ From most to least frequently used.</li> <li>◆ From simple to complicated.</li> </ul>
Quality of instructor	Autonomy and simplification	<ul style="list-style-type: none"> <li>◆ Instructors must be proficient in PGC.</li> </ul>
Teaching and learning strategy	<ul style="list-style-type: none"> <li>◆ Discourse and pragmatic</li> <li>◆ Culture elements</li> </ul>	<ul style="list-style-type: none"> <li>◆ Let students know when and why it is used in communication.</li> <li>◆ Keys for successful communication.</li> </ul>
Quality of learner	Learner diversity	<ul style="list-style-type: none"> <li>◆ Select methodologies with reference to psychological status and motivation of students.</li> </ul>
Learning context	Learning environment	<ul style="list-style-type: none"> <li>◆ Authentic experience can facilitate language development.</li> </ul>



## Theory and Practice of Chinese-English Bilingual Teaching in Circuit Course

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### Abstract

The Chinese-English bilingual teaching in the circuit course is an important approach to foster innovational talents for the electronic industry in the new century. In this article, we analyze the background, applicability and feasibility of bilingual teaching in the course of circuit and the difficulties facing in the process of implementation. We explore various approaches and methods to overcome these difficulties and obtain better effects from many aspects such as teaching materials, teachers, teaching method and students. Taking the teaching contents of the first chapter in the course of circuit as an example, we adopt new Chinese-English bilingual teaching system and modes to make students grasp the basic theory and method of circuit, foster students' English thinking abilities, combine the theoretic teaching of scientific and technologic English and the theoretic teaching of circuit, and enhance students' international competitive consciousness and international competitive ability.

**Keywords:** Bilingual teaching, Bilingual teaching material, Bilingual teachers, Circuit

### 1. Introduction

With the development of economic globalization, the communication among different cultures is continually deepened and the development trend of educational internationalization occurs. The application of high and new technology and the development of long-distance education bring intensive concussion to the higher education of China, and that largely improves the research and practice about education policy, teaching method and course offering in China. To adapt social demand for the talent cultivation in higher colleges and universities, we need continually enhancing the teaching quality of the undergraduate education. In 2001, China Ministry of Education started the "Bilingual Teaching Course Reform Plan" to improve the work of bilingual teaching reform construction.

As the electric professional basic course, the circuit course has strongly theoretic and scientific practice. The development of circuit course bilingual teaching could help students to gradually realize the communication between professional knowledge learning and technology by English, enhance their application ability of foreign language, and enhance their international competitive consciousness and international competitive capability.

### 2. Background of circuit bilingual teaching

#### 2.1 Demands of new talents

The most intensive competition in the world is not in the industry and the science and technology, but in the talents. With continual development of China reform and opening, the communication among China and other countries is rapidly enlarged and embedded in various domains, and the bilingual talents who are accomplished in not only Chinese and Chinese culture but also foreign languages (English) and foreign cultures certainly be the important talents to help China participate in the international competition for China. It has become into the hotspot to cultivate reading ability, computation ability, writing ability, computer information disposal and utilization ability and modern entertainment ability by the form and means of bilingual teaching for modern talents.

#### 2.2 Demands of modern education concept and quality education

The essential of language is tool, but human being and the society are advancing, and foreign language has been

changed from a sort of tool to a sort of idea or a sort of repository. As viewed from learners' cognition, language is the tool to think and understand the world for human being, and to grasp a sort of language is to grasp a sort of method and habit to observe and understand the world, and to study another language means to study another method and habit to observe and understand the world. The bilingual school and the bilingual teaching are the new bright point occurring in the present experiment of English teaching reform.

### *2.3 Demands of present internet network information technology*

The modern information technology represented by modern computer technology and Internet is changing human survival mode and study mode by the egregious speed, and the information technology has constructed the information-based environment, improved the efficiency of study and life, and created various new study mode and living mode with high level and high efficiency. The contriver and developer of information technology are English countries such as US, so if we want to do a job with skill and ease in the information communication and thinking, the use of English is very important. The main reason why India could be the big country of software development is that it uses English as the official language. If China wants to participate in the world information competition, we must utilize the network public language to implement communication and cooperation.

### *2.4 Demands of scientific and technical economy*

In the present world, the competitive focus of comprehensive national strength rests with high and new technology, which has become into the key to maintain national dominion and economic safety. China is comprehensively implementing the strategy of invigorating the country through science and largely advancing the innovation of science and technology. To realize the innovation of science and technology, the key factor is innovational talents who must acquire and exactly research the late data. To do that, English is necessary, because the main cradle of new science and technology is in English country. In addition, the science and technology of China should participate in the global top competition, and we must use the common language to make the world notice and understand Chinese new invention and new result, and English is the only selection.

## **3. Key factors to the success of circuit bilingual teaching**

### *3.1 Teachers*

The key factor of bilingual teaching is teachers. The bilingual teaching has been implemented for a long time, and many schools in various areas are participating in the practice, but the effect is not obvious because the teachers with bilingual teaching ability are deficient. English teachers are easy to regard subject teaching as language teaching, but subject teachers would always induce the difficulty in the communication between teacher and students because of their superficial English base. Only topping bilingual teachers can foster excellent bilingual students and bilingual talents. Only after the problem of the total teachers is solved, the development of bilingual teaching would obtain essential advance and form certain scale.

### *3.2 Teaching materials*

Nowadays, in the early stage of bilingual teaching, quite part colleges directly introduce original edition English teaching materials, and with the continual development of bilingual teaching, some colleges have begun to compile teaching materials themselves. The original edition teaching materials construct the environment to comprehensively touch English for students. The content of original edition teaching materials embodies the progress of the theory, and makes for studying advanced theoretic knowledge and late development trends of practice. But some problems such as large length, expensive charge and deviating national situation exist in original edition English teaching materials, which would influence the teaching effect. Therefore, we should compile the teaching materials according with the demand of domestic bilingual teaching.

### *3.3 Teaching method*

Teachers can utilize flexible teaching method to compensate teachers' deficient qualities. For example, teachers can adopt many assistant measures such as practicality, picture, PPT and video, and many teaching methods such as situational teaching and activity teaching, and posture languages such as expression and action to help students understand the learning content and relax learners' stress of language thinking. In the bidirectional information communication between teaching and studying, teachers should continually inspire students' delighted emotional experiences and make students produce profound study interests.

### *3.4 Students*

As the main body of learning, students' mental preparations are very important to influence the bilingual teaching. Theoretically speaking, students' basic preparation of foreign language should be sufficient. After students pass the learning of college public foreign language lesson and professional foreign language lesson, they have grasped certain basic knowledge. Someone may not prepare for the mental bilingual learning, and someone hadn't accomplished former learning of the college publish foreign language lesson and the professional foreign language lesson very well. Students'

attitudes to bilingual teaching influence the effect of bilingual teaching.

#### **4. Problems faced by bilingual teaching in circuit course**

##### *4.1 Relationships between language teaching and subject teaching*

In the process of bilingual teaching, the learning effect of profession course should not be influenced because of the use of bilingual teaching mode. The arrangement of teaching process should persist in the premise that student could better understand professional knowledge. Under the premise, we can teach simple content and professional glossary by foreign language. And to profound professional theoretic knowledge, we can particularly explain by Chinese, and we should not blindly pursue the use quality of foreign language. The classroom teaching should give priority to grasp professional knowledge, but not learn foreign language.

##### *4.2 Teaching management mechanism*

In the management process of teaching administration department, we should not only encourage to implement bilingual teaching for the course with necessary condition, but also ensure the teaching quality and level of bilingual teaching through scientific management measure to make bilingual teaching develop normally and favorably. For example, for the hour arrangement, aiming at same teaching task, the bilingual teaching needs more hours to accomplish the task than general teaching, because it is narrated by English and Chinese together. If we don't add hours, we will not accomplish the teaching task in the next term, or else, the teaching effect is not good because of rapid schedule.

##### *4.3 Reform of course and teaching materials*

The reform of teaching material is the difficult to implement bilingual teaching at present. The compilation of English teaching material basically takes the training of the English knowledge structure and lingual ability as the major idea, and there are few English teaching materials of subject, and to really implement bilingual teaching. We must compile English teaching materials of various subjects, and it is a complex system engineering which should not only require familiar English and scientific knowledge system, but also arrange training of English hearing and reading skills and emphasize the thinking property and novelty property of the subject.

##### *4.4 Construction of teachers group*

The construction of teachers is the emphasis to implement bilingual teaching at present. Though most teachers possess profound subject bases, but lack the cross and integration of subjects, and the subject teachers could not comprehensively grasp English. But bilingual teaching requires that teachers must possess comprehensive series knowledge structure, profound English basic knowledge and communicative ability of hearing, speaking, reading and writing, and relative knowledge such as social culture, local conditions and customs, words concept and posture language, which can better avoid the misapprehension induced by cultural difference, and favorably utilize English to communicate. Bilingual teachers must be composite talents with multiple abilities, which require higher demands for teachers and future teachers.

#### **5. Applied example of circuit bilingual teaching**

Circuit is a c professional base course, and some Chinese colleges begin to explore the bilingual teaching to the circuit course in succession. Because of teaching materials, the bilingual teaching of circuit gives priority to Chinese teaching material and supplement by English materials.

Taking the circuit model and circuit law in the first chapter of "Circuit" edited by Qiu Guanyuan as an example, we would show how to develop Chinese-English bilingual teaching in the teaching of circuit course. To obtain better teaching effect, we should reform general teaching mode, for example, compiling the English-Chinese conversation or Chinese-English conversation of some glossaries in the circuit course, adopting the mode of small class school, increasing opportunities to communicate teacher with students or students with students by English, printing compiled PPT courseware for students before class and solve the problem giving attention to listen and note. According to students' English level, we generally adopt the transitional teaching mode in the initial teaching period.

In the first part, we narrate the basic knowledge and main objective of the circuit course, and because this part is shallow and unprofessional, we can use English to teach.

In the second part, we narrate the main contents of the first chapter including some apparatus composed by basic circuits and simple circuit analysis method. We can teach the introduction of apparatus in English. But to some circuit analysis methods, if we teach in English, some students with worse English base may hardly understand. English teaching would increase the understanding difficulty of professional knowledge. We should not influence the learning effect of professional course because of the use of bilingual teaching mode, and the arrangement of teaching process should make students better understand professional knowledge, so teachers should decide the difficult degree of knowledge according to teaching content. For profound professional theoretic knowledge, we should apply English to teach and should not blindly pursue the using quantity of foreign language.



The part of Kirchhoff's Laws has strong specialty and the emphasis of professional lesson is the learning of professional knowledge, so we can not blindly teach in English, and the difficulty in the lesson should teach in Chinese to achieve better teaching intention.

## 6. Conclusions

In the article, we introduce the background and key factors for the bilingual teaching of circuit. In the undergraduate teaching, many problems still exist in the bilingual teaching of circuit course, and aiming at these problems, we should further study many aspects such as the construction of teaching material and teachers and the teaching method. The bilingual teaching of circuit has very important meaning to cultivate professional talents, and it is the task which should be studied for long.

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## Explore the Human-based Teaching for the Professional Course of Materials Science and Engineering

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### Abstract

As viewed from two sides such as teacher and student, in this article, we explore the human-based teaching reform for the college professional course of materials Science and Engineering, point out the qualities and conditions that professional teacher should possess in the process of human-based teaching reform of professional course and the teaching measures and methods that they should adopt, analyze the responsibilities that students who are the main bodies of professional teaching should assume in the human-based teaching of professional course.

**Keywords:** Materials professional course, Human-based teaching, Teacher, Student

The human-based education is the education that abounds in humanity, more notices the human than things, and takes human interior demands, initial spirit and individual development as great intention, and it has active meanings to promote students to enhance their qualities and comprehensive developments.

The development of materials industry can not leave the talents of materials specialty with high qualities, and the teaching in materials specialty has important functions to cultivate professional materials science and technology talents with high qualities. The human-based teaching reform of materials professional course is the important content in the teaching reform of materials specialty, and it is also the demand to cultivate professional talents in materials specialty needed by the times. This task needs to be ensured by the big teaching environment of human-based teaching management system and the human-based teaching main bodies (teacher and student).

### 1. The human-orientation of teachers' school

The main body of professional course teaching is student, but teacher has leading function in the teaching process, and the human-orientation of teachers' school has key function to actualize the human-base teaching of professional course.

#### 1.1 Strengthening the human-oriented service consciousness

The learner-oriented modern education idea is the concrete embodiment of people-oriented strategic idea in the teaching of professional course. The human-based teaching of materials professional course needs teacher strengthen the human-oriented service consciousness, emphasizes student-orientation in teaching course and result, takes students as teaching main body and center, respects students' human natures and humanisms, notices students' benefits, demands and developments. Teachers should not only teach students "learn", but teach them "can study". Teachers should not only teach students learn some professional knowledge, but also let them grasp the study ability for life. Teachers should not only impart students knowledge, but also lead students innovate, teach students be upright persons, edify them cooperation and dedication.

#### 1.2 Strengthening teachers' qualities and abilities

In the teaching of materials professional course, teacher and student have strong character of mutual participation, and teacher's qualities and abilities directly influence student's human-based concept and integrated ability. "Words are the voice of the mind, and feelings move in meanings and act in faces". Teachers first should devote the specialty, or else, they are difficult to take delight in talking about and have expressions with smiles, so they are difficult to obtain students' respects and loves. Second, the human-based teaching method is decided by teachers' professional abilities, teaching arts and techniques. As the teacher of materials specialty, he should possess profound theoretic knowledge, strong practical technology, timely industry and professional follows in the materials specialty, and he can give students intuitionist impact from the specialty view, produce the effects of image, and make them understand the basic

professional qualities and abilities that one qualified materials talent should possess, and inspire students' study pertinence, enthusiasm and intention.

On the other hand, teachers' moral qualities, humanistic sentiment, words and deeds also directly influence students' individual developments. The professional course teachers should learn to how to exert feeling teaching, continually perfect them, and lead students to explore scientific profound mystery with active passions. First, teachers are required to learn using smile teaching, close teacher-student relationship, eliminate feeling gulf, flourish classroom atmosphere through smile, and make students really happily study professional knowledge. Second, teachers should be encouraged to exert their advantages and fully utilize hortative language to inspire students' study interests and enthusiasms.

### *1.3 Enriching the contents of classroom teaching*

The setup of teaching content of materials specialty should be embodied in teaching materials and courseware. Abundant teaching contents are the headspring to study specialty for students, and are also one important measure to inspire students' study interests and enthusiasms.

In recent years, with the quick development of materials science and technology, the professional contents are renovated frequently. When teachers choose teaching materials, they should combine traditional professional theories with modern new technologies organically, and ensure the close combination of teaching contents and students' specialty and social demands. Taking the professional course of macromolecule materials machining as an example, the traditional and continually outspread machining craftwork theory should be fixedly grasped by students, and the craftwork methods that have been washed out should not be introduced, and teachers should fully use the practical opportunities or other approaches such as consulting network or science and technology literatures to grasp and absorb some new craftworks and new equipments that can not be found in book, and impart the knowledge to students. In a word, the selection and enrichment of teaching contents is a hard work which needs teachers read professional books and literatures when they prepare for lessons and emphasize daily accumulations and absorb and re-understand new technologies.

At present, most course teachings of materials specialty adopt multimedia school, which requires teachers possess large information to make the courseware that is easily understood and grasped with innovations. For example, in the instruction process of craftwork lesson, teachers can introduce some movie materials or pictures about the aspect of production arts and crafts into the courseware, which can be easily learned and understood and inspire the study atmosphere in the classroom.

### *1.4 Reforming the mode of classroom teaching*

For the classroom teaching method, teachings should transform from single knowledge disseminator to course governor. The teachers' functions should be mainly embodied in confirming teaching objective, evaluating teaching resource and environment, confirming the sequence of course implementation, checking the feasibility of course plan and constituting the implementation plan of course. The professional course teachers should more emphasize the strategy organically combining research teaching with research study, take students as the center, and let students obtain knowledge in solving problems by the scientific and research mode under the indirection of teachers.

On the other hand, teachers should introduce scientific research into the teaching process to some extent, and drive the cultivations of students' thinking abilities and scientific research abilities. In the prelection, teachers should organically combine professional theoretic knowledge with scientific research activities, let students grasp professional knowledge and technologies and know the methods and measures of scientific research, and cultivate students' innovational consciousness and abilities in the atmosphere full of scientific research mysteries.

### *1.5 Actualizing opening classroom teaching system*

To actualize the human-based teaching of professional course, teachers should take the classroom as an opening system, take them as the main bodies to develop and manage the course recourse, and convenient for students to look after more opportunities of resources and exterior supports. For example, not only course teachers, but experts and practice persons outside the college, even other students (schoolmates can study each other in the communication, or obtain resources through modern information measures) can teach students.

### *1.6 Strengthening the practical teaching*

The human-based teaching of materials specialty course can not leave human-based practice. To cultivate students' practical abilities and innovational spirits, in the experimental teaching part, single validating experiment should be reduced possibly, and the experiment with "three characters" including integration, design and research to evaluate the comprehensive performance of materials that are independently designed and prepared by students should be advocated. The comprehensive experiment can test and strengthen students' comprehensive knowledge and course knowledge relative to the course, implement comprehensive training and cultivation to students' knowledge, abilities and qualities. The designed experiment can make students design experiment plan, confirm experiment method, choose experiment equipments, study out operation procedure, complete experiment and analyze and disposal the experiment result

according to appointed experiment intention and conditions and under teachers' directions. The research and exploring experiment can make students implement trainings with research and exploring characters aiming at certain one or some selected research objectives in teachers' research domain or selected subject direction. After the experiment is completed, students can also comprehensively know the relationships among composing, craftwork and performance for certain one system materials through communication. In the experiment, through materials consultation, communication and thinking, students can find the method to solve the problem, and realize more truth and inspire innovational thinking through summarization and more profound thinking. The facts have proved that large of experiments with "three characters" can make students strengthen the professional theoretic knowledge what they learn, and feel that the professional experiment is not the simple and mechanical recurrence no longer, but the space with comparative challenges and exertions, and accordingly inspire their experiment interests and innovational desires, and strengthen their comprehensive analysis ability and the ability to solve problems.

The practice of materials specialty is the necessary stage to cultivate professional talents of materials with high qualities. Therefore, various practice resources should be fully utilized, and the stable professional practical teaching base should be established to extend practice view.

### *1.7 Emphasizing the individual difference of students*

The individuation education of professional course should have pertinence and can not use one standard to measure all students, and use one method to apply teaching, and one mode to cultivate all students. Teachers should adopt the classification direction and layer teaching method to teach students according to their different individual differences, interests, abilities and characters. For example, the course checking system should embody human-orientation and actualize the human-orientation and diversity for the checking and evaluation system. To notice and envisage students' differences of born abilities, teachers should combine students' study attitudes with study effects, set eyes on every student's advancement and development, be good at find their blink points, and implement different evaluations aiming at every student's different situation.

### *1.8 Establishing good teacher-student relationship*

The good teacher-student relationship is the base to promote teachers and students' advancements. For the study of professional course in college, good teacher-student relationship is very important to inspire students study enthusiasms. In the human-based teaching process of materials specialty, the professional course teachers should bring pure-hearted hears, and play multiple degrees such as friend and teacher to press close to students, know their demands, channel their puzzles and solve their difficulties. Of course, the communication between heart and heart can not be accomplished in an action, teachers should exert a subtle influence on students by the mode of "salutary influence of education, moisten silently" in the teaching process.

## **2. The human-orientation of students' study**

Students are the main body of teaching, and except for above teacher factor, students' cooperation is very pivotal to decide whether the human-based teaching of professional course can be successfully actualized.

### *2.1 Correcting the study attitude for professional course*

Indubitably, to confirm study requirement and correct study attitude is the key to cultivate undergraduates to be talents. Only undergraduates have specific study objective, upright study attitude, full study enthusiasm and strong learn desire, they can light up the spark of study objective, promote the advancements and become useful talents for the country and society.

To actualize the human-based teaching of professional course, teachers should strengthen the ideology work for the students, and let them know what they can learn, what they can obtain, what they prepare to do, and what they can do in the college stage. Teachers should let students seriously design their self developments, and confirm their future directions and objective, constitute long-term, middle-term and short-term study objectives and detailed plans for their professional knowledge, reasonable distribute their study time and insist on the plan.

### *2.2 Profoundly understanding the demand standard of society to talents*

The study of professional course can help undergraduates obtain future employment. Therefore, students should first confirm the demand standard of present society to the talents of materials specialty. At present, most employment enterprises in the materials industry emphasize three basic requirements including educational level, ability and experience. The educational level always indicates talent's basic quality and knowledge level, and the ability can prove talents can comprehensively and flexibly exert knowledge what they learn, and the experience can indicate work experiences and the performance in certain domain. On the other hand, the employment enterprises also emphasize whether the talents possess good human communication and healthy minds and humanistic qualities. The talents only with good human communication abilities can be good at disposal various complex social relationships. To the environment with many uncertain factors, whether management decision or product research and development, will

always face pressures, frustrations even failures, which needs that talents possess good psychological qualities and healthy psychology. Good humanistic knowledge and qualities can inspire the responsibility and the cultivation of innovational spirit.

In the human-based teaching process of materials specialty, the employment education should go through the professional classroom teaching. In the study process of professional course, when students can profoundly understand the demand standard of present society to the professional talents of materials, they can independently establish the study objective of the professional course and inspire their study enthusiasms for professional course.

### 2.3 Grasping scientific study method for professional course

The materials specialty has enormous cover aspects, and its numerous contents can bring certain difficulty for students, so many students can feel the contents what they study are multifarious and lack in system character. In the human-based teaching process, to improve the study method of professional course is the main measure to solve this problem.

First, students are required to conclude and classify the knowledge what they learn. The materials professional knowledge can be probably generalized as materials science and engineering basic theory knowledge, the methods, intention and measures about materials design, preparation, token and inspection, the designs, production and management of materials machining arts and crafts and equipments, materials testing, production process design, materials nature change and research and development. The professional knowledge is concluded and classified, which can form systematic professional outline. Second, students should “be able to study” professional course. The human-based teaching needs students actively implement exploring and research study, but not only passively accept study. The contents what students need studying should not only be limited in the books, but also be associated with practices. Students need learning to consult materials and know the new developments of the specialty. Students should grasp the inspiration in their studies, exert innovational spirit and realize it. Students need consulting study experiences and feelings to teachers and students, and participating academic communication activities and listening to special topic report and cathedra. Students also need cultivating and finding their own study interests. And “to be able to study” can draw inferences about other cases from one instance, learn independently, carry out the knowledge, and can exploit views and establish ambitions.

### 3. Conclusions

The course teaching of materials specialty which advocates humanity and individuation possesses active function to enhance students' comprehensive quality and promote their comprehensive development, and has important meanings to fulfill social demands for the materials professional talents with high qualities and serve the regional economy. The human-based teaching of materials specialty is still in the budding period, and it still needs relative experts and scholars to research and discuss. To realize the human-based professional course teaching out and out, except for above opinions, we should still consider strengthening the teaching guarantees such as human-based teaching management system and management structure.

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## Principals Projections on the Malaysian Secondary School Future Curriculum

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### Abstract

Study on future is involving a time-span to observe future alternatives as well as to identify the greatest events that are mostly like to occur in future while to assist the policy-makers and curriculum-designers to make decision. Longstreet and Shane (1993) however, emphasized that future planning does not mean to change what currently we already possessed instead of focusing on future-probabilities and the obtained-impacts in better future developments. The first basis, according to Saedah Siraj (2008a), is: future is a changing phenomenon compared to present day. The second, human creates something today and in future with what is planned, future-planning is arranged based on values and belief and the future begins from the present moment. Meanwhile, curriculum, or as clarify by Saedah Siraj (2001), is planning or designing education program. In this regards, the principals' projections on the types of future curriculums and curriculum contents at secondary schools in Malaysia would be the central discussion of this article. This study including earlier studies of Saedah Siraj and Mohd Paris Saleh (2003) and Saedah Siraj and Faridah Abdullah (2005) involved future planning/designing education program or as affirms by Saedah Siraj (2008a) is Future Curriculum. In general, the study goal is an attempt to attain consensus of the principals' projections on the types of future curriculums and curriculum contents at secondary schools in Malaysia where the study findings will also be discussed.

**Keywords:** Future, Future curriculum, Curriculum content, Future planning, Future projection, Secondary school

### 1. Introduction

Study on future is involving a time-span to observe future alternatives as well as to identify the greatest events that are mostly like to occur in future while to assist the policy-makers and curriculum-designers to make decision. Amara and Salancik (1971-1972) asserted that future is any activity which is increased understanding on the future products as the impacts of the present-day developments and today preferences. Longstreet and Shane (1993) however, emphasized that future planning does not mean to change what currently we already possessed instead of focusing on future-probabilities and the obtained-impacts in better future developments. The first basis, according to Saedah Siraj (2008a), is: future is a changing phenomenon compared to present day. The second, human creates something today and in future with what is planned, future-planning is arranged based on values and belief and the future begins from the present moment.

All the above discussions are reflections of study's goals on future (including the study on future curriculum and future education) among which are: provides possible projections and future choices in assisting the policy-makers and curriculum-designers to plan the desirable future as underlined by Ayers (1969) and to assist policy-makers and curriculum-designers in finalizing their decision-makings: firstly, in identifying the best future choices; and secondly, to identify the events which are mostly like to occur in the future.

Meanwhile, curriculum, according to Saedah Siraj (2001), is planning or designing education program. In this regards, the principals' projections on the types of future curriculums and curriculum contents at secondary schools in Malaysia would be the central discussion of this article. This study including earlier studies of Saedah Siraj and Mohd Paris Saleh (2003) and Saedah Siraj and Faridah Abdullah (2005) involved future planning/designing education program or as

affirms by Saedah Siraj (2008a) is Future Curriculum.

Most studies on future are conducted by the western scholars while the studies on future curriculum and curriculum content only grasps little attention in Malaysia. When only most minuscule studies is conducted on this subject, then not much domestic new inputs is obtainable as well as there are little new suggestions/ideas exist and these resulted little changes are made or can be made on this subject. In short, there are existing obstacles in applying changes in curriculum at all learning arenas nationwide while in the west, for instance, in the United States of America and Canada, both are far-advanced in improving and applying the virtual secondary school curriculum compared to Malaysia (*Virtual High School*, 2008; *Wikipedia*, 2008). As a consequence, the nation is left ten years behind US and Canada pertaining to the development and application of today virtual-curriculum.

The goal of this article is to discuss a study which attempts to attain consensus of the principals' projections on the types of future curriculums and curriculum contents at secondary schools in Malaysia. For this, the authors attempt to answer the following research question: What would be the principals' projections on the types of future curriculums and curriculum contents at secondary schools in Malaysia?

Among the important of this study are: The first, to know the future scenario of education at secondary school level in Malaysia. The second, the study findings can be used by the policy-makers and curriculum-designers to decide future education direction of a nation or institution. The third, the study findings can be utilized as a balance to decline any policy as well as any curriculum implementations that is going to damage or unbeneficial to the future generation and the nation. The fourth, policy-makers and curriculum-designers would be able to analyze: firstly, the today needs of the present secondary school students as well as to provide them the immediate solutions. Secondly, to project on the today secondary school students' future needs as well as to provide them possible future solutions including their future solutions on the national/international situations, challenges, and issues as to provide them the best ways and approaches to confront such challenging future phenomenon particularly future jobless crisis, future clashes between field of interest and carrier selection as well as future confrontation between the new education goals and life trends. In these regard, Saedah Siraj (2005) clarified that when the basis of curriculum does not further advances with future projection based on futurist views then the education's defects could be seen so obviously.

## 2. Model of Future Studies

Edwards (2008), who added the Wilber's three notions to four (Figure 2), clarified that there is deficient in the Wilber's notions that transpires in the process for the knowledge's accumulation and certification, which are: an interpretive/elucidative, reflective, assimilation stage that follows on from research-experience, observation and data collection.

Accordingly, an interpretive strand/aspect of Figure 2, (after get through the Slaughter's (2008) observations, the ICKM of Figure 2 bring forth the Knowledge of Creation in Future Studies or KCFS of Figure 3), is the non-variance in incorporating a subjective or a collective or a cultural fragment which grants a significant constituent in the Knowledge Cycle to clarify how data passed through filtered, structured, modified and interpreted before being articulated in a socially provable shape: 1) Introduction and literature review (lower right quadrant); 2) Method (upper right); 3) Results (upper left); 4) Discussion (lower left); and 5) Conclusion (returning to lower right).

Slaughter (2008) who observed KCFS via four different approaches of Future Studies: Forecasting, Delphi Technique, Scenario, and Causal Layered Analysis, affirmed that it is appropriate to use both KCFS and ICKM in today study on future. Accordingly, ICKM is applied in this study.

## 3. Methodology

### 3.1 Framework of the study

Based on earlier studies by Hiltz and Turoff (1993), Saedah Siraj and Mohd Paris Saleh (2003) and Saedah Siraj and Faridah Abdullah (2005), this study applied Delphi Technique for consensus attainment on the future curriculum and curriculum content at secondary schools of Malaysia.

There are two central entities in Delphi's processes: the first, each expert is granted the chance to evaluate other experts' views on similar topic; and the second, each expert is merely present her/his personal opinion (Saedah Siraj, 2008a).

Begins in 1950s at Rand Corporation, Santa Monica, California, the Delphi Technique was exercised to project the future US security requirements (Saedah Siraj, 2008ad) while today, it was applied in various fields, for instance, in 1971, in Education, it was applied to gather the views of penal of experts without placing them in a place (Cyphert & Grant, 1971).

Linstone and Turoff (1975) clarified that when the Delphi Technique is applied in a situational-study, other than the time and cost factors lead some experts are not viable to sit together; it is advisable and even better for the researcher to acquire the experts' subjective views. Both of them also emphasized that their above clarifications has nothing to do with the accuracy in Analytical Approach application.

Normally, there would be four Delphi Rounds though in some cases it may be fewer or more; and the Delphi process would be discontinued after a reasonable consensus attainment is achieved as well as the required information is obtained (Delbecq, Van de Ven, & Gustafson, 1975).

Based on above discussions and earlier discussed study goals, Delphi Technique is identified by the researchers as the most suitable approach to attain the experts' consensus on the projection of curriculum at secondary schools in Malaysia.

#### *Panel of experts*

The panel of experts for this study is not selected randomly, instead is selected according to specific criterion. For this research purposes, individual who is identified as an expert should comply with the following criterion: Firstly, an expert who has acquired knowledge, experiences, and trainings in the implementation of school curriculum. Secondly, an expert who has retained the post as school principal and has experience in school management for more than 10 ten years; and Thirdly, an expert who is willing to take part in three Delphi Rounds. Based on these criterions, ten experts were identified and assigned as the panel of experts where each two of them were principals of Smart School, Premier School and Boarding School while the other four were principals of national secondary school in Malaysia.

#### *3.3 Data collection procedure*

Data collections are carried out on three Delphi Rounds and the details of each round are as follows:

##### *3.3.1 Delphi Round 1*

With the purpose to acquire information on the types of future curriculum and curriculum content at secondary schools in Malaysia, the respondents are interviewed in Delphi Round 1. The data accessed from these interviews are then formulated as the basis to construct the following Delphi Rounds' survey questions.

##### *3.3.2 Delphi Round 2*

Likert's 5-points scales is utilized to decide on the years of projection when each type of future curriculum will be applied at secondary schools in Malaysia as well as to attain the experts' consensus on when each type of future curriculum content will be applied at secondary schools in Malaysia.

For data analysis, the following values will represent the occurrence years: I) 1-5 years = 5; II) 6-10 years = 4; III) 11-15 years = 3; IV) 16-20 years = 2; and V) after 20 years = 1. When the experts viewed that certain curriculum is not going to be applied then they would mark: V) after 20 years = 1.

##### *3.3.3 Delphi Round 3*

Questionnaires of Delphi Round 3 are similar to Round 2. Both median and IQR are attached to show the distribution of expert's views on each item. In this way, each expert is granted the chance to evaluate other experts' views in Delphi Round 2 so the expert may reconsider her/his answers in the next Round.

The expert's answer of this Round should be one of these: The first, constant with the previous answer if that answer is inside IQR. The second, the expert may change her/his previous answer if that answer is outside of IQR. The third, by offering reasons why the answer is remains the same; the expert is constant with her/his answer when that answer is outside of IQR.

The purpose of this Round is to narrow the gap of views differences among the experts and indirectly heading to attain the consensus.

#### *3.4 Data analysis procedure*

Data accessed from the interviews of Round 1 is thematically-analyzed – performing analysis according to specific themes. In this study, two themes have been identified: firstly, the types of curriculum; and secondly, the types of curriculum contents.

After receiving the feedbacks from the questionnaires of Rounds 2 and 3 then the data is analyzed based on min, median, and IQR. Projection on the occurrence years (the experts' levels of agreements) is based on the following median scores: I) 1-5 years = 4.5-5; II) 6-10 years = 3.5-4; III) 11-15 years = 2.5-3.49; IV) 16-20 years = 1.5-2.49; and V) after 20 years = 1-1.49.

The item's median is 4.5 to 5 when a type of curriculum is projected to be utilized at secondary schools in Malaysia are within 1 to 5 years. When the item's median is 3.5 to 4 means the years of curriculum utilization is within the next 6 to 10 years. A type of curriculum would be utilized at secondary schools in Malaysia within the next 11 to 15 years when the item's median is 2.5 to 3.49.

Moreover, when the item's median is 1.5 to 2.49 means the years of curriculum utilization is within the next 16 to 20 years; and when the item's median is 1 to 1.49 means the years of curriculum utilization is after 20 years. Similar scores are used to select the years of utilization of the curriculum contents.



### 3.5 Item consensus

The calculation of IQR is used to fix the relationships between each item and each expert where it will lead for the interpretation on the consensus of each item. The stages of consensus are fixed based on IQR as follows: I) High consensus = IQR is 0 to 1; II) Moderate consensus = IQR is 1.01 to 1.99; and III) Without consensus = IQR is 2.0 and above.

#### 3.5.1 Item arrangement

The data is analyzed to arrange certain item according to the arrangement based on the consensus' attainment and the years of projection. The item's arrangement is based on the item's earned median score of Likert's 5-points scales rates. The item is considered high when its median score is 5 while it is considered the lowest when its median score is 1. Thus, it should be noted that in the analyzed data, the items are not arrange according to normal numerical arrangement instead is based on the earned median score.

### 3.6 Statistical analysis

The Central Tendency measurement is used in statistical analysis of this study. The feedbacks from the questionnaires of Delphi Rounds 2 and 3 are analyzed using the Frequency of Central Tendency to calculate its median and IQR. According to Martino (1972) the median is the most accurate statistical approach to show the group views as well as it is also able to show each particular view of the expert. In fact, it is recognized that IQR is the most accurate calculation compared to min to show the relationships between each expert and each item or its shows the IQR's views differences among the experts on each item.

## 4. Data analysis

Data analysis is conducted using Qualitative Approach for Delphi Round 1 and Quantitative Approach for Delphi Rounds 2 and 3. This data analysis will be able to show the principals' consensus on the projection of the types of future curriculums and the curriculum contents at secondary schools in Malaysia. This data analysis would be utilized to answer the following research questions: The first: What are the principals' projections on the types of future curriculums at secondary schools in Malaysia? And the second: What are the principals' projections on the types of future curriculum contents at secondary schools in Malaysia?

The under discussed data show that ten principals' responses where each two of them were principals of Smart School, Premier School and Boarding School while the other four were principals of national secondary school in Malaysia.

The data is analyzed using the Central Tendency measurement: median and IQR.

#### 4.1 Analysis of Delphi Round 1

All penal of experts are interviewed in Delphi Round 1 to get their views on the projections of the types of future curriculums and curriculum contents will be applied at secondary schools in Malaysia. The researchers analyzed the interviews data based on the following themes: The first, the projections on the types of future curriculums at secondary schools in Malaysia; and the second, the projections on the types of future curriculum contents at secondary schools in Malaysia.

Feedbacks from the interviews of Delphi Round 1, which are analyzed for Delphi Round 2, shows the principals projected that there are 10 types of future curriculums will be applied at secondary schools in Malaysia. The types of future curriculums are divided into three categories: Science and Technology, Skill, and Format.

For the types of curriculum contents, the principals projected that there are 18 types of future curriculum contents will be applied at secondary schools in Malaysia. The types of curriculum contents are also divided into three categories: Science and technology, Skill, and Language.

Delphi Round 1 data analysis summations are listed below:

##### 4.1.1 Analysis on the projections of the types of future curriculums at secondary schools in Malaysia

###### *Sciences and technology*

1. Additional interdisciplinary in the subjects of sciences, mathematics and technology.
2. Education technology-based curriculum.
3. Agriculture and biotech curriculum.
4. Alternative energy curriculum.

###### *Skill*

5. The concept of future communication system.
6. Problem solving-based curriculum.
7. Future planning competent-based curriculum.
8. Student's online interests and competent-based curriculum.

*Format*

9. Non-centralized curriculum or non-federal curriculum or school-based curriculum.
10. Home-schooling curriculum.

The principals projected that there are 10 types of future curriculums which will be applied at secondary schools in Malaysia. These curriculums are divided into three categories: Science and technology (4 types), Skills (4 types) and Format (2 types).

#### 4.1.2 Analysis on Analysis on the projections of the types of future curriculum contents at secondary schools in Malaysia

*Science and technology*

1. Curriculum content containing Technology education.
2. Curriculum content containing comprehension and computer system application (design and invention) curriculum content.
3. Curriculum content containing information technology.
4. Curriculum content containing the more effective software applications including tutoring-software.
5. Curriculum content containing sciences, mathematics, and technology.
6. Curriculum content containing alternative energy.
7. Curriculum content containing agricultural-biotech.

*Skill*

8. Critical and creative thinking in planning the future skills.
9. Info-search skills.
10. Future jobs demand skills.
11. Problem solving skills.
12. Learning management skills.
13. Effective communicational skills.
14. Linked to student's interests and skills.

*Humanity*

15. Less emphasize on religious education and moral.
16. In future, the field of arts and humanities will get less attention.

*Value*

17. A more collaborative and interactive learning student.

*Language*

18. English language is customized in all subjects.

The results of interviews with ten principals show that they projected that there are 18 types of future curriculum contents will be applied at secondary schools in Malaysia where each 7 items are categorized under Science and technology and Skills, 2 items under Humanity, and each one under Value and Language.

*4.2 Analysis of Delphi Round 2*

Each principal is requested to answer the questionnaires on the projection years which are arranged according to Likert's 5-points scales: 5 = 1-5 years; 4 = 6-10 years; 3 = 11-15 years; 2 = 16-20 years; and 1 = after 20 year.

In Delphi Round 2, the data is analyzed using the Central of Tendency measurement: median and IQR and the latter are used by each item to find the levels of consensus among the panel of experts.

#### 4.2.1 Analysis on the projection of the types of future curriculum will be applied at secondary schools in Malaysia

Table 1.1 shows the principals' projections on the types of future curriculums will be applied at secondary schools in Malaysia.

#### 4.2.2 Analysis on the projection of the types of future curriculum contents will be applied at secondary schools in Malaysia

Table 2 shows the principals' projections on the types of future curriculum contents will be applied at secondary schools in Malaysia.

Overall summation of Delphi Round 2 data analysis shows that only one item does not attains any consensus and this indicates that there are no views differences among the experts on most items.

In order to confirm these findings, the questionnaires together with the summation of Delphi Round 2 data analysis will to be circulated again among the panel of experts.

### 4.3 Analysis of Delphi Round 3

The similar questionnaires to Delphi Round 2 are circulated to the panel of experts. When this data is analyzed then the questionnaires of Delphi Round 3 together with median and IQR analysis as well as all experts' previous answers are circulated again to each expert. In this Round, each expert is given the opportunity to reconsider back their answers: either consistent with their previous ones or substitute it with other answers. Those decided not to change are requested to attach their reasons.

The main goal of this Round is to attain the highest consensus among the experts. In this Round, the data is analyzed based on median and IQR. All data analysis tables of this Round will be shown later while the findings of this Round data analysis would be utilized to answer the research questions.

#### 4.3.1 Analysis of the projection of the types of future curriculums will be applied at secondary schools in Malaysia

What would be the principals' projections on the types of future curriculums will be applied at secondary schools in Malaysia? To answer this, the analysis is divided into three parts: Sciences and technology, Skill and Format. Analysis is also conducted in three Delphi Rounds where all answers are depicted in Tables 3, 4 and 5.

Table 3 shows the principals' projections on the occurrence years of the types of future science and technology curriculums at secondary schools in Malaysia.

The principals' projections on the types of future skill curriculum will be applied at secondary schools in Malaysia is depicted at Table 4.

The principals' projections on the types of future format curriculums will be applied at secondary schools in Malaysia are depicted at Table 5.

#### 4.3.2 Analysis on the projection of the types of future curriculum contents will be applied at secondary schools in Malaysia

What would be the principals' projections on the types of future curriculum contents will be applied at secondary schools in Malaysia? To answer this second research question, the analysis, which is also conducted in three Delphi Rounds, is divided into five parts: Science and technology; Skill; Humanity; Value; and Language. The answers for the above research question are depicted at Tables 6, 7, 8, 9 and 10.

Table 6 shows the principals' projections on the occurrence years of future science and technology curriculum contents at secondary schools in Malaysia.

The principals' projections on the types of future skill curriculum contents at secondary schools in Malaysia are depicted at Table 7.

Table 8 depicted the principals' projections on the types of future humanity curriculum contents at secondary schools in Malaysia.

Table 9 depicted the principals' projection on the types of future value curriculum contents at secondary schools in Malaysia.

Table 10 depicted the principals' projection on the types of future language curriculum contents at secondary schools in Malaysia.

## 5. Conclusion

The following are summary of the study findings:

### 5.1 Types of curriculum

The consensus among the principals is attained on all ten types of the following future curriculum will be applied at secondary schools in Malaysia: Additional interdisciplinary in the subjects of sciences, mathematics and technology; Education technology-based curriculum; Agriculture and biotech curriculum; Alternative energy curriculum; The concept of future communication system; Problem solving-based curriculum; Future planning competent-based curriculum; Student's online interests and competent-based curriculum; School-based curriculum; and Home-schooling curriculum.

### 5.2 Sciences and technology curriculum

The consensus among the principals is attained on four types of curriculums under the Category of Sciences and technology curriculum will be applied in future at secondary schools in Malaysia, namely: Education technology-based curriculum; Agriculture and biotech curriculum; Alternative energy curriculum; and Additional interdisciplinary in the subjects of sciences, mathematics and technology.

### 5.3 Skill curriculum

The consensus among the principals is attained on four types of curriculums under the Category of Skill curriculum will

be applied in future at secondary schools in Malaysia, namely: Future planning competent-based curriculum; Student's online interests and competent-based curriculum; Problem solving-based curriculum; and the concept of future communication system.

#### *5.4 Format curriculum*

The consensus among the principals is attained on two types of curriculums under the Category of Format curriculum will be applied in future at secondary schools in Malaysia, namely: School-based curriculum and Home-schooling curriculum.

The above first, second, third and fourth subtopics answered the first research question: What would be the principals' projections on the types of future curriculum will be applied at secondary schools in Malaysia?

#### *5.5 Types of curriculum contents*

The consensus among the principals is attained on the following 16 types of future curriculum contents will be applied at secondary schools in Malaysia: Curriculum content containing Technology education; Curriculum content containing comprehension and computer system application (design and invention) curriculum content; Curriculum content containing information technology; Curriculum content containing the more effective software applications including tutoring-software; Curriculum content containing sciences, mathematics, and technology; Curriculum content containing alternative energy; Curriculum content containing agricultural-biotech; Critical and creative thinking in planning the future skills; Info-search skills; Future jobs demand skills; Problem solving skills; Learning management skills; Effective communicational skills; Linked to student's interests and skills; In future, human sciences and arts will attain less attention; A more collaborative and interactive learning student; and English language is customized in all subjects. However, only 1 item (Less emphasize on religious education and moral) from the types of future curriculum contents failed to attain consensus among the principals.

#### *5.6 Sciences and technology curriculum content*

The consensus among the principals is attained on three types of curriculum contents under the Category of Sciences and technology curriculum content can be applied at secondary schools in Malaysia in 1 to 5 years from today, namely: Curriculum content containing information technology; Curriculum content containing the more effective software applications including tutoring-software; and Curriculum content containing sciences, mathematics, and technology while the consensus among the principals is attained on the other four types of curriculums under this Category, namely: Curriculum content containing Technology education; Curriculum content containing comprehension and computer system application (design and invention); Curriculum content containing alternative energy; and Curriculum content containing agricultural-biotech only can be applied in the next 6 to 10 years.

#### *5.7 Skill curriculum content*

The consensus among the principals is attained on six types of curriculum contents under the Category of Sciences and technology curriculum content can be applied at secondary schools in Malaysia in 1 to 5 years from today, namely: Critical and creative thinking in planning the future skills; Info-search skills; Future jobs demand skills; Problem solving skills; Learning management skills; Effective communicational skills while the consensus among the principals is attained on a type of curriculum under this Category, namely: Linked to student's interests and skills only can be applied in the next 6 to 10 years.

#### *5.8 Humanity curriculum content*

There is no consensus among the principals on a type of curriculum content under the Category of Humanity Curriculum Content, namely, less emphasis on religious education and moral. This shows that emphasizing on religious education and moral is vital in future Humanity curriculum content of the Malaysian secondary schools though it might happen that this (less emphasis is given on religious education and moral) in the next 16-20 years ahead as viewed by the consensus of the principals. However, the consensus among the principals is attained on a statement related to the Malaysian secondary schools' curriculum content, namely, the field of arts and humanities will be given less attention in future, not immediately but after the next 20 years.

#### *5.9 Value curriculum content*

The consensus among the principals is attained on the type curriculum content under the Category of Value curriculum content can be applied at secondary schools in Malaysia in 1 to 5 years from today, namely, A more collaborative and interactive learning student. This also shows that emphasizing on value and moral is essential in the future Value curriculum content of the Malaysian secondary schools.

#### *5.10 Language curriculum content*

The consensus among the principals is attained on the type curriculum content under the Category of Language

curriculum content can be applied at secondary schools in Malaysia but only in 11 to 15 years from today, namely, English language is customized in all subjects. These late implementation years might be related to the current problem's not enough English proficiency and skilled teachers particularly, for the subjects of science, mathematics, and even in English subject itself.

The above discussions on the fifth, the sixth, the seventh, the eighth, the ninth and the tenth subtopics replied the second research question: What would be the principals' projections on the types of future curriculum contents will be applied at secondary schools in Malaysia?

What the Malaysian government (the Ministry of Education Malaysia or MEM) should do without delay in facing the possibility of the implementation of the four types of the Science and Technology's curriculums at secondary schools of Malaysia, namely: Education technology-based curriculum and also Additional interdisciplinary in the subjects of sciences, mathematics and technology (will be applied in 1 to 5 years from today); Agriculture and biotech curriculum (will be applied in the next 6 to 10 years); and Alternative energy curriculum (will be applied in the next 11 to 15 years)? To answer these, the following are some of the authors' suggestions to the MEM: With the goal to have sufficient skill-teachers at all schools nationwide, particularly, in the following subjects: education technology, sciences, mathematics, agriculture, biotech, and alternative energy, the MEM collaborates with local and foreign universities to conduct special trainings or special higher studies program on the concerned subjects for trainee teachers and even the in-service teachers. Those undergone these programs should be offered the government scholarship, the periods of training or course or pursuing higher studies is recognized in-service as well as merits consideration in promotion exercises.

Moreover, the above four projected types of the Science and Technology curriculum, namely: Education technology-based curriculum and also Additional interdisciplinary in the subjects of sciences, mathematics and technology (will be applied in 1 to 5 years from today); Agriculture and biotech curriculum (will be applied in the next 6 to 10 years); and Alternative energy curriculum (will be applied in the next 11 to 15 years) necessitate the MEM, firstly, to shape a new education policy of the future since most probably education in future is more challenging than today, particularly, the virtual/wireless/mobile education; and secondly, to set up immediately an initial National ICT Curriculum Content Group (nictCCg). Its main function is to prepare and to develop a standard national ICT curriculum content and among its members are the experts of content and curriculum content, software designers and expert-teachers (in Malay, *guru pakar*) of the subject concerned.

What MEM should do straight away in facing the possibilities of the implementation of the four types of the Skill curriculum, namely: Future planning competent-based curriculum; The concept of future communication system; Problem solving-based curriculum (all these three will be applied in the next 6 to 10 years) and Student's online interests and competent-based curriculum (will be applied in the next 11 to 15 years)? For these, the MEM is recommended to offer the similar earlier discussed offers to the trainee teachers and the in-service teachers but MEM should regulates that those who are offered must pursue their higher degree studies in one of these fields: Future Studies, Future Communication System; and Curriculum (Competency-based and Problem solving-based).

What concurrently MEM should do in facing the possibility of the implementation of the two types of the Format curriculum, namely: School-based curriculum and Home-schooling curriculum in the next 11 to 15 years? The former necessitates that the school principals and assistant-principals acquired at least at school level, adequate curriculum knowledge as well as experiences in curriculum implementation while the latter requires sole Local Area Network (LAN), national/state/district/school regulate-server, education software designers, cheaper telecommunication rates and even lower costs for mobile/online appliances (Saedah Siraj, 2003, 2004). Certainly, Home-schooling offers more advantages to Special Education students as well as those who are the pencil's, the school's, the classroom's, the teacher's and even the naughty-friend's phobias. Other than that Home-schooling via mobile learning is non-costly compared to the current traditional schooling which yearly involved a colossi quantity of US Dollar in school-building constructions worldwide excluding another enormous amount of US Dollar spent for transportation, staff salaries, books, tuition's and school's fees, food and lodging (for those who live in hostel or home rent) and maintenance (Saedah Siraj, 2003, 2004).

The following are among the most interesting of the research findings: Critical and creative thinking in planning the future skills; Info-search skills; Future jobs demand skills; Problem solving skills; Learning management skills; Effective communicational skills; and Linked to student's interests and skills; whereas in the aspects of curriculum are: Future communication system; Future planning competent-based curriculum; Student's online interests and competent-based curriculum; and Problem solving-based curriculum. Most probably these skills/types of curriculums will turn into future mass attractions. Certainly, these kinds of training-patterns are indisputably required by the trainee teachers as well as in-service teachers. The current Malaysian education teaching curriculum should be restructured in congruent to the study findings and such it is compatible to the present and future worldwide multifarious advance development. Meanwhile, MEM should also offer new fields (such as future communication system, future planning) in

training the trainee teachers as well as to glitter the learning infrastructures developments, the school facilities including to turn the learning place in compliance to the future international education standard such as to maneuver the mobile or wireless or virtual teaching-learning environment.

One of the most important is student factor. As above discussed, all new environments, new fields like Info-search competency and Future communication system, and new learning styles such as the collaborative and interactive learning will certainly have positive and negative impacts on students. The most practical long-range and even short-range solution is that the study findings also verified the curriculum is emphasizing on religious education and moral is one of the shapes of future necessity. Significantly, this study is successful in identifying future probabilities that mostly going to occur where according to Saedah Siraj (2008a) it true though that human creates something today and in future with what is planned, future-planning is arranged based on values and belief; and certainly, the future begins from today.

All the above discussions show the reflections of the goals of study on future, including this study on future curriculum among which the authors provides possible experts' projections and future choices on the types of curriculums and curriculum contents that can be applied at secondary schools in Malaysia in a way to assist the policy-maker and curriculum-designers to plan for our children better longing-future.

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- Table 1. Summation of Delphi Round 2 data analysis: the principals' projections on the types of future curriculums will be applied at secondary schools in Malaysia



Item no.	Type of future curriculum	Median	Q1	Q2	*IQR
1	Additional interdisciplinary in the subjects of sciences, mathematics and technology	5	4	5	1
2	Education technology-based curriculum	5	4	5	1
3	Agriculture and biotech curriculum	4	4	5	1
4	Alternative energy curriculum	4	4	5	1
5	The concept of future communication system	5	4	5	1
6	Problem solving-based curriculum	4	4	5	1
7	Future planning competent-based curriculum	5	4	5	1
8	Student's online interests and competent-based curriculum	4	4	5	1
9	Non-centralized curriculum or non-federal curriculum or school-based curriculum	5	4	5	1
10	Home-schooling curriculum	5	4	5	1

Note. \* = IQR = Q3-Q1.

Table 1 shows the summation of Delphi Round 2 data analysis on the types of future curriculum will be applied at secondary schools in Malaysia where all items attained consensus among the panel of experts. The median scores of each type of future curriculum is either 4 or 5 and IQR for all ten types of future curriculum is 1 which meant that the consensus (second highest) is attained among the principals on all the following types of future curriculum will be applied at secondary schools in Malaysia: Additional interdisciplinary in the subjects of sciences, mathematics and technology; Education technology-based curriculum; Agriculture and biotech curriculum; Alternative energy curriculum; The concept of future communication system; Problem solving-based curriculum; Future planning competent-based curriculum; Student's online interests and competent-based curriculum; School-based curriculum; and Home-schooling curriculum.

Table 2. Summarization of Delphi Round 2 data analysis: the principals' projections on the types of future curriculum contents will be applied at secondary schools in Malaysia

Item no.	Type of future curriculum	Median	Q1	Q2	*IQR
1	Curriculum content containing Technology education	4	4	4	0
2	Curriculum content containing comprehension and computer system application (design and invention) curriculum content	4	4	5	1
3	Curriculum content containing information technology	4.5	4	5	1
4	Curriculum content containing the more effective software applications including tutoring-software	5	4	5	1
5	Curriculum content containing sciences, mathematics, and technology	5	4	5	1
6	Curriculum content containing alternative energy	5	4	5	1
7	Curriculum content containing agricultural-biotech	5	4	5	1
8	Critical and creative thinking in planning the future skills	4.5	4	5	1
9	Info-search skills	4.5	4	5	1
10	Future jobs demand skills	4.5	4	5	1
11	Problem solving skills	5	4	5	1
12	Learning management skills	5	4	5	1
13	Effective communicational skills	4.5	4	5	1
14	Linked to student's interests and skills	4	4	5	1
15	Less emphasize on religious education and moral	1	1	4	3
16	In future, the field of arts and humanities will get less attention	4	4	5	1
17	A more collaborative and interactive learning student	4	3	4	1
18	English language is customized in all subjects	4	4	5	1

Note. \* = IQR = Q3-Q1.

Table 2 shows the summation of Delphi Round 2 data analysis on the projection of the types of future curriculum contents will be applied at secondary schools in Malaysia. Item 1 (Curriculum content containing Technology education) attained the highest consensus (IQR is 0) among the panel of experts and only 1 item (item 15: Less emphasize on religious education and moral) failed to attain consensus while the rest (16 items) IQR scores is 1. Hence, the types of future curriculum contents will be applied at secondary schools in Malaysia are as follows: Curriculum content containing Technology education; Curriculum content containing comprehension and computer system application (design and invention) curriculum content; Curriculum content containing information technology; Curriculum content containing the more effective software applications including tutoring-software; Curriculum content containing sciences, mathematics, and technology; Curriculum content containing alternative energy; Curriculum content containing agricultural-biotech; Critical and creative thinking in planning the future skills; Info-search skills; Future jobs demand skills; Problem solving skills; Learning management skills; Effective communicational skills; Linked to student's interests and skills; In future, the field of arts and humanities will get less attention; A more collaborative and interactive learning student; and English language is customized in all subjects.

Table 3. The principals' projections on the occurrence years of future science and technology curriculums at secondary schools in Malaysia

*Item no.	Type of future sciences and technology curriculum	Median	Years of projection	IQR
1	Additional interdisciplinary in the subjects of science, mathematics and technology	5	1-5	0
2	Education technology-based curriculum	5	1-5	0
7	Agriculture and biotech curriculum	4	6-10	1
9	Alternative energy curriculum	2.5	11-15	1

Note. \* = number is based on the results of Delphi Round 1.

Table 3 shows the median for items 1 and 2 is 5 which meant all types of Future Sciences and Technology curriculums projected will be applied at secondary schools in Malaysia within 1 to 5 years. Whereas item 7 (agriculture and biotech curriculum) will be applied at secondary schools in Malaysia within 6-10 years ahead. Item 9 (alternative energy curriculum) is the last one will be applied at secondary schools in Malaysia that is in the next 11-15 years. The types of curriculum of item 1 (Additional interdisciplinary in the subjects of science, mathematics and technology) and item 2 (Education technology-based curriculum) attained the highest consensus where its IQR is 0 that meant there is no views differences among the expert.

Table 4. The principals' projections on the occurrence years of future skill curriculum at secondary schools in Malaysia

*Item no.	Type of future skill curriculum	Median	Years of projection	IQR
5	The concept of future communication system	4	6-10	0
6	Problem solving-based curriculum	4	6-10	1
7	Future planning competent-based curriculum	4	6-10	1
8	Student's online interests and competent-based curriculum	3	11-15	1

Note. \* = number is based on the result of Delphi Round 1.

Table 4 shows that all items attained high consensus where the IQR scores is either 0 or 1. Item 5 (The concept of future communication system) attained the highest consensus where the score of IQR is 0. Thus, there are no views differences among the experts. The score median is 4 for items 5, 6 and 7. Correspondingly, these curriculums (item 5: The concept of future communication system; item 6: Problem solving-based curriculum; and item 7: Future planning competent-based curriculum) will be applied within 6 to 10 years while item 8 (Student's online interests and competent-based curriculum) will be applied at secondary schools in Malaysia from 11 to 15 years from now. Overall, all items attained the experts' consensus.

Table 5. The principals' projections on the occurrence years of the types of future format curriculums at secondary schools in Malaysia

*Item no.	Type of future format curriculum	Median	Years of projection	IQR
9	Non-centralized curriculum or non-federal curriculum or school-based curriculum	3	11-15	1
10	Home-schooling curriculum	3	11-15	1

Note. \* = number is based on the results of Delphi Round 1.

Based on Table 5, the median score for items 9 (School-based curriculum) and 10 (Home-schooling curriculum) is 3 while the IQR is 1. These demonstrated that both formats attained consensus among the experts, and correspondingly, both future formats will be applied at secondary schools in Malaysia in 11 to 15 years from today.

Table 6. Principals' projections on the occurrence years of future science and technology curriculum contents at secondary schools in Malaysia

*Item no.	Type of future science and technology curriculum content	Median	Years of projection	IQR
3	Curriculum content containing information technology	4.5	1-5	1
4	Curriculum content containing the more effective software applications including tutoring-software	5	1-5	0
5	Curriculum content containing sciences, mathematics, and technology	4.5	1-5	0
1	Curriculum content containing technology education	4	6-10	0
2	Curriculum content containing comprehension and computer system application (design and invention) curriculum content	4	6-10	1
6	Curriculum content containing alternative energy	4	6-10	0
7	Curriculum content containing agricultural-biotech	4	6-10	1

Note. \* = number is based on the results of Delphi Round 1.

Table 6 shows the median for items 3, 4 and 5 is 4.5 to 5 which are the highest median scores depicted in the table and these also demonstrated that all experts attained consensus. Hence, these curriculum contents (items 3: Curriculum content containing information technology; item 4: Curriculum content containing the more effective software applications including tutoring-software; and item 5: Curriculum content containing sciences, mathematics, and technology) can be applied at secondary schools in Malaysia in 1 to 5 years from today.

The median for items 1, 2, 6 and 7 is 4 which meant these curriculum contents: Curriculum content containing Technology education (item 1); Curriculum content containing comprehension and computer system application (design and invention) (items 2); Curriculum content containing alternative energy (item 6); and Curriculum content containing agricultural-biotech (item 7) only can be applied at secondary schools in Malaysia in the next 6 to 10 years while three curriculum contents are attaining the highest consensus where each one IQR scores is 0, they are: Curriculum content containing the more effective software applications including tutoring-software (items 4); Curriculum content containing sciences, mathematics, and technology (item 5); and Curriculum content containing Technology education (item 1). In general, all items attained high consensus where each IQR scores either 0 or 1.

Table 7. The principals' projections on the types of future skill curriculum contents at secondary schools in Malaysia

*Item no.	Type of future skill curriculum content	Median	Years of projection	IQR
8	Critical and creative thinking in planning the future skills	5	1-5	1
9	Info-search skills	5	1-5	0
10	Future jobs demand skills	5	1-5	0
11	Problem solving skills	4.5	1-5	0
12	Learning management skills	4.5	1-5	1
13	Effective communicational skills	4.5	1-5	0
14	Linked to student's interests and skills	4	6-10	1

Note. \* = number is based on the results of Delphi Round 1.

Table 7 shows that the median and IQR for 7 items of skills. The median for the above all types of curriculum contents are either 4.5 or 5 except item 14 (Linked to student's interests and skills) where it's median is 4. Item 8 (Critical and creative thinking in planning the future skills); item 9 (Info-search skills); item 10 (Future jobs demand skills); item 11 (Problem solving skills); item 12 (Learning management skills) and item 13 (Effective communicational skills) can be

applied at secondary schools in Malaysia in the next 1 to 5 years while item 14 (Linked to student's interests and skills) only can be applied in 6 to 10 years ahead. Item 9 (Info-search skills) and item 10 (Future jobs demand skills) attained the highest consensus where each Median is 5 and IQR scores is 0 which implicated that there are absent of views differences among the experts. Overall analysis demonstrated that all items attained high consensus where each IQR scores is either 0 or 1.

Table 8. The principals' projections on the occurrence years of the types of future humanity curriculum contents at secondary schools in Malaysia

*Item no.	Type of future humanity curriculum content	Median	Years of projection	IQR
15	Less emphasis on religious education and moral	2	16-20	3
16	In future, the field of arts and humanities will get less attention	1	After 20 years	1

Note. \* = number is based on the results of Delphi Round 1.

Table 8 shows 2 items of the types of future humanity curriculum contents. Item 15 (Less emphasis on religious education and moral) does not attain consensus among the experts where its IQR is 3 (high). Apparently, all experts rejected that the future humanity curriculum contents at secondary schools in Malaysia should designate less emphasis on religious education and moral. However, item 16 (the field of arts and humanities will be given less attention in future) attained consensus among the experts where the median is 1 but this type of curriculum content will only be applied after 20 years from today.

Table 9. The principals' projection on the occurrence years of the types of future value curriculum contents at secondary schools in Malaysia

*Item no.	Type of future value curriculum content	Median	Years of projection	IQR
17	A more collaborative and interactive learning student	5	1-5	0

Note. \* = number is based on the results of Delphi Round 1.

Table 9 shows the median and IQR for item 17. The median for item 17 is 5 (the highest median score). All experts attained consensus on this item where the IQR score is 0, which meant that there is no views differences among the experts. This finding encourages the students to apply the collaborative and interactive learning which is going to be practiced in the next 1 to 5 years.

Table 10. The principals' projection on the occurrence years of the types of future language curriculum contents at secondary schools in Malaysia

*Item no.	Type of future humanity curriculum content	Median	Years of projection	IQR
18	English language is customized in all subjects	2.5	11-15	1

Note. \* = number is based on the results of Delphi Round 1.

Table 10 shows the median of item 18 (English language is customized in all subjects) is 2.5 which meant all experts attained consensus where its IQR is 1. This curriculum can only be applied in 11 to 15 years from today.

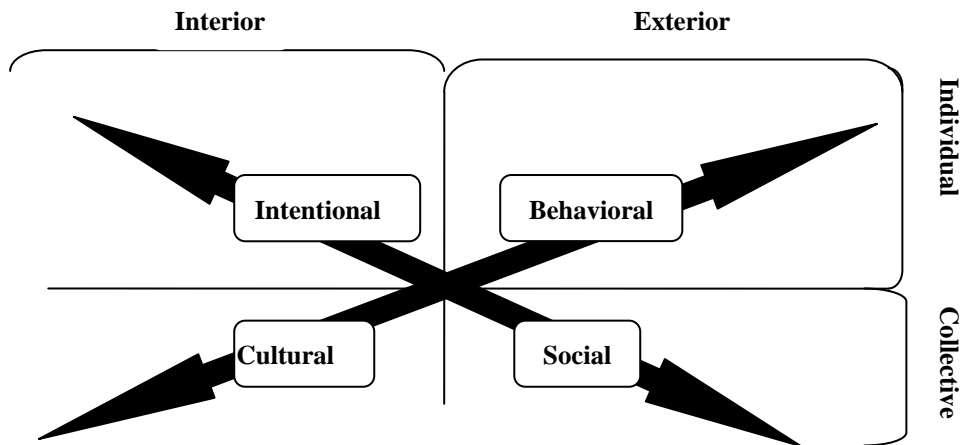


Figure 1. Four Quadrants Model of Wilber

Source. Richard A. Slaughter (2008), Knowledge creation, futures methodologies and the integral agenda. *Integral World*. (<http://www.integralworld.net/images/slaughter-3-1.jpg>).

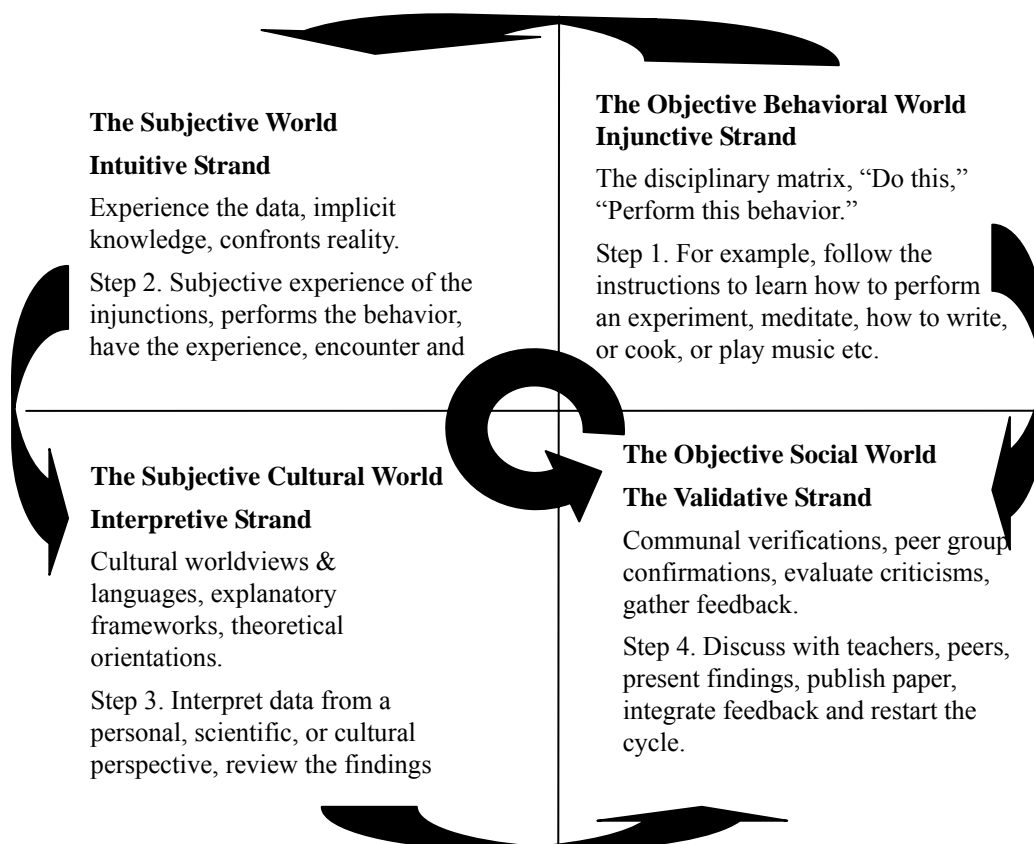


Figure 2. An Integral Cycle of Knowledge Model (ICKM)

Source. Mark Edwards (2008), The Integral Cycle of Knowledge: some thoughts on integrating Ken Wilber's developmental and epistemological models. *Integral World*. (<http://www.integralworld.net/images/edwards-1.gif>).

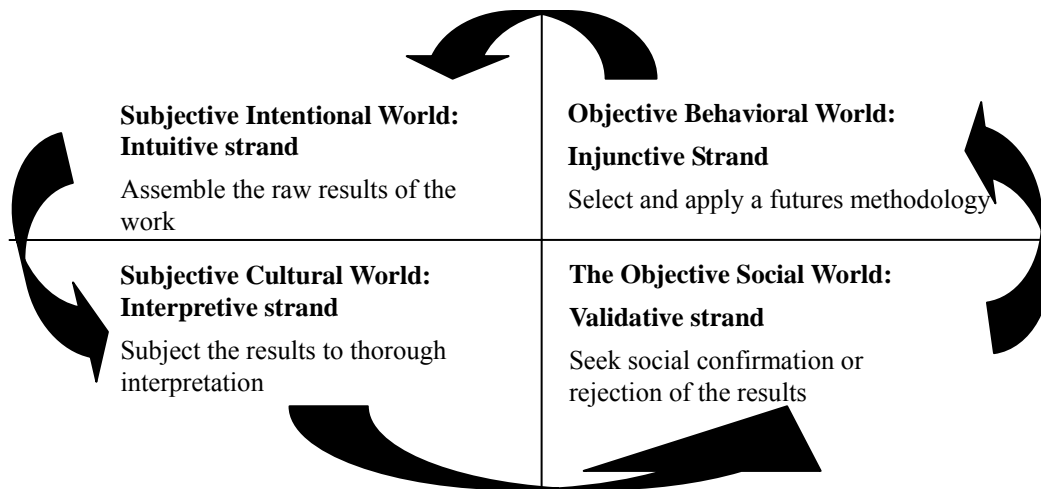


Figure 3. Knowledge of Creation in Future Studies

Source. Richard A. Slaughter (2008), Knowledge creation, futures methodologies and the integral agenda. *Integral World*. (<http://www.integralworld.net/images/slaughter-3-2.jpg>).



## Rhythm in Translations

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### Abstract

This research is an attempt at the elucidation of the significance of rhythmic in translations. According to Eugene A. Nida's functional equivalence, the comprehensive effect which the receptors of the versions get should be the same as the one the readers of the original get, and since rhythm is an integral part of the style, rhythm should be realized in translations.

**Keywords:** Rhythm, Translations, Functional equivalence, Rhythmical equivalence

### 1. The significance of rhythm

Rhythm is significant because it is an integral part of the style in languages. It is obvious that rhythm plays an active role in different feet and meters in English poetry, such as iambic pentameter, trochaic tetrameter and anapestic trimeter, etc., among which the iambic pentameter is most frequently used. Rhythm often functions as primary rhythm and secondary rhythm in English articles. Everyone knows poetry is the complexity of content and form, with the help of the form, the meaning is conveyed; so loss of the form, loss of the meaning. As far as the forms in poetry are concerned, rhythm is the most important one. There is no doubt that rhythm is a necessary part of the translation due to the great role it plays in various styles of languages, especially in poetry. Ezra Pound also states that "rhythm must have meaning". But unfortunately, while some translators notice the importance of rhythm in translation, others do not pay enough attention to it.

### 2. Functional equivalence

The aim of translation, unquestionably, is to comprehend what the original says and represents it in the target language, in other words, a translator needs to convey all the possible meaning of the source language to his or her readers, and a translation needs to complete the communication which the original conveys. Just as Nida says "translation means communication," translating is a kind of process to complete the communication, and "this process depends on what is received by persons hearing or reading a translation." Generally speaking, whether the communication succeeds or not determines the adequacy of a translation. And although the adequacy of a translation depends on a great many different factors, no matter how many factors the adequacy of translations depends on, "it is best to speak of 'functional equivalence' in terms of a range of adequacy, since no translation is ever completely equivalent".

Since it is an important part of style in languages, rhythm is certainly an important factor which affects the meaning of the original. Hence it affects the communication in translating and translations. Therefore, rhythm should be paid enough attention in translating and translations not only in poetry, but also in essay, drama, and so on. Moreover, the form of rhythm may also be helpful for conveyance of the communication, so it should also be concerned while in translating and translations. Otherwise, the communication may not be complete. In one word, functional equivalence of a translation might as well include rhythmical equivalence. That is to say, without rhythmical equivalence, functional equivalence will not be fully accomplished. For this reason, rhythm should be taken into consideration in translating and translations.

### 3. Rhythm in translations

#### 3.1 Rhythm and Its Significance in Literary Representation

It is universally acknowledged that rhythm, which can be all regular recurrent happenings in time, exists in all living things and all natural changes. Rhythm can be observed in nature, for example, one can see the rhythm in the flight of a



bird, hear it from a piece of music. Rhythm is also represented by the beating of a man's heart, the ticking of a clock and the shifting of the four seasons in a year. Besides, it is also determined in the revolutions of the moon and the earth, and the rising and ebb of the tide, so on and so forth. It can be said that there is almost no place in universe that one cannot find rhythm. It is, therefore, possible to say that there is no doubt that rhythm is the law of the nature. Furthermore, the civilization of the world, to some degree, comes from the learning of rhythm.

As a general rule, rhythm is also the main feature of music. It consists of everything pertaining to the forward movement of music in time. For example, the regular melody in a certain pattern always satisfies the expectation of the listeners. As a matter of fact, rhythm also governs the movements of the body in dance. Usually dancers act in quite various way based on different rhythmic sense. No one can deny that it is rhythm that creates harmony and beauty of universe.

Besides, rhythm is an essential feature of all the arts, particularly in languages. When speaking, people often take it into account, such as the stressing of the important words of the statements and the reducing of the less important words. Rhythm has a profound effect on how people can easily understand one when one speaks. This is because native speakers of the language expect the material to be presented in a certain way and when one's stress and rhythmic patterns meet the listener's expectations, everything is fine, but when one does not, people will be distracted or misunderstand one. The pleasure of rhythm comes from whether the expectation (which is a rhythmical pattern psychologically) is met or not.

And what is rhythm in languages? Rhythm is created by the regular recurrence of particular items. It is "regular succession of weak and strong stresses, accents, sounds or movements in speech, music, dancing, etc." Halliday believes that "rhythm is carried along by a succession of beats, occurring at more or less regular intervals."

### 3.2 Rhythm and foot, caesura, "Dun" and "Dou" in rhythm

Rhythm is created by the regular recurrence of particular items. It is "regular succession of weak and strong stresses, accents, sounds or movements in speech, music, dancing, etc." Halliday believes that "rhythm is carried along by a succession of beats, occurring at more or less regular intervals."

Owing to the differences in the characteristics of languages, it is obvious that each language is of its own distinctive features, and the same cases are with rhythm in various languages. Since English and Chinese are definitely dissimilar, and therefore rhythmical patterns in them are also different. Take English for instance. The basic tendency of English speech rhythm is that the stressed syllables in a given tone-group follow each other at roughly intervals of time. In other words, language can be split into segments which, to some degree, are of equal duration, such as rhythm in English. It is based on the regular succession of stressed syllables, with unstressed syllables filling in the intervals between them. That is to say, utterance stresses serve as a basis for the rhythmical organization of speech and segment the speech flow into units of more or less equal length. It is a feature of English that the utterance is delivered as a series of close-knit rhythmic groups, which are named as rhythmic units. A rhythmic unit is either one stressed syllable or a stressed syllable with a number of unstressed ones grouped around it. To put it another way, one might say that a rhythm group consists of one or more syllables closely connected by sense and grammar, but containing only one strongly accented syllable. And regular patterns of stressed and unstressed syllables are called meters (or measures). When meters are identified, the syllables in a line are divided into groups of two or three, each of which is called a foot, which is actually the smallest rhythmic unit or span of stressed or salient syllables together with unstressed syllable or weak syllable(s), and repeated to form a metrical pattern. In short, rhythm in English depends on the foot. And "all feet tend to be of roughly the same length—which means, of course, that the syllables must vary in length, since a foot may consist of varying numbers of syllables". Therefore, rhythm in English is foot-timing (commonly called stress-timing) rhythm.

There is no doubt that foot also exists in Chinese. It is considered as "the smallest unit, which can be used independently in prosody, consists of a stressed syllable and one unstressed syllable at least". Generally speaking, there are mainly three types of foot — degenerate foot, standard foot and super foot --- in Chinese, among which standard foot is composed of two syllables; degenerate foot, of only one syllable; and super foot, of three syllables. Other combination which is beyond three syllables must be the combination of two feet, or the combination of a basic prosodic word — a standard foot and a super foot. While distinguished from the syllables in English, all the syllables in Chinese tend to be of roughly the same length whether they are stressed or not. So in this case, although rhythm in Chinese depends on the foot which is based on the syllable (or a sub-syllabic unit, the mora), it is considered as syllabic rhythm, or syllable-timing rhythm. In a word, Chinese is syllable-timed and English is stress-timed.

A foot usually tends to appear as a sense group in sentences both in English and Chinese, and it is the main way that weighs a lot in the division of the rhythm. A sense group is a series of syllables that express a comparatively complete idea and can be uttered in one breath. It may be a short sentence or a part of a sentence. Sense group can be used as a common term in describing a meaningful unit both in English and Chinese. It can also be viewed as the same thing as information unit. Usually a sense group is a measure in Chinese, and the rhythm focus is the information focus.

Another technical term caesura which is related with rhythm should be mentioned here. Usually a break within a line in English is a caesura. Caesuras are worth noting because they can have marked effects upon a poem. Three effects of caesuras should be concerned: “the way they shape the emotional life of a poem, the humor they can help to create, and the way they can dramatize a poem’s close.” Caesura marks the pauses in one’s thought, as if one stops to think. It also marks a change in the emotions of a poem, and it may be considered as a kind of marker of topic-shift in discourse. Caesura is also used in Chinese, and usually it is divided by the sense groups. In other words, the pause between the sense groups can be considered as a caesura, so caesura in English can be called “Dun” or “Dou” in Chinese. In general, a sense group is a caesura in Chinese. The frequency of the appearance of caesuras may stand for certain rhythmical patterns. A good case in point is that when a narrator in a basketball match speaks fast with many caesuras, which would definitely make people feel the tense atmosphere in the field; while delivering a recitation, people always recite in a smooth and swift way with few caesuras, such as the description of the beauty of the nature. It is common that people often speak in measured tones with caesuras to express their excited feelings and emotions. Thus caesuras revealing the quickness or the slowness of the rhythm might express different meaning.

For the above reasons, foot and caesura are the important parts of rhythm, but with distinctive difference between them. Foot is composed of the stressed syllables and the unstressed syllables, while caesura is a break or a pause between the different feet. There may be one foot or several feet in one caesura.

And it is necessary to use “Dun” to convey the meaning of the rhythm instead of syllables or feet. It sounds that if the translation has the same syllables as the original version, the feet would be the same, and therefore the rhythm must be the same. But it is not necessarily the case due to the different characteristics among languages. Sometimes it is so hard to translate one language into another in exactly the same rhythm with syllables in feet or caesuras as many as that of the other language. By using “Dun” or “Dou” in Chinese to convey the meaning of rhythm in the original text, rhythmical effect could be attained whether the numbers of syllables between the source text and the target text are identical or not. What we want the version to be rhythmically equivalent with the original is to be rhythmically equivalent in functional effect. As a matter of fact, it is very difficult to communicate what the source language values to the target language both in meaning and form due to the distinctive characteristics among different languages. And this is just the reason why “Dun” is employed in E-C translation to transfer what the meter hints both in form and meaning.

### *3.3 Rhythmical Equivalence in Translating and Translations*

Eugene A. Nida, a famous American translation theorist, puts forward translation criteria which are accepted by more and more translators, that is functional equivalence. Rather than attempting to defend literal or free translating or trying to reconcile the two by aiming at a compromise, it is very wise for him to focus on a different perspective which is functional effect. Functional equivalence means that the comprehensive effect which the receptors of the versions get should be the same as the one the readers of the original get. That is to say, no matter how perfect a method or the process is used in translation, the aim of a translation is, most important of all, to communicate all the values that the source language contains to the target text, or to reproduce the functional effect which the receivers get from the original version to the receptors’ one. So what a translation concerns is not only its meaning and form but also its effect, to be more specific, functional equivalence.

As far as functional equivalence is concerned, a minimal realistic definition of functional equivalence, according to Eugene A. Nida, could be stated as the readers of a translated text should be able to comprehend it to the point that they can conceive of how the original readers of the text must have understood and appreciated it. And for a maximal, ideal definition of equivalence could be stated as the readers of a translated text should be able to understand and appreciate it in essentially the same manner as the original readers did.

As one of the most important factors to convey the meaning, it is certain that rhythm should be cared about in translating and translations. So whenever functional equivalence is discussed, rhythmical equivalence might be a part of it.

## **4. Conclusion**

This thesis, first of all, tries to demonstrate the importance of the rhythm in translation, and it is necessary for the translators to take the rhythm into account in translating and translations. Because of its great significance, rhythmical equivalence is a necessary part of functional equivalence in translation. As one of the most important factors that a complete translation depends on, rhythm is surely a necessary part of the functional equivalence, that is to say, in translating, rhythm as well as other factors should be taken into account such as rhyme, grammar and rhetoric, etc. With the same or similar rhythmical patterns, readers could comprehend the versions in the way that the readers comprehend the original ones.

In the second place, rhythm could be realized by distinct rhythm both in source texts and target texts in the form of feet, caesuras and “Dun or “Dou” in Chinese.

Thirdly, flexibility, which is an essential factor for all genres of languages, should also be mentioned here, because whether in source texts or target texts, rhythm always needs to be flexible. Everyone knows only the dullest of poems keep strictly to a set meter. Swell and cadence are always the vitality for a good sentence.

What's more, as a necessary part, the rhythm not only should be taken into consideration, but could be employed as one of the standards to judge or evaluate whether a version is perfect or not. As a necessary part of functional equivalence, rhythmical equivalence weighs a lot. If rhythmical equivalence is taken into consideration, many of the translations would not be viewed as just the explanations or brand-new versions in another language.

And it is worth mentioning that, just as all grammar rules leak, rhythm does not necessarily mean that rhythm in the version must be exactly the same as that of the original. An adequate reason is that languages are different although they have something in common. Take English and Chinese for example, their form, sound, grammar, rhetoric, cultural background and the way of thinking are different. It is, therefore, natural that their characteristics of the rhythm differ from each other. But trying to imitate the original rhythmic way of the original is very necessary for the translators. That is to say, whatever the author expresses in the original poem, it is better for a translator to try to convey what he or she intends to express, and it is best to convey in the similar rhythm or to convey the rhythmical sense as close as possible to the original text.

In a nutshell, rhythm is not only significant in translations, but also valuable to be a standard for judging or evaluating the translation works. Rhythm can be realized by various rhythmical patterns in both English and Chinese, and it is a necessary part of functional equivalence. But no matter how important it is, the purpose of rhythm is all for communication, without its conveyance of meaning, it will surely lose its weight.

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# An Analysis of the Localization of School Social Work in the Chinese Mainland: Comparison among Three Patterns in Operation

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## Abstract

School social work is in its infancy in China, yet it has its special advantages in overcoming some increasingly evident social problems among contemporary college students, and it has become the necessary supplement to strengthening and promoting the ideological and political education in colleges and universities. According to the ownership of school social workers, this paper classifies them into three categories: engagement pattern out of school system, coexisting pattern within school system, and integration pattern within school system. After thorough SWOT analysis, the author puts forward that the integration pattern within school system is the best choice for the localization of school social work in China.

**Keywords:** School social work, Localization, Pattern

School social work is a loan-word, which refers to a kind of professional serving activity. The school social workers apply the theory, approach and skill of social work to school circumstance to promote the harmonious cooperation of school, family and community, aiming at improving the condition of teaching and learning in school, helping students overcome the difficulties in growing up, and guiding them to pursue individualized education and life-oriented education, forming socialized personality, acquiring the ability to adjust to the present and future life. In this way, school social work can help to achieve the goal of school education.

We can take a look at the relationship between the school social work and the ideological and political education in college: on the values, they possess the same ones; on the approaches, they can draw on the experience of each other; and on the effect, they can make a good complement to each other, all of which provide a reasonable theoretical premise of the localization of school social work. According to the operating experience of school social work in developed countries and areas, and the operating pattern of the student work in higher education institutions in our country, there can be three patterns of the localization of school social work in China: engagement pattern out of school system—the institution of school social work exists out of the school system; coexisting pattern within school system—colleges and

universities set up independent institution of school social work; integration pattern within school system—combining school social work with ideological and political education work in colleges and universities.

### **1. Engagement pattern out of school system**

This is a commonly used pattern in many developed countries and in Hong Kong, Taiwan. The school social workers belong to the specialized institution of government or the Third Sector, and they are specialized and professional social workers. They are engaged by school or arranged by government (buying their service) to conduct social work to solve the practical problems in school. Under this pattern, school social work is not operated within, but out of the school system. The relationship between school and school social workers are engaging and engaged, and the school social workers are not the members of the school. Hong Kong's "one school with one social worker" follows this pattern.

The advantages of this pattern: the social workers engaged by school come from professional institution and they must undergo strict specialized training, and obtain professional certificate recognized by government or special professional organization. They can provide specialized and efficient service to specific problems. Meanwhile, the school can supervise and assess whenever necessary the quality and the level of their service, according to which the school can determine whether to continue to engage them or not. It increases the school's choice of social workers and can guarantee the efficiency and the degree of the solution of social problems for college students.

However, there still exist many practical difficulties for the Mainland of China to adopt this pattern. On the one hand, school social work hasn't won the general recognition in higher education institutions. Although some colleges and universities open such related courses, yet school social work hasn't been adopted officially and genuinely. On the other hand, some progresses have been made in professional social work education, yet as the third sector in society, social work service institution is still in its infancy and it has a long way to go to become mature. The slow development of non-government organization hinders the school engaging or the government buying this specialized social service. Besides, even the school is willing to accept and engage social workers, but due to the large number of schools, the present school social workers can't meet the demand of every school, that is, one social worker will be engaged by several schools at the same time, the result of which is the short time the workers working for a specific school and the unsatisfactory effect of the social work. Finally, the natural development of school social work pattern is closely related with the economic development of the country or the area. Generally speaking, the more developed the economy is, the earlier the specialized social work appears, which will easily lead to the unbalanced development of school social work in different areas.

### **2. Coexisting pattern within school system**

Given the emergency of many present problems in school, some domestic social work experts suggest that colleges and universities set up the post, or even the specialized institution to bring school social work into the educational system. They ask the school to augment the posts for student work, staff professional members and make allowance for their evaluation and application of professional titles. The school should reconstruct the system of student work to form the division and cooperation system for students' daily management work, school social work, and ideological and political work, with the three aspects complementing and supporting each other. In this way, the higher education institutions will open up new phase for student work.

This view is very helpful for giving full play to and speeding up the development of social work. The advantage is that it can overcome the shortcoming of the working time problem existing in engagement pattern; the school social workers can work stably for one school, and integrate themselves into the activities of the school, which can help to enhance the real effect of school social work.

But more problems arise in the common use of this pattern. Firstly, many higher education institutions have a vague view of the significance of school social work, or even worse, they superficially regard the service of social workers in school as the psychological health education or voluntary service, so the school social work is lack of proper foothold and can't establish the exact professional role; secondly, the long dominant role of ideological and political education is facing challenge, which is likely to conflict with the school social work. In higher education institutions in China, such problems still remain unanswered concerning the two aspects as how to make good use of the modern method and avoid putting the minor before the major, and how to clarify their working area and harmonize their relations. Thirdly, it's not easy to break the traditional educational pattern and management system. The higher education institutions in China have built fairly perfect and mature pattern for student work and they are reluctant to break the original fairly stable and balanced educational working system, which leaves little room for the development of school social work. Of course here the personnel management is mainly involved.

### **3. Integration pattern within school system**

In China, compared with the mature ideological and political education, school social work is just beginning. Apparently, the effort of school social work for new living space is meeting with many big obstacles in terms of people's concept and the present educational reform system in higher education institutions. This is the very difficult

position the localization of school social work is facing. Therefore, the development of school social work in China has to combine with China's national conditions, and with the nature and characteristics of student work in colleges and universities. School social work needs to reexamine its connotation and evaluate its position, go hand in hand with, and learn the strengths from ideological and political education, thus, set up the integration pattern with Chinese characteristics.

This integration pattern doesn't mean that the school social work will invade or replace, or be invaded or replaced by the ideological and political education in colleges and universities; rather, it's the pattern that the two will support each other, relate mutually and work jointly. This is determined by the deep-rooted educational guidelines and patterns in higher education institutions. By virtue of the integration of their values, working contents, operating patterns, working approaches and workforces between ideological and political education and school social work, we can give full play to their individual characteristics to mutually complement their strengths and promote the full development of college students' quality. Without any doubt, the integration pattern within school system can't be accomplished in one step, but, the realization of its aim will be advanced gradually in an orderly way.

### Conclusion

By comparing the above three patterns of the localization of school social work, this paper holds the view that the integration pattern within school system will be the best choice. This integration is reasonable in theory and feasible in practice; it can overcome the shortcomings of both sides, and realize the mutual integration between ideological and political education and school social work; it can retain not only the essential nature of ideological and political education, but also the strong points of school social work, thus promote the actual effect of ideological and political education, and the comprehensive development of college students.

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## An Indigenous Community Leader's Self-Directed Life-Long Learning Encounter

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### Abstract

This paper, employing a qualitative approach, is based on an interview of an indigenous community leader's life-long learning encounter with a view to garner information that would shed more light to both practice and theory of adult learning. A variety of themes were drawn from the information derived and these were related to theories of learning in adulthood. The findings of the paper identify key concerns and assumptions in adult education based on the theory of Andragogy developed by Malcolm Knowles which attempts to describe how adults learn. His hypothesis was that adult learning could not follow the traditional Pedagogy in which teachers were responsible for making decisions about what should be learned, how, where, when and why it should be learned. In a nutshell, it can be generally assumed that adults are more self-directed and therefore, should take full control and accountability of their learning.

**Keywords:** Andragogy, Life-long learning, Self-directed, Community leader

### 1. Introduction

As Malaysia is caught up in the throes of the need to change or be left behind in this Information Era, where the playing field is one and the rules may not be fair to all, it has become more imperative that the focus on Adult Learning be given more emphasis and thrust so as to equip the adults with new and fast changing skills and flexibility to view change as constant.

Education for adults was incorporated in the 7th Five-Year Plan by the Malaysian Government and extended to the 8<sup>th</sup> and now the 9<sup>th</sup> with the prime purpose "to improve accessibility to education and to increase participation at all levels through the expansion of physical facilities and distance learning programmes".

This would certainly augur well for the country as retooling in the present economy will ensure a continual source of wk-workers (wise and knowledgeable) in the fast changing global economic scenario from an industrial to an information era: changing managerial styles; consumer demands and values in the new borderless market.

Needless to say, there exist pockets of communities who are unperturbed by their surroundings or are resistant to change by adopting an attitude of aversion to change itself. The change is definitely there but it is so slow that it may appear to be non-existent. The strong traditionally inclined primitive mode of learning may override modern development but on the other side is development and modernization healthy for the individual, community, country and the world at large?

With globalization and the so-called panacea to bring about change is for the betterment or worse for the human race? Are the developing and under-developed countries going to benefit from this trend or be left behind in the rat race? Are all the Principles of Adult Learning geared towards the future well-being of the individual and the community?

These are some of the unanswered questions that many nations are reluctant to ask or have no say but to just jump on to the bandwagon and leave their fate to the directions the winds of change would lead them to. The aim of this paper is to interview a leader of an indigenous group of aborigines in order to:

- a) ascertain **what** ignites and propels the person to learn
- b) find out **how** the person learns
- c) know **why** the learning is sought
- d) seek **where** the learning takes place
- e) know **when** the learning is initiated

The objectives would proceed to identify the issues, assumptions and illuminate the need that to pursue life-long learning is imperative to make the Malaysian economic more viable, vibrant and competitive so as to move forward and etch a niche in the region and the world at large.

## 2. Literature Review

### 2.1. Social Learning Theory

The social learning theory of Bandura emphasizes the importance of observing and modeling the behaviors, attitudes, and emotional reactions of others. Bandura (1977) elucidates: "Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do.

Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action". Social learning theory explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, an environmental influences.

The component processes underlying observational learning are:

- a) Attention, including modeled events (distinctiveness, affective valence, complexity, prevalence, functional value) and observer characteristics (sensory capacities, arousal level, perceptual set, past reinforcement),
- b) Retention, including symbolic coding, cognitive organization, symbolic rehearsal, motor rehearsal),
- c) Motor Reproduction, including physical capabilities, self-observation of reproduction, accuracy of feedback, and
- d) Motivation, including external, vicarious and self reinforcement.

As a result it encompasses attention, memory and motivation, social learning theory spans both cognitive and behavioral frameworks. Bandura's theory improves upon the strictly behavioral interpretation of modeling provided by Miller & Dollard (1941). (Table 1).

Table 1.

	NEED LEVEL	DESCRIPTION
Highest-Level Needs  ↑	Self-actualization needs	The needs to realize one's full potential as a human being.
	Esteem needs	The needs to feel good about oneself and one's capabilities, to be respected by others, and to receive recognition and appreciation.
	Belongingness needs	Needs for social interaction, friendship, affection, and love.
	Safety needs	Needs for security, stability, and safe environment.
Lowest-Level Needs (most basic or compelling)	Physiological needs	Basic needs for things such as food, water, and shelter that must be met in order for an individual to survive.



Abraham Maslow, a psychologist, proposed that human beings have five universal needs that they seek to satisfy: physiological needs, safety needs, belongingness needs, esteem needs, and self-actualization needs. Maslow proposed that these needs can be arranged in a hierarchy of importance, with the most basic or compelling needs – physiological and safety needs – at the bottom. These basic needs must be satisfied before an individual seeks to satisfy needs higher up the hierarchy. Maslow argued that once a need is satisfied, it is no longer a source of motivation.

Based on Knowles, Andragogy, is premised on at least four centralized assumptions pertaining to the characteristics of adult learners that are different from the assumptions about child learners on which traditional pedagogy is based. A fifth assumption was adopted later.

#### 1. Self-concept:

As a person matures, his self- concept moves from one of being a dependent personality towards one of being a self-directed human being.

#### 2. Experience:

As a person matures he accumulates a growing reservoir of experience that becomes an increasing resource or learning.

#### 3. Readiness To learn:

As a person matures his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles.

#### 4. Orientation To learning:

As a person matures, his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from one of subject- centredness to one of problem-centredness.

#### 5. Motivation to learn:

As a person matures the motivation to learn is internal. (Knowles 1984:12).

### 3. Profile

The interviewee hails from the Temuan Clan, an aborigine group of indigenous people, in Malaysia.

Name: Mr YC (Tok Batin/Leader).

Age: 92 years

Sex: Male.

Address : Bentong, Pahang.

Employment : Self- employed.

Status: Married

No. of Children: 1 (deceased) with 5 grandchildren and 79 adopted children and grandchildren.

Academic Qualifications : Nil, Education: Informal (incidental).

### 4. Findings

The trips to Bentong was an eye-opener to the researcher ,who himself was the instrument, and worked at getting the respondent to freely express his thoughts around the Principles of Adult Learning. After the initial salutations and polite introduction by our guide En. M.A (a representative for Orang Asli affairs) a cordial relationship was established between the researcher and the respondent. (Table 2).

Table 2.

NO	QUESTIONS AND ANSWERS	THEMES
1.	<p>Q: Tok Batin , did you go to a school?</p> <p>A: Never. There was no school in those days. Actually, we were once upon a time residing at Bukit Tinggi but the government came and bought our land for RM25,000.00. Then my community moved to Janda Baik.</p> <p>Q: Were you instrumental in naming this place?</p> <p>A: No, of course not. As the story goes, there was once this British Resident in Bentong whose wife was plagued by a terrible skin disease. It was so disgusting that he invariably divorced her. The poor lady was left to fend for herself in the jungle. Many years passed by and one day they</p>	<p><b>What He learned</b></p> <p>That there is a higher local authority.</p> <p>That the country was occupied and ruled by the British</p>

	<p>paths crossed. The officer was shocked to see a younger version of his wife and this time she had a flawless complexion. Gone was the disease and he quickly remarried her.</p> <p>Thus the name 'Janda Baik' (the divorcee has been healed!)</p> <p>Q: Tok Batin, I admire your ability to remember all these details so vividly.</p> <p>A: I take herbs that have kept me healthy and strong all these years.</p> <p>Q: What is your main preoccupation?</p> <p>A: I have ventured into the jungle all my life and the jungle is my source of livelihood. My survival hinges on the food that the jungle provides me.</p> <p>Q: What has the jungle taught you?</p> <p>A: I have picked up the basic rudiments of gathering valuable herbs from the jungle, brewed a concoction to heal many modern afflictions of the common people in my community and from around the country.</p> <p>Q: Did you make a lot of money?</p> <p>A: No, because this is a service I render to mankind. The people who seek for remedies need to pay me only a token fee as appreciation. This is the unwritten understanding from my forefathers and the spirits that teach us the secrets of jungle knowledge.</p>	<p>The jungle was his source of survival.</p> <p>He learned to make traditional herbs. That herbs could be commercialized.</p> <p>The knowledge of using herbs should not be abused.</p> <p>Greed was not right.</p> <p>Respect for elders and the ruling spirits of the jungle.</p>
2.	<p>Q: When did you begin to learn all these?</p> <p>A: At the age of 18 years old. This is the period that a person in my community is considered to be an adult and is ripe to marry and raise a family.</p> <p>Q: Was there any specific period or special form of instructions that you had to undergo in the learning of survival in the jungle?</p> <p>A: No. Even before I was 18 I often follow my father, grandfather and other adults of my community into the jungle to look for fruits, roots and to capture wild animals.</p> <p>Q: Were you allowed to use any weapons?</p> <p>A: Yes, crude spears and wooden clubs. I learned how to use the blowpipe when I was about 12 years old but always under the eagle eyes of my father.</p> <p>Q: When did you venture into the jungle on your own?</p> <p>A: When I got married and had to fend for my family.</p>	<p><b>When He Learned.</b></p> <p>The age of maturity in the Orang Asli community</p> <p>Incidental learning took place before the age of adulthood.</p> <p>When he learned to use the blowpipe.</p> <p>Self-directed learning began upon marriage</p>
3.	<p>Q: Were you taught the theories of hunting and collecting fruit?</p> <p>A: Not really. I picked a lot of valuable tips when the older generations gather around a campfire to drink a specially-brewed tea and talked about their adventures in the jungle.</p> <p>Q: Where was your 'school'?</p> <p>A: The jungle, home and environment.</p>	<p><b>Where he learned.</b></p> <p>Informal gatherings of the adults after a trip into the jungle. (By word of mouth)</p> <p>School was the jungle, home and environment.</p>
4.	<p>Q: Tok Batin, how did you learn all the things you know?</p> <p>A: I learned by listening, observing, and doing.</p> <p>Q: What about from tasting, experiencing etc.?</p> <p>A: Yes, of course.</p> <p>Q: Did you write all these things in a book?</p> <p>A: (Gives a low chuckle) No, everything is stored in my memory.</p>	<p><b>How He Learned</b></p> <p>By using all his senses.</p>

	<p>Q: Who is your greatest teacher?</p> <p>A: My grandfather. It was from him that I learned about 'Tongkat Ali' and 'Kacip Fatimah'.</p> <p>Q: How did you learn this?</p> <p>A: By watching him closely. I had this very strong urge in me to want to know the secrets of 'manhood'. You see I had only one child while my father and grandfather had many wives and children. They were very 'subur' (virile).</p> <p>Q: Tok Batin. Did you any encounter any barriers in your quest for knowledge?</p> <p>A: Yes. Sometimes we would be so engrossed picking herbs and fruit when suddenly we would come across a herd of elephants, tigers, wild boars and even snakes. We just leave and run for dear life.</p>	<p>By observation.</p> <p>Intrinsic motivation</p> <p>Experience</p> <p>Barriers of learning</p>
5.	<p>Q: Why did you want to learn all these?</p> <p>A: I was very interested in these things mainly for survival. Besides that, I wanted to be a role-model for my community.</p> <p>Instinctively, I felt that all these knowledge will give me the power when I took over from my father the post of 'Tok Batin'.</p> <p>Q: Besides that why did you want to learn?</p> <p>A: I was curious and interested in traditional medicine. I also wanted to earn a living and to upkeep my family.</p>	<p><b>Why He Learned.</b></p> <p>Role-model</p> <p>Leadership</p> <p>Innate interest</p>

## 5. Analysis and Conclusions

This group of aborigines was sheltered from the onslaught of economic woes of the rest of the world because they were unfazed by the goings-on in the nearby village that was a contrast to their way of life-style.

They clung on to traditional method of survival and refused to change to the signs of the times. There was a strong clannish influence within the clan. The in-breeding nature of the group retarded the development of the genes of the Temuan people. The income of the people was mainly derived from the jungle.

The learning was mainly central to their needs. The motivational factors were intrinsic and instinct driven.

Tok Batin took full responsibility of his learning and was primarily instrumental for his vast knowledge of the jungle and what it could provide for his subsistence.

Although their thinking pattern had changed over time, it was albeit slow. Their primitive nature of life-style was still predominant.

According to Clark (1993 b) transformational learning shapes people; they are different afterward, in ways both they and others can recognize." In Tok Batin this had rung true because of the cognitive processes of learning, the mental construct of experience, inner meaning and reflection.

Every minute detail that Tok Batin shared was unique. He had an elephant's memory and could remember almost everything that had transpired in his lifetime.

Tok Batin and the Temuan people can only change if the desire were to come from them (Freire, 1970).

The 'teachable moment' as termed by Havighurst (1972), emerged in Tok Batin's life as when he matured as an adult, married, started a family and assumed the post of a leader of his community. These developmental tasks were viewed by Knowles (1980) as producing a 'readiness to learn'.

The rich, colourful life led by Tok Batin is indeed a notable factor differentiating formal, non-formal and informal learning.

Kidd (1973) states that "Adults have more experiences, adults have different kinds of experiences, and adults' experiences are organized differently. The respondents knowledge of sex, its implications, shortcomings, strengths and weaknesses had given rise to his yearn to help the community with his own recipe of the famous Malaysia 'Tongkat Ali' a herbal variant of the Viagra. The 'Kacip Fatimah' is another potent formula for sexual dysfunctional disorders among the women.

Tok Batin is well-known and his vast and in-depth knowledge and rich experience is a prime assumption “that can arguably lay claim to be viewed as a ‘given’ in the literature of adult learning” (Brookfield, 1986).

Knowles. (1980) terms it as a “growing reservoir of experience” that performs as “a rich resource of learning”. In the same context it has established and enhance the identity of Tok Batin as a community leader and a solutions provider to all those who suffer from erectile dysfunction. Truly “adults derive their self-identity from their experience... and because adults define themselves largely by their experiences, they have a deep investment in its value (Knowles, 1980, p.44).

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## The Skills of Teacher's Questioning in English Classes

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### Abstract

English is a main subject in Chinese English classes, which requires plenty of practice, needs cooperation between the teacher and students in class to jointly fulfill the verbal communication and the teaching-learning procedure. Classroom questioning, the skill of the elicitation method of teaching that is student-oriented and advocated today, gives an incentive to communicative activities in English. Raising questions effectively is a major method of the teacher who guides his students to think actively, fostering students' ability of analysis and creation. It is also an essential way for the teacher to output information and obtain feedback, and an important channel to exchange ideas between the teacher and students. Therefore, the teacher must pay great attention to the skill of asking questions in English class. Each question must be presented to accomplish the teaching objective and task. Only in this way may the English teachers ask question effectively and improve the skill of questioning so as to make contribution to our Chinese English education.

To begin with some elemental definitions, this paper discusses some basic knowledge of questions, and then explores the skill of questioning in English class about the preparing, designing, controlling and evaluating of questioning. Finally the benefit of the skill is studied with abundant teaching cases. The paper analyzes tentative in English class by integrating theory with practice. Thus, the skills of questioning are further understood in English classes.

**Keywords:** English teaching, Questioning, Skills, Interaction teaching

### 1. Introduction

As the education has already welcomed the 21st century's dawn, we have entered the personal digitization information age, and it has appeared many changes in classroom teaching and in the students' activities since the educational reform. Teaching has become more scientific, interesting and vivid. Teachers' questioning has traditionally been viewed as an important component of teacher talk and the core of effective teaching in classroom context. (Note 1) Asking questions is one of the most common teaching tactics used. Qualitative questions directly influence the classroom activities. Effective questions depend on the using of teachers' skills.

A common problem that EFL (English as a foreign language) teachers are facing is to deal with a passive class, where students are unresponsive and avoid interaction with the teacher. This is especially true when a teacher seeks interaction in a teacher-class dialog, such as asking questions to the class as a whole, expecting at least one student to respond. This can be a frustrating experience for the two sides. Obviously, there will be time when no student can answer a teacher's question. However, students often are reluctant to make response even if they understand the questions, know the answers, and are able to produce the answers. What more, students are rather reluctant to give feedback. The students, as a whole, don't respond voluntarily to the instructor's questions and don't participate in class discussions. Most of the class members sit looking straight ahead using minimal facial expressions, gestures and verbal utterances. Thus the teachers receive little oral feedback. What the teachers want are the students to be more positive and overtly communicative in their feedback.

It is necessary for teachers to understand how the dynamics of classroom communication influence students' perceptions and participation in classroom activities, and then it may enable them to monitor and adjust the patterns of classroom communication in order to create an environment that is conducive to both classroom learning and second language acquisition. Classroom is regarded as a unique communication context. The patterns of classroom communication ultimately determine students' participation in classroom activities by using the language, and the opportunities and efficiency of the target language acquisition. One of the key language teaching methods is to use questioning as a learning tool to promote classroom interaction. Questions are easy to "trigger" thinking, ignite inquiry

and establish dialogic relationships. However, it is important to know that not all questions achieve these.

Being a teacher, have you ever thought about the questions you ask your students? How do your teacher-student interactions change depending on the questions you ask? What kind of questions and structures will get the best results from your students?

Questioning plays an important role in teacher talk which is considered to have a potential effect on learners' comprehension, and which has been hypothesized to be important for Second Language Acquisition (SLA). (Note 2) Certain skills are involved in the questioning process. What kind of questioning skills to choose is totally different to individual teachers? Teachers' personal taste, educational beliefs and cultural background may have an impact on their own choice and application of strategies. Nowadays mutual communications between different races and areas are becoming more frequently than ever before.

## **2. Basic Knowledge of Questioning in English Classes**

As one may deduce, questioning is one of the most popular modes of teaching. Classroom questioning is a common and traditional teaching method. (Note 3) Almost all the teachers ask questions in class every day, but most of them are raised casually.

### *2.1 Importance of Questioning in English Classes*

Questioning is a common technique used in English language teaching. The goal is to check if the students understand what they have been taught, and to enhance students' involvement and to promote students' creative thinking in classroom interaction. Questioning has been considered as one of the most essential and important techniques during instructional processes since Socrates times. Questioning takes up most of teacher talk and it has been improved to have a great influence on classroom interaction. Questioning has always been the most ubiquitous phenomenon observed in classroom, as well as one of the most frequently-adopted devices favored by most of the teachers.

Questioning is one kind of teaching active procedure. It is one teaching behavior way through teachers and students' interaction, checking learning, promoting thought, consolidating knowledge, using knowledge, achieving teaching goals. Questioning is usually used as one kind of mutual exchange teaching skills between the teacher and students. It has been used widely in teaching till now.

Classroom questioning is the main part of classroom teaching, and is one of the teaching methods to get the aim of classroom teaching. Teachers want to get students' responses and the first step is to answer questions. Through consistent dialog and communication again, the teacher can get the answers they want and evaluate the students. Questioning, as a general way used by teachers in class, plays an important role in classroom teaching. Questions are used to evaluate students' knowledge and understanding of subject matter. Questions can help to review essential content in a subject. Questions can be used to control the social behavior of students.

### *2.2 Types of Questioning in English Classes*

Much of teachers' talk relates to questions (Note 4) and substantial research exists demonstrating that questions can assist learners in improving their linguistic ability. (Note 5) Chaudron goes further, warning that poor questioning practice can be counter-productive.

Studies of questioning have proposed various categories of questions, and questions can be classified by the type of response they solicit or the purpose they serve. A taxonomy of question types is given as Table 1.

All of these types of questions have their places in the interactive classroom. Among all the types of questions, the distinction between "display" and "referential" question is an important one given the emphasis on meaningful communication in the language classroom. That is, in social communication, people do not generally ask questions to which they already know the answer. Besides the fact that the questioner genuinely wants to know the answer in this case, the meaning of an utterance is also subject to negotiation between the speaker and the hearer. However, this kind of negotiation of meaning is often absent in the classroom. The meaning of the teacher's question and what constitutes an appropriate answer is usually predetermined by the teacher. Therefore, it is necessary to point out the advantages and the disadvantages of display and referential questions. A further classroom research study has been carried out into the use of display and referential questions in language classrooms. And it will be analyzed later in the part of "Skills of Designing for Questioning".

### *2.3 The Role and Function of Question*

Questions in the class serve as different functions. According to Kauchak and Eggert, the functions can be basically grouped into three categories: diagnostic, instructional and motivational, but a single question can usually serve more than one function. As a diagnostic tool, classroom questions allow the teacher to glimpse into the minds of students to find out not only what they know or don't know but also how they think about a topic. (Note 8) The instructional function means that questions can be used as a technique to facilitate learners to learn the new knowledge in the

learning process. As to motivational function, skillful use of questions can effectively involve students in the classroom discourse, encouraging and challenging them to think.

In terms of its functions, there are several detailed reasons why questions are so commonly used in teaching and learning:

- They stimulate and maintain students' interest.
- They encourage students to think and focus on the content of the lesson. They enable a teacher to clarify what a student has said.
- They enable a teacher to elicit a particular structure or vocabulary items.
- They enable teachers to check students' understanding.
- They encourage student participation in a lesson.

Cited from Richards&Lockhart (Note 9)

Besides its various functions, the author wants to draw attention to the point that questions can also contribute a lot to the classroom interaction structure. As a two-way interaction, questioning process has its potential to stimulate students' interaction, thinking and learning. (Note 10) The use of questions can thus change the way of teacher monologue and involve students in the active classroom interaction, which is much helpful to the development of their language competence.

As for teachers' questioning, there are still many problems. First, many high school teachers are not fully aware of the effects of teachers' questioning on classroom interaction. Second, they pay little attention to the strategies of questioning in the classroom interaction. As a result, the teachers' questioning is only a superficial form of classroom activity, lacking in the practical value. It can't really stimulate students' initiatives, nor can it develop their interactive competence.

### **3. Skills of Questioning in English Classes**

The validity of questioning relies on the skills of questioning. Norton (1989) and other researchers proposed some skills according to their research, they are sequence of questions, directing, probing, increasing waiting-time, encouraging student questions and so on. The skills of questioning involved four stages of questioning, they are preparation, asking question, students organizing answer, teacher providing the feedback. So the skills of questioning can divided into four parts: skills of preparing, designing, controlling and evaluating for questioning in English classes.

#### **3.1 Skills of Preparing for Questioning**

Effective questions request teachers make preparation before class. Even if some teachers can ask questions extemporaneously, sometimes the arrangement of questioning lack logic in many situations, or there are problems in language organization and the questions cannot make students use the knowledge or skills to answer as expected. So before asking questions in class, the preparation is required as follows:

##### **3.1.1 Deciding on the Purpose for Questioning**

Teachers ask questions with several goals and aims (Note 11): Different styles of lessons, teaching goals have corresponding questioning strategies. Teacher should take different skills and methods of questioning.

To lead learners in to the topic. (Note 12) The teacher should ask the students some preview questions to introduce the topic before the actual start of the classroom interaction. The purposes of doing so lie in two aspects: one is to arouse the learning interest and curiosity of the students for them to participate in the classroom activities promptly; the other is to direct the students to the actual process of the class interactions without having students feel bored and discouraged. And the students will automatically respond to the teacher with enthusiasm. Thus creating the satisfactory atmosphere in the classroom interaction is very important.

To check or test the learners' ability of understanding, or practical skills of language. (Note 13) In any classroom interaction, the teachers should know beforehand the basic abilities of the learners or the students to make their teaching more effective. The questions should be the basic facts of the reading materials or the general development of the stories. By these questions, the teacher will know how much and how well the students have grasped the reading materials and how well they can do in the classroom interaction. And this also gives an idea to the students how they should do in the classroom interaction.

In all, with the goals in mind, teachers can predetermine the types of questions they are going to ask. And the goals of teachers' questioning will affect some other aspects of questioning skills, including question designing, question controlling and handling students' responses.

### 3.1.2 Selecting Content for Questioning

Teacher's questions give guidance to emphasis of students' study. It is very important for teachers to choose key contents to design questions. On the contrary, the questioning based on non-key contents will confuse students.

In classroom language teaching, students' learning is mainly based on teachers questioning, so the content teachers choose to question is quite important. This practice will lead the students to see the content that teachers view as important. If teachers have difficulties in building questions about all lessons, they should formulate questions prior to class, anticipating the range of students' possible responses. Ask focused, clearly worded questions that give students a clear indication of expectations for responses. (Note 14) Teachers should be sure that the content of the questions requires responses, corresponding with the purpose of the question. Do not ask students to name an example when what the teacher really wants is an explanation of an example. It may be a problem that the teacher is unsatisfied with students' responses. Analyze the questions and determine the kinds and levels of your questions. Ask questions which conform to the students' development level. If students are not knowledgeable in the content, teachers ask concrete level questions rather than abstract level questions.

### 3.1.3 Phrasing the Questions

The answer to questions should be more than just Yes/No. Questions should be clear and the students should easily be able to see what you want for a response. Do not confuse the students. Ask questions with understandable vocabulary. If students are unfamiliar with the terms that you use, it is unlikely that they will give you back what you are looking for. Use familiar terminology when phrasing questions. Be sure the questions you ask are clear in your own mind, and think through what you want from the students before you ask the questions. The questions teachers ask should be those that solicit student responses and provide instructional cues that convey the content to be learned or provide directions toward the content to be learned in a classroom setting. Questions are also used to help students know what they are to do and how they are to do it. Questioning should be challenging and interesting. It can stimulate the pursuit of knowledge and encourage passive students to get involved in. Answering questions should be brief, and try to avoid answering yes or no. Good question can stimulate students to discuss and think. Do not raise general questions, such as:

What about foreign affairs?

What did we say about chemical bending?

### 3.1.4 Anticipating Problems

The teacher can know the learners' inherent knowledge by asking them two kinds of questions: the one-word answer question and multi-answer question. (Note 12) The first question will show whether the students have grasped the knowledge. And the second question will show how well the learners can make use of the knowledge that they have grasped, and to what degree the learners can demonstrate their ability in communicating with others. By comparison, the second question appears more conducive to classroom interaction than in the first one. Therefore, when the teacher aims at eliciting information from students, they had better ask the second kind of questions. Teachers should predict the students' possible answers, and prepare to give some guidance to the questions. And the teacher should prepare for the situation where students cannot give the answer and students refuse to answer questions and so on.

## 3.2 Skills of Designing for Questioning

Compared with question planning, question designing is more closely connected with questioning skills and techniques. It refers to choosing the proper ways of asking questions and selecting the types of questions. Questioning designing strategy refers to methods and skills teachers choose to raise appropriate questions. In this part, the methods and skills include simplifying, moderating, asking thought-provoking questions, asking challenging questions, asking follow-up questions, asking questions relevant to students, and asking divergent questions.

### 3.2.1 Increasing the Number of Referential Questions

Referential questions are those questions for which the answer is not already known by the teacher. Such questions may require interpretations and judgments on the part of the "answerer". Display questions refer to those questions for which the questioner knows the answer beforehand; such questions are usually asked for comprehension checks, confirmation check, or clarification requests. It was further observed that referential questions produced more classroom interaction. Swain argues that output may be an important factor in successful second language acquisition. She suggests that output creates the necessity for the learner to perform a syntactic analysis of the language. She further notes that comprehending the input or getting the message is possible without such an analysis. Producing one's own messages, on the other hand, it may force the learner to pay attention to the means of expression to successfully convey his/her intended meaning. If it is true that such questions increase the amount of learner output, and if output leads to better learning, then questions can be an important tool in the language classroom, especially in those EFL contexts where the classroom provides the only opportunity to produce the target language. It was inferred from the obtained data that display questions require short answers containing small pieces of information, such as part of speech, word stress,



intonation, antonyms and synonyms, word pronunciation and meaning, comprehension checks, etc. Brock and Long and Sato have reported that classroom interaction was characterized by the use of display questions. (Note 15) However, it seems that the use of display questions can encourage language learners, especially beginners, to get interested. It may also help teachers provide comprehensible input for learners. Referential questions, typical of content classrooms and high proficiency language classrooms, and usually requiring long and syntactically complex answers contain, in fact, important points, e.g. interpretation, elaboration, giving opinions, etc.

So, it would be dangerous to generalize that referential questions are more useful for language teaming or display ones are useless. Each context requires an appropriate strategy for itself. It is important for teachers to adjust their teaching style to learners' strategies.

### 3.2.2 Asking Questions Related to Students

There are always silent students in the class, and the silent students will always be there in the class. They should be encouraged to participate in the classroom activities or the classroom interactions. In order to get the silent students to be active in the class interactions, the teachers should develop some methods to arouse the learning interest of the silent students. The teacher should begin by asking some tentative questions to arouse the silent students instead of asking them what their opinions can be about the reading materials or their personal ideas about the phenomenon in the world of practice. And the students can participate in the interactions actively accordingly. And the question must related to students or the information known by students, if not, they will not interested in it or participate in it.

### 3.3 Skills of Controlling for Questioning

Since the focus of interactive teaching is interaction between teachers and students, in the course of teachers' questioning and students' answering, more efforts should be made on the controlling practice to enhance the interactive effect in language teaching. Some strategies employed by teachers are like these: sequencing, that is, arrange the questions from easy ones to more difficult; nominating after the question; nominating non-volunteers; question redirecting and probing; increasing wait-time and directing attention to all and so on. In this paper a few aspects are emphasized as follows:

#### 3.3.1 Nominating after the Question

The way of questioning is asking questions first, giving students time to think and then ask nominating student to answer. If you nominate students before you asking question, there will be just the nominated student thinking this question, while the other students considered not involved.

#### 3.3.2 Nominating Non-volunteers

Students become distracted easily or do something by their own. When teachers ask questions, they can ask silent students deliberately, it can let students pay attention to your class. Non- volunteers will think they are taken seriously when teachers ask a question to them. And they will feel very well and they will participate in classroom instructions after that, and they will feel spunky.

#### 3.3.3 Probing

Probing is another important questioning skill. (Note 16) Probes are based on student responses. The initial response of students may be superficial. The instructor needs to use a questioning strategy called probing to make students explore initial comments. Probes are useful in getting students more involved in critical analysis of their own and other students' ideas. If the student does not provide a complete answer, he or she may know a partial answer. In some cases, even though the question is perfectly clear to the teacher; it might need to be restated or broken down into smaller pieces. The teacher should not accept "I don't know" as the final response.

Probing is the use of further questions to force the student to put together his or her partial knowledge into a more complete answer. Probing often involves the use of follow-on or leading questions to help the students answer the initial question or to provide a more complete answer. Probes can be used in different ways. Probes can be used to:

- Analyze a student's statement, make a student aware of underlying assumptions, or justify or evaluate a statement.
- Help students deduce relationships. Instructors may ask student to judge the implications of their statements or to compare and contrast concepts.

#### 3.3.4 Increasing Wait-time

An important dimension of teacher's questioning skills is halting time, or wait time, that is, the length of time the teacher waits after asking the question before calling on a student to answer it, rephrasing the question., directing the question to another student, or giving the answer. (Note 17) That is called wait time, and it is amazing how few teachers use this important questioning skill. In fact, when we consider the steps that are involved for a second language speaker in answering a question, an argument can be made that he needs an even longer wait time than a native speaker. In fact, it seems clear that if teachers asked questions, which they did not already know the answers, they would find it natural

to wait for responses, and they would need time to think about the responses before reacting to them.

It takes time to answer questions, a lot of studies shown in their investigations that students were rarely given sufficient time to formulate their answers before the teacher repeated, rephrased, or went on to ask another student the question. Rowe found that teachers, on average, waited less than a second before calling a student to respond, and that only a further second was then allowed for the student to answer before the teacher intervened, either supplying the required response themselves, rephrasing the question, or calling on some other student to respond. (Note 18) In short, few teachers give their students enough wait-time to think about the questions or to form meaningful answers. The average wait time, when the teacher waits at all after a question, is less than a second. There should be at least 2 to 4 seconds after any question before any student is called on to answer it. Wait time allows the reflective student a chance to respond and well as the impulsive student or one who instantly knew the answer. If no one wants to tackle the question after 15 seconds, leave it unanswered. Tell the students to think about the answer and you will raise the question again at the beginning of the next class period.

### 3.3.5 Directing Attention to All

In actual classroom interaction, the teacher will automatically cover high achievers, focus on the students in the first few rows and choose the selected few students to answer questions. And the teacher may not sometimes realize this when asking students questions. All these will result in the improper distribution of the questions to the students.

The solution to the imbalanced distribution of the students is to keep the teacher aware of the whole class in teaching activities, and the teacher should cover all the students in the classroom while focusing on high-achievers and low-achievers at the same time, thus arousing the leaning interest of all the students. And the teacher will pay attention to the whole class when asking the whole class the questions, not only high-achievers and low-achievers but also students of middle levels in the class. On the other hand, the teacher will generally ask the students in the first rows and the selected few students questions in the class. Distributing questions in this way also results in negative effects on students in that some students feel that they are neglected, thus decreases their learning interest in classroom activities.

There are generally two approaches to these problems in class activities. One is that the teacher should pay attention to the whole class when asking students questions. The other is that the teacher should ask questions to the whole class from simple to complicated degrees instead of focusing on the few students with difficult questions. That is, the teacher should get to know well about the personalities and individual needs of their students so that they can treat them respectively.

Distribute questions among students so that all have a chance to respond. Call on non-volunteers; students may have become dependent upon you to provide answers. Avoid depending upon the same few students to answer questions all the time. Their responses may not necessarily be representative of the larger group. Tactfully thank them for their continuous contributions, and ask for other volunteers. Call upon non-volunteers in a friendly non-threatening manner. Develop a questioning strategy: if you ask questions, do not allow only a few students to monopolize the responding. Opportunity to respond should be available to all. Note that teachers are likely to call on the same students, those who have the right answers to get the reinforcement of a correct answer. Engage many students; does not allow a minority of more confident or impulsive students to dominate the class. Present challenging and stimulating questions to all students, not just those perceived as having higher ability or knowledge. You may need to develop a plan if you want all students to participate.

### 3.4 Skills of Evaluating for Questioning

An important aspect of classroom interaction is the manner in which the instructor handles student responses. When an instructor asks a question, student can either respond, or give no response. The ways instructors handle students' responses are closely connected with the effect of the interaction. Teachers' feedback is very important. The feedback consists of positive feedback and negative feedback. Positive feedback is more helpful than negative feedback to improve the students' behavior and study motivation. Moreover, students are involved in the positive feedback of questions actively.

#### 3.4.1 Praising

Affective Cognitive feedback gives students information about the questions they use, while affective feedback serves as emotional support which facilitates communication to continue. It is beneficial to learners' language development. Accompanied by positive affective feedback that is neither too discouraging to proceed nor so encouraging that learners see no need to change their output. To be exact, with the optimal affective feedback, positive feedback in the cognitive domain will serve as reinforcement of the forms used and neutral or negative feedback in the cognitive domain will encourage students to try again. Therefore, teachers must provide learners with cognitive feedback as well as affective support.

### 3.4.2 Encouraging

In language classrooms, feedback is often directed towards the accuracy of what a student says. A number of issues are involved in error feedback. These include decisions about (1) whether learner errors should be corrected, (2) which kinds of learner errors should be corrected, and (3) how learner errors should be corrected. Even when students give a complete wrong answer, teacher still should give them enough encouragement.

For instance:

- Could you please make a further explanation?
- How do you support your ideas?
- Whether your answer is right or wrong, it doesn't matter. Please grasp the opportunity to practice your oral English.
- You've made great progress in pronunciation.

When students cannot give the correct answer to the question, teacher can ask another easier question as a cue to help students to obtain the correct answer. It can encourage them to answer questions.

### 3.4.3 Quoting

Quoting is one kind of indirect praises. Corrective feedback is a term that is often used indiscriminately with feedback in literature; there are nevertheless shades of meaning between two terminologies. Precisely speaking, corrective feedback is an extended form of feedback encompassing feedback and additional demonstrations or explanations intended to remedy particular problems in student learning. Sometimes it is also known as error correction from the perspective of Error Analysis. Teacher can quote students' correct answer when he gives students the standard answer. It can encourage more than praised or encouraged words.

## 4. Conclusion

English teaching is a process that the teacher interacts with students. Asking and answering are the primary ways to communicate with each other, so questioning plays a central role in English class. It urges students to think actively and develops their creative thinking. Of course, there is not a rigid method of questioning. In this paper the author discussed the skills of questioning and the benefit of skills of questioning in English class with some examples on the base of analyzing some basic knowledge of questions. It will contribute to the English teachers. However, putting the skill into practice should not be the final aim of the English teacher. They should devise questions carefully, considering the specific situations and using them correctly in class. Finally, developing feasible and rational questioning skills and teaching skills can meet the need of the country. As long as they do like that, our society will develop rapidly and education will become more and more advanced.

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## Notes

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Table 1. A Taxonomy of Question Types

Question types	Explanation	Noted by
Closed	Have a short, fixed answer, for example “What day is it today?”	Barnes
Open	Typically require a longer, less limited response, for example “What did you do yesterday?”	
Display	Those to which the questioner already knows the answer and is merely testing the respondent’s knowledge or understanding.	Brown
Referential	Those to which the questioner does not know the answer and is genuinely seeking information.	
Procedural	Relate to classroom, lesson and student control processes such as “Who is absent today?”	Richards and Lockhart
Convergent	Often have short answers which “encourage similar student responses” and require low level thought processing, for example “Can you ski?” “Yes, I can.” “No, I can’t.”	
Divergent	Necessitate more wide-ranging, long responses with higher level thought processing, for example “Why is the Beatle music so popular in Japan?”	
Rhetorical	Those which the questioner answers him/herself.	
Interaction	Comprehension checks: “elicits assurance from the listener that a message has been received correctly.”	Chaudr
	Confirmation checks: assume a positive response and “allow the speaker to correctly interpret reactions by the listener.”	
	Clarification requests: similar to confirmation requests but with a more open answer.	
Instructional	Any question presented in the classroom presupposes that the question is intended to solicit learner production.	Van Lie
Conversational	Any question asked outside the classroom	

Cited by Chaudron; (Note 6) Cited by Nunan (Note 7)



## The Sexism in English and Its Rebuilding

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### Abstract

Through lots of examples, the passage exhibits the phenomenon of sexism in English and its reason, its main display and its rebuilding, and explains the importance of eliminating it.

**Keywords:** Sexism, Reason, Display, Rebuilding

Language is the reflection of every part of society, no exception for English. Setting up the brand of equality and democracy, the western world actually exists a phenomenon called sexism as a well-known tradition. What on earth is Sexism? Here is the definition from *American Tradition Dictionary* — The discrimination that one group to another, especially male to female. Therefore, owing to language habits, sexism usually refers to discrimination that language used for women. Furthermore, it indicates that the cultural attitude of the person who is writing or speaking is stressing men and displaying women. This paper attempts to analyze sexism in English through reason, display and rebuilding, ect.

### 1. The reason why sexism appears

#### 1.1 The influence of history development

From ancient time on, the ruling position in western society is almost held by male persons. From the Emperor Caesar invading Britain, to Duke William conquering Normandy, until British royal family later, we could nearly find ruling females. After climbing to the high position, men began to look down upon women. This attitude could influence the ideology of the whole society. So lots of men-central terms with sexist's color came into being during the stage of English forming. In the 14<sup>th</sup> century, Chaucer, who is conceived as the Father of English language, created a great deal of terms, later, Milton and Shakespeare competitively invented new words. They contributed a lot to English, at the same time, the negative side they brought can't be ignored. These famous male's contribution to English who were living in male's society, accelerated the extensive transmission of the language of sexism.

#### 1.2 The influence of cultural ideology

Cultural ideology refers to the attitude which is closely connected with cultural value. The transmission of cultural ideology will have reaction to the bias and discrimination to females.

Myth is a style of culture, the image of female can help us to understand the sexism in language. In many myths all over the world, men are always called the model of races, but women are always the changed type from men. Although they sometimes are believed as the god of richness or the mother of lands, the imputation of the source of sins couldn't be got rid of. The leader god in Greek myth is Zeus, in Roman, it's Jupiter. As the headmaster of everything, they are surely men. On the contrary, the female god Pandora can only bring endless sins, disasters and unhappiness to the world. That is the allusion named Pandora's box.

#### 1.3 The influence of social prejudice and traditional view

From the influence of social crowd -- parents, relatives, friends, etc. and the transmission of public media -- broadcasting, movie, TV, newspaper, etc, the view of men being over women will get stronger gradually. People get this view from their close persons. Then in English according to the influence of traditional view, the language sexism to female has changed into a vicious cycle. It's rooted so deeply that couldn't be eliminated in a short time.

### 2. The display of sexism in English

#### 2.1 Regarding male's language as morality and main body

English treats everyone as a male except for special explanation. If somebody's sex is not known, he, his, him can be

used to mention the human being. This is a common rule in English. In many proverbs, man is the general name for human. For example --No man is born wise or good. Though female's proportion in the world is over 50 percent, the using rate of *He* and *She* in documents is 4:1 according to some statistics.

## 2.2 Regarding women as exception

People psychologically conceive that persons who achieve success are certain to be males. Women who get famous are supposed to be exception. They will be advocated by the media unavoidably. Famous women always be added some suffixes showing their different sex from men whenever they're mentioned, but this cannot be found from men.

Some words are about profession, such as doctor, lawyer, reporter, attendant, etc. Although they are natural words, people only connected them with men owing to longtime habits. When women work in these fields, woman, lady, girl, female are added on purpose. Then, woman doctor, lady lawyer, girl reporter, female attendant, etc. come into being.

## 2.3 Positive male's words and negative female's words

The two words *Woman* and *Female* are the most typical examples. *Woman* also means female servants, and *female* also represents being despised. The derived words of *woman* are more ridiculous. *Woamnish* takes the place of a weak man as a woman, *womenize* refers to a flirting man. A vulgar man is described by a root from women! On the contrary, some words about male are positive, meaning strength and courage, such as *manly*, *virile*, *masculine*, etc.. Some terms only about female are negative more or less. For example, *madam* also means gossiping woman, flirting woman or procuress; *starlet* means female star; *witch* is connected with female demon. In correspondence, *sir*, *star*, and *wizard* are all positive, even *wizard* also means a magic and skillful man.

## 2.4 Female terms are mostly marked

Most male words have no any fixed ending, however, most female words are often added an bound morpheme to the corresponded male words to become marked terms. For example,

<i>Male</i>	<i>Female</i>
actor	actress
author	authoress
god	goddess
hero	heroine
host	hostess
prince	princess

## 2.5 Male is followed by female when appears at the same time

Owing to the longtime habits, the order of the two sexes obeys a rule mostly that men leads women. The following examples are common, such as Mr. and Mrs. , his and hers, boys and girls, men and women, prince and princess, brothers and sisters, and host and hostess, and so on. If the order is reversed, almost all are supposed to feel uncomfortable.

## 3. The rebuilding of sexism in English

The rebuilding of female terms generally includes the followings,

### 3.1 Change positive endings into neutral, invent negative endings in correspondence with positive, and turn original positive endings into marked terms only for men.

<i>positive endings</i>	<i>negative endings</i>	<i>neutral</i>
chairman	chairwoman	chairperson
congressman	congresswoman	congressone
foreman	forewoman	supevisor
postman	postwoman	postworker
mankind	womankind	people

### 3.2 Take the places of the terms and phrases including man as much as possible.

*man*: human being, human, person, individual

*mankind, man*: human beings, humans, humankind, humanity

*manmade*: synthetic, artificial

*manpower*: workforce, staff, personnel, labour

### 3.3 Select neutral words instead of suffixes of females.

<i>suffixes of females</i>	<i>neutral</i>
waitress	server
stewardesses	flight attendants
aviatrix	aviator
poetess	poet
usherette	usher

### 3.4 Avoid using the words showing little respect to women

Don't use these words such as the distaff or the fair/soft/weak/second sex, and don't call your wife as a little woman.

### 3.5 Use parallelism when mention males and females at the same time.

<i>original</i>	<i>rebuilt</i>
man and wife	husband and wife
men and girls	men and women /boys and girls

### 3.6 About the pronoun of the third singular—He

#### 3.6.1 Use plural

When bathing a baby, never leave him unattended. ----- When bathing a baby, never leave them unattended.

#### 3.6.2 Rebuild the original by We/us/our

From each according to his abilities, to each according to his needs. ---- From each of us according to his abilities, to each according to his needs.

#### 3.6.3 Change into the second person

No man knows his true character until he has run out of gas, purchased something on the installment plan and raised an adolescent.----- You don't know what your true character is until you have run out of gas, purchased something on the installment plan and raised an adolescent.

#### 3.6.2 Change into the passive voice

One who, when he has the choice of two evils, chooses both.---- One who, when given the choice of two evils, chooses both.

## 4. Conclusion

The forming of sexism in English language is closely connected with history, culture, education and custom, etc. , so it's impossible to eliminate or rebuild them in such a short time. It's a special responsibility for English learners and workers, for more persons' joining this heavy work can make the message of English more precise and clear, and the words more popular and elegant. The more vital thing is it will promote social development, sex equality, fair competition, dissolved social crisis and contradiction.

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## Motivating Factors Associated with Adult Participation in Distance Learning Program

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### Abstract

Gaining and understanding of the motivation which drives adults to commit to, and complete, higher education through distance learning is an important requirement for the design and the delivery of adult programs for educational institutions in Malaysia and abroad. Through an in-depth empirical examination, this paper provides the insight of one individual and his commitment to, and motivation to complete a Masters program through distance learning. The paper supports the

empirical findings with a theoretical overview, discussing contemporary research in the field of adult education. Various factors that relate to adult participation in distance learning program are discussed in this paper.

**Keywords:** Adult participation, Distance learning program, Motivating factors, Adult learning

## 1. Introduction

In the recent years, more adults are enrolling in graduate programs in local Malaysian universities. Adult education is growing at a fast pace with the introduction of several online and distance education programs and also universities such as Universiti Tun Abdul Razak (UNITAR), Open University of Malaysia (OUM) and recently Wawasan Open University (WOU). Adult education is the practice of learning, teaching and educating adults, which often happens through extension or continuing education.

One of the adult learning programs is distance education. In order to study the motivational factors in adult participations in distance education, there is a need for a systematic inquiry to explore distance student's participation and their personal experiences in the process of learning. It is important to know: what they learn, how they learn, why they learn, where they learn and also when they learn. An understanding of these processes of selection, especially with regard to 'why and how' adult students participate in their distance learning programs, is of great scholastic interest both locally and globally. It is also imperative to identify the factors that motivate these students to engage in distance learning programs. This study is based on an interview with an adult learner and will examine the various factors that contribute to his participation in such learning programs. Overall, the study will examine the learning experiences that the adult student has undertaken throughout his adult learning activities especially with regard to distance learning program.

## 2. Self-directed learning and adult education

Caffarella (1993) has commented that, self-directed learning has contributed to our understanding of learning by identifying it as an important form of adult learning. She states that this style of learning can provide insights into the very process of learning itself. Self-directed learning does not necessarily mean solitary learning or learning in isolation. Rather, the adults in this type of learning seek assistance in the form of human and material resources like friends, colleagues, experts in the content areas, books, magazines, journals and audio-visual materials. By considering the nature of distance learning, participation is a necessary feature of self-directed learning. This kind of learning mode has also contributed to the identification and characteristics of adult learners.

The central assumption is that learning in adulthood means growth in self-direction and autonomy (Knowles, 1970). One of the five major tenets of andragogy is that adults have a deep psychological need to be generally self-directing. The learner characteristics of adults, including those engaged in distance learning has become one of the major goals of their instructional processes, allowing, and in some cases, teaching adults how to take more responsibility and control in the learning process. These two theories are generally emphasized on the adult's life situation – about their learning experiences, roles and responsibilities. Arshad (1993) points out that these theories of adult learning perhaps reveal more about the true and salient characteristics and motives for participation in adult learning or continuing education.

Distance learning involves a positive commitment to the widening of access to education and to the promotion of learner autonomy (Holmberg, 1995). Since adult learners are the fastest growing segment of higher education in Malaysia, especially due to their work and family commitment, increasingly, distance learning programs have seen a tremendous increase in enrolment by the adult learners in the past ten years.

Many studies of motivation, which regard participation in adult education, view it as defined by the goals adult learners hope to reach by means of their participation, such as job advancement, acquisition of new skills and knowledge, or development of new social relationships. The question of participation in adult learning programs by the adults then becomes a matter not of ascertaining what it is that the adults want to learn or what teaching and learning strategies or learning preferences that are most suitable in view of the special characteristics of adult learners, but rather of establishing which factors dispose some people to regard adult education as a good thing, while others to see it as irrelevant to their lives, or boring, or snobbish.

One of the important aspects of adult education is motivation. Lieb (1991) cited six factors serve as sources of motivation for adult learning:

- Social relationships: to make new friends, to meet a need for associations and friendships.
- External expectations: to comply with instructions from someone else; to fulfill the expectations or recommendations of someone with formal authority.
- Social welfare: to improve ability to serve mankind, prepare for service to the community, and improve ability to participate in community work.
- Personal advancement: to achieve higher status in a job, secure professional advancement, and stay abreast of competitors.

- **Escape/Stimulation:** to relieve boredom, provide a break in the routine of home or work, and provide a contrast to other exacting details of life.
- **Cognitive interest:** to learn for the sake of learning, seek knowledge for its own sake, and to satisfy an inquiring mind.

### 3. Adult learning theories: a brief overview

To answer the question of why adults involve themselves in distance learning education compels a need for the understanding of the motivation which drives adults to want to learn. This requires a look into several learning theories namely Andragogy Theory, Characteristics of Adult Learners (CAL) Theory, Margin Theory, and Proficiency Theory. The first two theories, Knowles's Andragogy and Cross's Characteristics of Adult Learners can be categorized as Adult Learner's Characteristics Theories. Knowles's (1970) theory which was also cited by Lieb (1991) based the characteristics of the adult learners, which are as follows:

- Adults are *autonomous* and *self-directed*. They need to be free to direct themselves. Their teachers must actively involve adult participants in the learning process and serve as facilitators for them. Specifically, they must get participants' perspectives about what topics to cover and let them work on projects that reflect their interests. They should allow the participants to assume responsibility for presentations and group leadership. They have to be sure to act as facilitators, guiding participants to their own knowledge rather than supplying them with facts.
- Adults have accumulated a foundation of *life experiences* and *knowledge* that may include work-related activities, family responsibilities, and previous education. They need to connect learning to this knowledge/experience base. To help them do so, they should draw out participants' experience and knowledge which is relevant to the topic. They must relate theories and concepts to the participants and recognize the value of experience in learning.
- Adults are *goal-oriented*. Upon enrolling in a course, they usually know what goal they want to attain. They, therefore, appreciate an educational program that is organized and has clearly defined elements. Instructors must show participants how this class will help them attain their goals. This classification of goals and course objectives must be done early in the course.
- Adults are *relevancy-oriented*. They must see a reason for learning something. Learning has to be applicable to their work or other responsibilities to be of value to them. Therefore, instructors must identify objectives for adult participants before the course begins. This means, also, that theories and concepts must be related to a setting familiar to participants. This need can be fulfilled by letting participants choose projects that reflect their own interests.
- Adults are *practical*, focusing on the aspects of a lesson most useful to them in their work. They may not be interested in knowledge for its own sake. Instructors must tell participants explicitly how the lesson will be useful to them on the job.
- As do all learners, adults need to be shown *respect*. Facilitators must acknowledge the wealth of experiences that adult participants bring to the classroom. These adults should be treated as equals in experience and knowledge and allowed to voice their opinions freely in class.
- Boshier and Collins (1985) suggested that a six-factor model was the most theoretically and psychometrically defensible in understanding the need for adults to become involved in any adult learning programs. According to them, the adult learners were deemed to enroll or participate because of a need for:
  - *Social contact:* these adults want to make and consolidate friendships, to be accepted by others, to gain insight into personal problems, to improve relationships and their social position. They participate because of their need for group activities and congenial friendships.
  - *Social stimulation:* Adults want to get relief from boredom, to overcome the frustration of day-to-day living, to escape intellectual narrowness, and to have a few hours away from other responsibilities. The essence of the factor is the use of adult education as an escape from boredom or frustration.
  - *Professional advancement:* Adults want to secure professional advancement, achieve higher status in their job, or gain knowledge that will help in other courses. They are primarily job oriented.
  - *Community service:* Adult learners want to become more effective citizens, to prepare for community service, to gain insight into human relationships, and to improve their ability to participate in any community work.
  - *External expectations:* The adults are complying with instructions laid down by someone else. They have enrolled on the recommendation of some authority such as an employer, a social worker, a friend, a religious leader or a counselor.
  - *Cognitive interest:* Adults enjoy learning for its own sake. They merely want to "satisfy an enquiring mind" or "seek knowledge for its own sake".

Cross (1981) postulated the CAL theory. This theory was mainly based upon two categories of variables, *personal characteristics* and *situational characteristics*.

The personal characteristics include the psychological/developmental stages. These were presented along a continuum which reflects growth from childhood to adulthood. The situational characteristics on the other hand, focus on variables that are unique to the adult's involvement in learning activities namely, part-time versus full-time versus compulsory participation. According to Cross, adult learning is therefore based on the interactions of these two characteristics. Generally, the theory was considered comprehensive and holistic in explaining what and how adults learn, but the variables were too broadly defined and it has yet to be empirically tested (Merriam & Cafarella, 1991).

Margin theory assumes that the adult's load of life needs to be balanced-up with the adult's power of life. Load of life here represents the adult's development, roles, problems and various other responsibilities. Power of life refers to the knowledge and skills that an individual needs in life. If power of life is greater than load of life, there is a margin in life.

Knox (1986) defines proficiency as the capability to perform satisfactorily if given the opportunity. Thus, performance in all tasks involves some combination of attitude, knowledge and skill. Adult motivation and achievement in both learning activities and life roles depend largely upon the discrepancy between the current and the desired level of proficiency. The purpose of adult learning is therefore to enhance proficiency in order to improve performance.

#### **4. The opportunity to participate in graduate study through distance learning is valued by the adult learner**

Getting acceptance into graduate studies in a public university such as Universiti Putra Malaysia (UPM), regardless of whether the education is by distance or on campus, is an achievement that for many does not come easily. The student we approached, applied for admission into a full-time Master's program, but his application was initially turned down. He therefore reapplied into a distance-learning program and was eventually accepted. He said "when I get this Masters Distance learning program by IDEAL, UPM, I *ambillah* (take)". He was very glad and appreciative of the opportunity extended to him: "*Syukurlah saya dapat* (I thank God that I got this offer)".

##### *4.1 Getting a Higher Education (Degree) is the Main Factor in Participating and Completing the Program*

The respondent was motivated to participate and also to complete the program as scheduled by the university. Although he realized that upon completion, he may be able to get either promoted or find a better job, these all are secondary to him. What was important for him is to get a higher degree. He said "I join this program at the age of 40 for the aim of getting my Masters degree in Human Resource Development and not for getting a promotion or higher position; I just want a Masters degree, that's all". He also said that he loved learning and seeking new knowledge and wanted to improve his knowledge so that he could have a better understanding of his work. He further stresses that "I will work very hard to get this Masters degree for the sake of knowledge and my own personal self-development".

##### *4.2 The Ability to Carry out Self-Directed Learning with the Right Kind of Friends was Important for Success in Distance Learning*

The adult students participating in the distance learning programs must be self-dependent and self-directed. They also need appropriate and constructive social contacts to support their learning engagement. This is supported by the respondent:

I have to work very hard together with my friends especially in the weekends, we always have a discussion among ourselves in order to fully understand the subject content in modules and also the other learning materials that has been given by our lecturers, we can't work in isolation, we need to work together because we need to depend each other.

He adds to this statement by saying: "we need to cooperate and work together especially in doing our given assignments, we have to discuss together, I sometimes don't understand with the subject, so I'll seek help from our discussion group that we have formed earlier. It really helps me a lot".

##### *4.3 Reference Materials and the Assistance of Content Experts are Important in Distance Learning*

The adult student found that the materials provided in the module are not sufficient or comprehensive enough to develop an understanding on their own. He therefore needs to search for other reference materials on his own. He said: "I'm staying in Tawau, Sabah, I came all the way from Sabah to UPM library to find the reference materials, and sometimes I have to go to Kota Kinabalu to look for books and other relevant sources for my assignments, I have to spend a lot of time and money too". He also said, "for statistics course especially, I had to find a tutor to teach me, the subject was too difficult for me, I really find it very hard to understand. Therefore, I have to pay for the tutor for his service. But it was really worth my money, because I managed to get an A grade for that subject".

##### *4.4 Telephone is the Most Effective Means of Communication for Interaction in Distance Learning*

The adult learner in the program lives a long distance away from the other students. However, he frequently needs to communicate with these others in order to understand the subject. He found that the telephone was the best form of communication since it is easy and fast. He said, "I used the telephone a lot and very often. My telephone bill is so high. I usually call my friends to ask for something regarding assignments and also other problems. I sometimes talk very long. I need to talk longer. I can't be stingy. I've to spend money on this". He also said that, "I use to call my lecturer or my

friends to get an immediate response from them. It is very convenient and also very promising too. I find telephone is the easiest way of communicating with others, I find it very helpful”.

#### *4.5 Voluntary Participation and Personal Commitment Helped the Student Go Through Distance Learning*

The adult student in the distance learning graduate program participated on a voluntary basis. This means that he enrolled in distance learning at his own personal expense, paid his own fee and was not sponsored by any party. He was on his own. The student is participating voluntarily through his own motivation to complete the graduate study. He is very committed and determined although he faces many challenges and obstacles in going through the distance learning program especially at the graduate level. The student said:

There were times when I felt like giving up because distance learning entailed a lot of problems. The modules given were not complete and not sufficient and I sometimes feel very inadequate. I feel helpless sometimes, that's where I feel like should get off the course. But when I think about the money that I have invested, I suddenly think twice. I find ways how to solve problems. I told myself that I always want to do this, so I must go on and never give up. I've waited for this golden opportunity in my life. I've invested a big sum of money in this program. This program indeed is a heavy commitment for me. I have to finish with what I've started. This is my goal and also my 'nekad' (wish). So, I went through the program slowly with patience and confidence.

#### *4.6 Moral Support from Spouse and Family Members is Important in Distance Learning*

The interviewed student found that his wife and his family members contributed a lot to his success in distance learning. In the process of carrying out his studies he had to fall back on the support of his wife and his other family members. He said:

My wife was a great help. When I was trying to complete my project paper for instance, she allowed me to work day and night without having to do anything else. She even brought home the office computer for me to use because something was wrong with mine during that time. My wife really helps me a lot to go through this study. She always gives me the support and all the encouragements. I'm really thankful for her. My wife really understands me and takes good care of my children.

### **5. Discussion and conclusion**

Merriam and Cafarella (1993) posit that, the nature of self-directed learning which is a very important feature in distance learning is totally different from campus learning. In distance-learning the students are unable to meet their lecturers or interact with them very often on face-to-face basis. They are not involved in regular classes. They don't have the opportunity to discuss their problems with their lecturers. However, distance-learning students manage to tackle these problems and overcome their grievances and carryout self-directed learning themselves. They take their own responsibility for learning.

It was indicated that this student whom we interviewed engaged in distance learning at a graduate level, he valued the opportunity given to him to further his study, and was motivated by the prospect of getting a higher degree. It is generally recognized that adult learners are seeking some sort of change in their lives. He wanted a Masters degree and if his friends could achieve it, he could too. Rejection by the government sponsored program did not stop him from engaging in another. If such rejection can be said to be “unfair” judgment of the educational system, he has proven that he could make it through if he was given the opportunity.

Support and encouragement from his spouse and other family members were factors of motivation contributing to his personal success. This clearly indicates that the institutional and situational barriers to learning were somehow overcome by this adult learner. Situational barriers like childcare and family matters were alleviated by his wife.

In sum, in the process of adult learning, the student displayed the ability to be self-directed. He planned his discussions very carefully and on his own, he looked for and found assistance from content experts, displaying a high degree of resourcefulness and autonomy in his studies. Although accepting autonomy as an important characteristic of adult learners, Boucouvalas (1988) also argues that autonomy must be helped with interdependence and interconnectedness as necessary attributes of the adult learner. His frequent discussion with the “right kind” of friends, exchange of materials, telephone discussions with lecturers and other fellow students provides evidence that interdependence and interconnectedness are important factors in the completion and success of distance learning studies.

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## The Feasibility of Applying PBL Teaching Method to Surgery Teaching of Chinese Medicine

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### Abstract

The traditional classroom teaching mode is based on the content of the subject, takes the teacher as the center and gives priority to classroom instruction. While PBL (Problem Based Learning) teaching method breaches the traditional mode, combining the basic science with clinical practice and covering the process from discussion to self-study to re-discussion and re-self-study, and students become into the active role of learning under this teaching method,. This research finds that PBL teaching method is welcomed and accepted by most of the students and teachers, and it will improve the abilities such as understanding, comprehensive analysis, diagnostic identification and treatment application. It is feasible to apply PBL method in teaching surgery of Chinese medicine.

**Keywords:** PBL teaching method, Surgery of Chinese medicine, Feasibility study

### 1. The definition of PBL

PBL (Problem Based Learning) is a kind of teaching method in medical science taking the students as the active role and giving priority to integration of basic science and clinical practice (Huang, 2002, p.69-70). This teaching method accords with the characteristics of medical science, emphasizing that the theory should be organically combined with clinical practice and closely correlated to the practical problems. The principle of PBL teaching method is to discuss the problems in groups, take the case history as the lead, problems as the base, students as the main body and teachers as orientation. Every problem is carefully designed, and the contents that should be grasped in the teaching object are exactly arranged in these problems (Ma, 2004, p.71-75).

### 2. The reasons for implementing PBL teaching method

At present, most Chinese medical colleges and universities are still implementing traditional teaching mode. Under this mode, before their clinical practice, the students have systematically and extensively studied the basic and clinical courses in a limited period with a complete knowledge structure under the well arranged course plan. But the surgery of Chinese medicine is based on clinical practice with comprehensive and profound contents, and disadvantages are obvious to adopt the traditional teaching mode. To the contrast, PBL teaching method is a sort of advanced teaching method consistent with the educational objective of quality education advocated in China. The advantages of PBL teaching method can be summarized as that (1) emphasizing the cultivation of students' learning abilities through searching for their wanted information source so as to train their lifelong learning skills;(2) fully exerting students' learning enthusiasms, and encouraging their study on demand ; (3) helping the students to solve the clinical problems and training their self-study skills; (4) strengthening the involvement of various subjects, avoiding unnecessary

repetitions and helping the students to integrate the crossed contents of different subjects; (5) strengthening the relationships among teachers and students and cultivating students' abilities of interpersonal communication and cooperation.

### 3. Research objective

This research adopts questionnaire investigation to evaluate the PBL teaching method and the traditional teaching mode. A certain amount of students were randomly divided into two groups, respectively implementing different teaching modes to evaluate the teaching quality of the two groups. After the implement, the questionnaire investigation was conducted among the teacher and students to evaluate the PBL teaching mode and the traditional teaching mode. This research explores the new teaching mode in order to provide a fresh view and way to the reform of traditional teaching of surgery of Chinese medicine.

### 4. Research method

This research adopts questionnaire investigation to evaluate the PBL teaching method and the traditional teaching mode. A certain amount of students were randomly divided into two groups, respectively implementing different teaching modes to evaluate the teaching quality of the two groups. After the implement, the questionnaire investigation was conducted among the teacher and students to evaluate the PBL teaching mode and the traditional teaching mode.

#### 4.1 Questionnaire Investigation

##### 4.1.1 Design of questionnaire

The self-filled questionnaires are adopted, and the questionnaires are divided into two sorts, i.e. questionnaire for teachers and questionnaire for students and every sort of questionnaire includes two sorts of question, i.e. close questions and open questions. All questionnaires are answered anonymously to respect individual privacy.

The first part of questionnaire for students is about the attitudes that students feel the teaching method adopted by the teacher in Guangxi University of Chinese Medicine. After the learning for a certain time, aiming at the problems that whether the teachers had encouraged the students to actively take part in the classroom and whether teacher had adopted the traditional stuffing method of teaching, students are required to give correct options which are divided into three sorts including agreement, neutrality and disagreement.

The second part of questionnaire for students is about the satisfaction status that students feel the teaching method adopted by the teacher in Guangxi University of Chinese Medicine. In order to know whether the teacher has flexibly exerted teaching method, whether the teacher has applied the PBL teaching method, whether the teacher has paid attention to the communication with students, whether the teacher has given instructions for students in the learning method in the teaching process, whether students are satisfactory with these aspects. Students are required to answer how many teachers had achieved the above requirements, and the options are divided into five classes, and if students think 100% of the teachers have flexibly applied the teaching method, they can choose "all"; and if they think only 75% of the teachers have achieved this requirement, they can choose "most". According to this rule, for 50%, they can choose "half", for 25%, they can choose "a little", and for 0%, they can choose "none".

The first part of questionnaire for teachers is about the teachers' knowledge source of PBL, understanding of PBL, the feasibility of PBL in Guangxi University of Chinese Medicine, and if PBL is introduced, what is the attitude of the teachers so as to forward practical suggestions for the policy makers. Aiming at the hesitations of the teachers to try out PBL, the university may put forward the solution one by one and clean the obstacles for the introduction of PBL. Therefore, two close questions and one open question are set up in the questionnaire for teachers. To investigate the source of PBL knowledge, the questionnaire sets up one question which divides the source into four sorts, i.e. foreign literature (known in foreign materials), domestic literature (known in domestic materials), other media (through broadcast, TV, newspaper or verbal transfer), and no knowledge of PBL.

The second part of questionnaire for teachers is about the teachers' attitudes for the introduction of PBL teaching method in Guangxi University of Chinese Medicine. To know the teachers' attitudes towards the introduction of PBL, the questionnaire sets up four options, i.e. "completely agree", "partially agree", "no comments" and "disagree".

##### 4.1.2 Investigation objects

The objects of the investigation are part of the teachers (the sum of 86) and students (the sum of 1477) in the campus and hospitals of Guangxi University of Chinese Medicine. The teachers include the teachers who engage the teaching working at the campus and hospitals of the university, and the students include the students of all orbits (a five-year full time system) who have received education of basic medical science.

##### 4.1.3 Sampling method

Sampling of the students is randomly taken from the students' muster roll in the educational administration department of the university, and the questionnaires are delivered and collected by the teachers. Sampling for the teachers is



randomly taken according to their different technical titles.

#### 4.2 Method of evaluating the education quality

##### 4.2.1 Objects and method

The sample objects are 112 undergraduates from Grade 2003 in the university with 64 undergraduates in the first class and 48 in the second class. The second class is taken as the experiment group, and the first class as the control group.

##### 4.2.2 Research method

###### (1) Course and period

The period of the two groups are respectively 54 academic hours according the requirements listed in the outline and plan of teaching, and the course for surgery of Chinese medicine is started in the sixth semester.

###### (2) Teaching method

For the control group, the traditional teaching method was adopted , using the common teaching facilities such as multimedia, classroom lecturing, and summarization before the end of lecture.

For the experiment group, the following concrete methods were adopted:

The first one, before the lecture of every chapter questions are designed and delivered to the students, and the students prepare the lecture by self-study. The questions should be carefully designed in a proper sequence in view of the students' level so as to cultivate the students' ability of self-study.

The second one, according to the contents of lecture, the teacher utilizes part of the time to question the individual student, and part of the time for group discussion so as to fully exert the students' enthusiasms and creation. Students are encouraged to put forward their own opinions, and the teacher only instructs these opinions to ensure the intention of "putting forward questions- considering problems-solving problems".

The third one, the teachers' questions should be based on the most important and difficult points. At the class the teacher may omit repetitive contents and only target the key contents so as to help the students to understand and memorize the knowledge.

###### (3) Evaluation of education quality

An examination is required for the two groups, and the examination room, time and invigilation are arranged by the educational administration department.

The test papers are made from the bank of test papers with additional contents of the teachers' requirements. The objective questions (multiple choices cloze, judgment and concept definition) cover 60%, to check the students' understanding of the basic concepts and theories of the surgery. The subjective questions (answering questions, demonstration, and case analysis) cover 40% to test the students' abilities of understanding, comprehensive analysis, diagnostic identification and treatment application. The test papers and answer sheets are forwarded to the educational administration department

After the examination, the educational administration department and the relative personnel seal the names of the test papers and deliver them to the paper reading teachers, the teachers read the papers in turns and figure out the scores. Above 90 scores is regarded as excellent, 80-89 scores as good, 60-79 scores as passed, and less than 60 as failed.

###### (4) Statistical disposal

All the data are disposed by the SPSS11.0 software according to the statistics, and the data of questionnaire investigation adopts the descriptive statistic, and the teaching quality evaluation adopts wilcoxon order and test, and  $P < 0.05$  means the difference is significant.

## 5. Research result

### 5.1 The result of questionnaire investigation

In the questionnaire that whether the teacher had encouraged the students to actively take part in the classroom teaching and whether teacher had adopted the traditional stuffing teaching method, 74.88% of the students thought the present teaching is the stuffing teaching. When evaluating the teachers' teaching methods, only 30.13% of the students thought that about 50% of the teachers had adopted the appropriate teaching method. In the questionnaire aiming at teachers, 31.40% of teachers didn't know the PBL teaching method, but 77.91% of teachers agreed the advantages of this teaching method.

### 5.2 The evaluation of education quality

After comparing PBL teaching mode with traditional teaching mode, we can find the students who accept the PBL teaching mode are better than the students in the traditional mode group for the achievements of subjective questions

about understanding, comprehensive analysis, diagnostic identification and treatment application ( $P < 0.01$ , seen in Table 1). But for the achievements of objective questions, both groups has no obvious difference ( $P > 0.05$ , seen in Table 2).

## 6. Conclusions

Most of the students and teachers would like to accept and adopt PBL teaching mode, which enjoys the advantages of promoting students abilities such as understanding, comprehensive analysis and diagnostic identification and treatment application., increasing students' learning interests, strengthening students' learning enthusiasm, developing the space of combining basic theory with clinical practice, deepening students' understanding to theoretical knowledge, cultivating students' creation, and promoting the establishment of lifelong learning method. The method of inducement, self-innovation and self-learning adopted by the PBL teaching method can effectively avoid the phenomena that student depend on teachers' instruction too much, and foster a sort of spirit of innovation, promote the complete communication between teachers and students, and fully inspire students' self learning enthusiasms. It is to implement practical study from the view to cultivate excellent doctors, i.e. the learning is to fulfill the necessary medical knowledge and human science knowledge such as doctor-patient relationship, medical-social relationship and doctor-nurse cooperation for the practical clinical work (Hodgson, 2001, p.546-547). At the same time, PBL teaching method will encourage the students to find out the difficult and doubtful points, and to solve the problems, develop the students' skills of literature searches and consultation, and cultivate their abilities of concluding, summarizing and logical reasoning.

The surgery of Chinese medicine is a science with strong practice, and it possesses not only higher requirements for the theoretic knowledge, but also strong practical ability. When the PBL teaching method is applied in the teaching of surgery of Chinese medicine, it will certainly exert the function to cultivate talents more quickly and effectively. So the application of PBL teaching method in the surgery teaching of Chinese medicine is feasible.

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Table 1. Exam achievements comparison between two groups of student for subjective problems

	no. of students	excellent	good	passed	failed
Comparison group	64	12	42	9	1
Experiment group	48	21	24	3	0

Note:  $Z = 2.968$ ,  $P < 0.01$ .

Table 2. Exam achievements comparison between two groups of student for objective problems

	No. of students	excellent	good	passed	failed
Comparison group	64	14	44	6	0
Experiment group	48	10	33	5	0

Note:  $Z = 0.195$ ,  $P > 0.05$ .



## Chinese Environment or Western Environment: Which Choice the Art Education Should Make at the Crossroads?

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### Abstract

In twenty years since reforming and opening up, China has developed an active and stable road of reform belonging to her, and the art circle has immediately become the swiftest industry. Especially in the 21st century, with the development of globalization, the economic strength of China is continually strengthened and the comprehensive national strength is continually enhanced, which offers the extended platform for art education and a new opportunity for the development of various colleges. At the present time, China art education is in the new primary stage of continual improvement and reform, and the change of environment compels we must reconsider the challenges what we face. Whether the education system under traditional mode can adapt the development of new situation? Whether it is feasible to blindly exclude external culture? Facing new problems, we must adopt new methods. As viewed from artists' views, this article analyzed problems existing art education from various aspects, and aiming at the combination of different art education types with the social education mode on multiple layers such as science, ethic and culture, we introduce the new education concept of "ecological view of art" and study that from our own opinions.

**Keywords:** Art education, Chinese and western culture, Art quality, Ecological view of art

### 1. China art education orientation in artists' eyes

With the multiform development in the information times and the continual update of education system, the production pattern, the work pattern, the life pattern even the thinking mode of human society will change with them, which undoubtedly brings forward new task and requirement for higher education. And the system and development of art education have early been the focuses. But the quick development of country also increases the pressure of domestic art education to certain meanings, and the urgent mind compel it continually transform to extensive type, but the fixed education mode and traditional education system induce the art education can not adapt quickly rhythmical social reform, and many domestic people still hold antiforeign poignant ideas, which makes art education trail the requirement and advancement of the time.

#### 1.1 *The situation of China art education in the present age*

"In fact, human society needs not much people to engage art and artist has no occupation. What is art? Art is feeling and inspiration." "School education plays a very bad role. Now so much examinee takes the examination of art, which is completely misled. Many people should not study this subject, other subjects may be better for them, but because their study achievements are not good, so they can go to college only through art colleges." Mr. Wu Guanzhong signed with emotion when talking about the actuality of China art education. Mr. Guanzhong was very pessimistic when treating the development trend and actuality of domestic art education. This sort of pessimistic idea arises from the confusion of present art circle. In faith, the present art education plays a role that we can not applaud. Student recruiting with large scale makes art taint dense commercial breath, and more and more students select art for certain intention, and most of them may have not art cell, and when they graduate, most of them are at grass, and art education also runs counter to original intention of art education among vicious circles.

Therefore, Mr. Yuan Yunfu (the president of Art Institute of Tsinghua University) made profound analysis to the situation of domestic art education. As the leader in the domain of art education, professor Yuan Yunfu said with sincere words and earnest wishes, "Modern art education is so flourishing, but the leading department of art education is at the most weakest node," "the proportion of student and teacher has not been the objective proportion of art, and the burden of college is too heavy," "after all, student recruiting with large scale is a sort of burden for every school, so the teaching quality can not be ensured. If the schooling mode of the art college runs the school as engineering colleges, the

art college can not run better.” It is obvious that various art colleges recruit students so quickly with large scale and wide caliber, and many problems such as the teaching quality and the teacher force can not be ensured, which are focuses noticed by artists even the society. From certain meaning, it is very irresponsible to students, education business and society. After all, the education is not the face engineering, and the art education needs individuation and characteristics.

Indeed, with the development of society and the enhancement of international status, as the foundation stone of national development, education plays very important role. Though China has numerous populations, the crowds with higher education are comparatively few, so we can understand that the country is anxious to extend people’s educational proportion. In recent years, whether student quantity or schooling system and scale change to different degrees. Undeniably, that delays the urgent situation of stage education to some extent, but more art colleges excessively pay attention to exterior investment of education, and the teaching environment of education is perfected, but actual college quality and teacher quality are dubitable.

### *1.2 The actuality of western art education*

In foreign counties, the situation of art education is widely divergent. When talking about art and culture, countrymen always praise that our own five thousands’ culture is so splendid and animadvert on the superficial and popular western art without traditions, and they don’t know with the quick development of science and technology, the western culture with only hundreds years’ history had early exceeded us. The stagnation is retrograde, and the rather that we are always in thousands years’ historical river. Through objective comparison, it seems that foreign art education is more active and novel to adapt the global advancement, and the reason is not in how large their investments are, but the foreign concept to treat the art education is very different to the concept of China.

“Foreign art colleges pay more attention to students’ independent art smells, individual attempts or the sociality and the depth of human thinking involved in works (Yuanzuo).” The foreign art education system advocates the independence and freedom, and it always specializes in utilizing the advantaged resource in the society, and whether the recruiting scale or the course structure are very extensive and flexible, and they all blazon forth their own education concept, objective and style through their own tenet and characteristic. The mode that foreign art colleges select talents is opening and free, and they pay more attention to students’ individual ability and inner art passions. This education with object is profound and lively. Foreign selection modes of “one to one” and “many to one” forms complete contrast with “ten thousands people’s examinations” in few days in China.

Of course, because of different national situations and political backgrounds between China and foreign countries, the foreign education system can not run in China. After all, they can be realized based on certain social base. However, it can be a very meaningful example to help us to establish a new art education mode which can adapt Chinese cultural tradition and Chinese characters, and it deserves us to study and research.

## **2. The new concept of art education in new times**

In the information times of globalization, the modernization development and the people-oriented education concept of China require that the art education must go on the innovational road. Whether for the system or the theory of education, the technology or the culture, we all need innovation. Therefore, we must consider how to innovate or where the social factors are to restrain our innovation, and only thus consideration can offer new view and necessary ideal resource for China art education in continual transformation.

### *2.1 Chinese and western cross concept of art education under new situation*

The reform of art education in China is later than western counties. The so-called “art improvement” or “art revolution” rooted in intellectuals’ denial, rebellion and consideration to the tradition in early China. Some advanced intellectuals begun to simulate western education system of academism, which was a sort of choice of times. After 1949 when new China was established, because old China was in the state falling to pieces and the masses had no means to live, that induced that education mode mixed with western realism, domestic fossil traditional idea and intellectuals’ reform system to form a sort of new art education mode. After 1990s, though the art education mode was made some adjustments, but the education system and guidance idea had not obvious changes. So through the history of China art education, we can see that many problems had occurred in early time. In another word, the modern art education mode of China is likes that the new car after hundred years is drove by a nag.

The “west” is the concept relative to the “east”. “In our eyes, for a long time, ‘west’ is the cultural, political and strategic concept of imperialism (Round the World the Times).” Undeniably, the shadow induced by the historical problems still hover in many Chinese’ minds. However, if China wants to really realize peaceful development, she must break the misunderstanding to “west” and get rid of the western influences. In recent years, different development history, social system and value orientations between China and western countries made mutual cognitions little wrong, which undoubtedly increased the national emotion and exclusive cultural consciousness. The culture has no boundaries, and in the day that the economy develops so quickly, the cultural opposition between China and western countries

obviously offends time tide. Only the cultural communication is more frequent, our views and selections are more extensive. We must treat west and western cultures more objectively, strengthen the cultural communication among countries, utilize the observation concept with multiple dimensions to dig, abstract and fill up different value views and cultural differences each other, and seek better and more advanced art reform method to seed in domestic art education business.

In fact, some domestic senior educational scholars in the art domain have realized this point early, and all kinds of feeling welled up in their hearts. "The problems faced by China art education are specifically complex", Mr. Pan gongkai who was the president of China Central Academy of Fine Arts said in the interview of "the contemporary situation of art education". In recent years, many Chinese education scholars summarized and updated the education mode of China modern art in virtue of western theory, and hoped to find a proper point adapting China development or art education. But in many times, the situation is not perfect. Where is the reason? Where the factors restrain the innovation?

"The problems faced by China art education are specifically complex, because we have very deep cultural tradition, and it is a sort of culture which had been flourishing for a long time in the world." I guess that for the embarrassing situation of China culture and art education, the biggest worry may come from home, and the examination-oriented education system with long history still occupies the dominant status. It is very a very challenging task to exactly understand and grasp the concept of tradition and deepen the cognition to tradition importance and future meaning in the range of art education in modern new situation. We should find reasons from multiple subjects and education system, or compare western development logic to find difference in about hundred years' art education history, and accordingly form the theoretic method of independent innovation or education platform. The society is developing and the time is updating, and for the problems evolved in education, the speed of their updating frequency is too quick to be anticipated, and the next is the uncertainty and suspicion to the so-called "new mode of education". What we should recommend and study is to follow the step of time, extend our views and develop our thinking. After all, the art education is one special part in the education system, and it is the integrated carrier of various subjects, so in the voice of globalization, the new concept and reform method what we want to achieve are always not in these theories but out these theories.

## *2.2 The integration of ecological view and comprehension in the cultivation of art quality*

The education without art education is not complete education, and the higher colleges need art education, and the actualization of art education is the need to adapt the development of modern society, and the new requirement and the new challenge of the development to higher education. The art quality cultivation of college students exerts very important function to their moral characters and thinking abilities. As one part of human quality education content, the content of art education is extensive and associated, and it uses its language to transmit the information which can not be explained in words, so many artists believe that the art education is the diversiform cognitive mode which is different to intelligent education, and it is a sort special and important "cognitive ability". The present high level informationization and industrialization induce the isolated stage between people and nature is more and more obvious. More human have realized that only art can help us better actualize the uniform of self sensibility and sense, and make human intelligence and artistic talent fully exerted and functioned.

"In nature, the art education of ecological view is a sort of integration of life and feeling education, and it achieves directly the fountain of life through the most direct life activity and the inspiration and inducement to the cultural connotation and taste," "and the art education of ecological view is not pure art knowledge education, and it is not the art technology education, and it advocates the integration of teaching and the shaping of integer to cultivate students' sensitive and abundant taste feeling, sense and innovation (Guo, Xiangzhen, The Art Graduate School of Taiwan Normal University)." For the art education under traditional system, this ecological relationship may be the new element in the art domain. But in the process of the multiplex association with the world, the art education has not been only limited to study pure art knowledge or technologies. What we should do is to put the art in an extensive relationship which is the complete domain integrating life, feeling, culture and science, and accordingly make students can contact lively and complete art and taste the culture and the human spirit in art.

The art education of ecological view emphasizes using the people-oriented idea to establish a sort of education system with the most opening breakthrough in practice, which uses foreign opening and free education mode for references to some extents, and its final intention is to actualize the complete and free development through the mutual integration between human integral development with various aspects such as science, society, life, culture and feeling. That is to say, the people cultivated according to this mode should be a human with complete development, not the single talent who ignores the human idea but emphasizes skills under the traditional education mode.

The new thinking of the ecological view art education is different to the traditional and narrow art education in the past, and its integral construction breaks former limitations among subjects, designs an organic comprehensive education concept. The talents cultivated under this education system can accord with the requirement of new century, and the art education under this system can follow the development step of the time.

### 3. Conclusions

The education must adapt the change of society, the transform of politics, the development of science and technology and the transfer of culture to advance with time. So the art education is. Therefore, every time and every stage have its task of reform. The teaching staff of college art education should notice the new trend of the from moment to moment, represent advanced cultural direction of extensive people, join into the reform tide of art education, and try their best to do the work of college art education. After all, the road of education reform shoulders heavy responsibilities.

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## Teaching Comprehension Skills using Context –Based Texts in Second Language Learning at Tertiary Level

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### Abstract

Content-based reading texts play a vital role in the acquisition of knowledge and information in various fields of studies. Reading these texts at higher institution demands a great deal of effort from the students who are learners of English as a Second Language (ESL). These students who are generally school leavers, whose level or reading exposure is confined to Bahasa Malaysia-based text in their primary and secondary education, have to tackle on their own the tremendous demand of reading and comprehending the English content-based texts. These texts are derived from reference books or lecture notes, which are in English and may pose language barriers for the ESL learners. These are also ESL learners when first enter tertiary level; have met a minimum requirement of at least a credit in English as a second language at secondary school level. These reading materials pose comprehension difficulties when they are streamlined into specific field of studies. This paper attempts to look into the training of selected comprehension skills that language lecturers, particularly new ones in the teaching field, can apply the teaching skills to help learners to alleviate the comprehension challenges when reading content-based texts. This paper is also intended to assist new language lecturers who are embarking in ESL teaching of reading comprehension using content-based texts.

**Keywords:** Content-based, Language barriers, Tertiary, Comprehension skills

### 1. Introduction

Different faculties in the University accept different English grades (based on the national secondary school examination) as the pre-requisite in taking up programmes offered by the faculties. Some have to merit the English language subject at a pass level grade, in order to enroll while others may require the minimal non-pass level grade to be accepted into a programme. For instance, in Universiti Teknologi MARA, the pre-requirement is at least a pass in the examination mentioned above to enter the Faculty of Hotel and Tourism Management, while a non-pass grade to enroll in the Faculty of Art and Design. However, since its introduction in 1999, the Malaysian University English Test has served as the benchmark of language proficiency band that warrants students' proficiency in English for admission to all public institutions of higher education (<http://www.malaysia-students.com/2007/07/malaysian-university-english-test-muet.html>).

However stringent admission to the programme is with such test, in reality when these students attend the undergraduate programme, English language reading comprehension poses learning challenges to them. At the same time, English language is a course offered as a compulsory subject. Nevertheless, in helping these students to prepare them in their reading tasks of the mainstream courses, language lecturers attempt to make use of content-based texts in the reading component of the language course taught. This approach is taken as it helps the students to take on their

mainstream courses with a more confident attitude in dealing with the nature of the text that they need to read regularly during the course of studies. Besides, this approach helps to increase the students' motivation and interest with the content courses that they will be reading for the next three or four years. At the same time, this helps them tackle the comprehension knowledge of what they will read in their course of studies.

## 2. Theoretical perspective on usage of content-based texts

Reading comprehension skills are particularly important for English language learners (ELLs). They often have problems mastering science, mathematics or social studies concepts because they cannot comprehend the texts for these subjects. ELLs at all levels of English proficiency and literacy will benefit from explicit instruction of comprehension skills along with other skills. Here is a way of thinking about the support that the ELLs need. They are required to know a lot of vocabulary and its development and teaching of comprehension skills are necessary strategies even if they are in the mainstream after some bilingual instruction, or are being pulled out for English as a Second Language. Content based text usage has been a much discussed area in the realm of English language teaching (Hutchinson & Waters, 1992). However, considering the different views on whether to use 'composed texts' (Allen & Widdowson, 1974) or to use 'authentic text', the fundamental objective of using content-based text has an advantage discussed above. In addition the use of content-based materials is a teaching-learning process for the language lecturers as well as for the ESL students.

Using content-based texts is preferable as these texts are streamlined with the kind of texts used by the students in their field of studies. These texts are easily accessible as language lecturers do not have to manage the aspects of the texts which can be quite complicated. Using content-based texts can save time preparing for language lessons. On the contrary, using materials which are specially written or adapted by language lecturers pose the fact that the use of syntax and lexis is too contrived. Besides, the linguistic features have to be made peculiar to the related information of a particular field. Simultaneously, distortion on the information structure of the texts can lead to further confusion. In their proposal Hutchinson & Waters (1992) have suggested feasible teaching approaches that can assist ESL learners in dealing with the use of content-based texts in language learning. The approaches help the learners realize that by using language strategies they will be able to acquire knowledge with minimal hindrance. The teaching of the language strategies, particularly in teaching certain language items, sentences from the content-based texts can be explicitly taught using specialized field related texts.

Reading is defined as a transaction between the reader and the text in a specific context, and that it can result in the creation of a new text in the mind of the reader (Irwin, 1991). At the same time too, reading has drawn upon the commonly accepted definition as "the ability to utilize the conceptual and linguistic knowledge a reader has and simultaneously the ability to increase its depth and scope by constructing more advanced mental structures" during which a person is engaged in the reading process. Its importance is so indispensable that this skill forms the mechanics of acquiring knowledge from as early as beginning of learning. For that, for beginning reading, parents stress so much importance in teaching their babies to learn how to read, young learners are taught reading the day they step into schools and adult learners are provided with lists of references of reading materials for them to read even before their courses begin. In fact, to create an information-rich society today, people need to master this skill effectively.

During the reading process, the reader uses his existing knowledge and strategies to interact with the texts in order to extract meaning from the text. For this, many researchers have agreed that reading, to a certain extent, is a dynamic process. It has been extensively researched and as stated in Cantoni-Harvey (1987) that language component has drawn upon the commonly accepted definition as 'the ability to utilize the conceptual and linguistic knowledge a reader has and simultaneously the ability to increase its depth and scope by constructing more advanced mental structures' (Cantoni-Harvey, 1987) during which a person is engaged in the reading process.

When reading is considered successful, a student whom we considered as 'good at comprehension' is able to read accurately and efficiently. Subsequently, the student is able to get the optimal information from a text with the minimum of understanding. Secondly, the success of reading can be illustrated by his ability to show his understanding by re-expressing the content of the text, for example, by writing sentences or paragraphs in answering to the questions, picking the accurate options as the answer from a multiple-choice question or by summarizing the text (Swan, 1986).

However, in a real classroom, improving reading comprehension measures are documented by research as found in a study by Palinscar and Brown (1984), the focus shifted to using combinations of strategies to facilitate text comprehension. In their 1984 study of "reciprocal teaching" of comprehension by Palinscar and Brown (1984), it involves the gradual release of responsibility for carrying out a strategy to the readers. It combines teacher modeling and student practice on four cognitive strategies: prediction, clarifying, summarizing, and question generation. Students who received this instruction showed marked improvement on a number of comprehension measures. In the process of reading and understanding content-based text, lecturer has to be fully prepared to teach comprehension in the classroom effectively. ([http://www.doe.in.gov/lmmp/pdf/content\\_area\\_texts.pdf](http://www.doe.in.gov/lmmp/pdf/content_area_texts.pdf)). This is substantiated by two approaches in studies made by Duffy and Roehler (1987) direct explanation model and Rachel Brown, Michael Pressley, and colleagues' 1996 transactional instruction approach (Block and Pressley, 2002). Direct explanation emphasizes



teacher-directed problem solving, whereas transactional instruction employs teacher-directed actions with interactive exchanges with students in classrooms. From these studies indication has shown positive results in student's level of understanding when language teachers are given proper guidance in teaching reading and comprehension.

Again, in 1993, after a five-year study of teaching teachers to implement reading comprehension teaching, Gerald G. Duffy, a developer of the direct-instruction approach to cognitive strategy instruction, concluded that teaching students to acquire and use strategies requires a fundamental "change in how teacher educators and staff developers work with teachers and what they count as important about learning to be a teacher". It is therefore necessary that to improve readers' comprehension performance, language teachers have to be shown the 'way' to teach effectively. In the year 2000, in her address to teachers, Carol Minnick Santa, President of the International Reading Association, noted that "teaching [comprehension] is a lot harder and more abstract than teaching phonemic awareness or language structures. Moreover, effective comprehension instruction ... demands extensive teacher knowledge." Language lecturers at novice stage needs extensive opportunity to acquire the teaching skills and this paper shows the comprehension skills which are found to be necessary in acquiring comprehension from reading a text.

Teaching comprehension of text successfully requires the ESL lecturers to be strategic in creating the lesson that will make comprehension a manageable task after reading. In so doing, and doing them appropriately, they are required to teach until the ESL learners' comprehension problems are resolved. The language lecturers facilitate the learning strategies of ESL learners apart from adjusting, modifying and testing using texts. In its initial preparation, the lecturer needs to create awareness of comprehension such as to find out what the paragraph or the gist of the paragraph is about.

### 3. Enhancing Reading Comprehension Using Content-based Text

The following is a content-based text extracted from the Lecture FHK 3403: Forest Engineering given to undergraduate of English as a second language level to read and comprehend. In the attempt to comprehend the content English language learning is provided for the learners to facilitate reading and comprehension in order to enhance acquisition of knowledge and information effectively. Read the text below and strategies comprehension of the texts through recognizing the instruction given. These tasks attempt to create comprehension of reading the content-based text and by providing answers to the instruction of each item listed below helps create comprehension awareness of the text further.

I	<p>"Precision forestry" is a relatively new term that is undergoing a rapid increase in use in the forest engineering - forest operations community. This <b>term is similar</b> to those frequently used in agricultural production circles, i.e. "precision agriculture" or "precision farming." Over the last 20 years, the concepts of precision agriculture have been refined into a definition that most people will accept. That is, precision agriculture <b>can be defined</b> as managing crop inputs, such as fertilizer, herbicide, etc. on a site specific basis to reduce waste, increase profits, and maintain the quality of the environment.</p>	5
II	<p>To bring together researchers and practitioners to discuss precision forestry, the first International Precision Forestry Symposium was held one year ago in Seattle, Washington. Initially, one would think that the term "precision forestry" should have a <b>very similar meaning</b> to the frequently used "precision agriculture" term. Yet, as the symposium attempted to synthesize the current body of knowledge on precision forestry, it became evident that the term precision forestry has many different meanings depending on who uses the term. <b>While</b> many of the aspects of precision agriculture can be applied to forest management, the considerable differences between the two industries require a different, broader definition for precision forestry.</p> <p>Since <b>there</b> are many differences between the forest products industry and the agricultural sector, all of the concepts of precision agriculture are not directly applicable to forest production systems. <b>Moreover</b>, there are different applications in forest management that can be considered part of precision forestry. Precision forestry <b>is defined</b> as planning and conducting site-specific forest management activities and operations to improve wood product quality and utilization, reduce waste, and increase profits, and maintain the quality of the environment. Further, we propose that the general field of precision forestry be separated into two main categories:</p>	10 15 20
III	<p>1) using geospatial-information to assist best forest management and planning practices</p> <p>2) site-specific silvicultural operations</p> <p><b>3.1 Geospatial-Information-Based Forest Management and Planning</b></p> <p>This area of precision forestry encompasses a wide variety of activities that use geospatial information to assist in the site-specific management of forests and planning of future operations. This actually encompasses many current management and planning activities since <b>many</b> industrial and private landowners use geospatial tools to manage their land bases. Traditional examples would include using GIS to help develop management plans for forested areas; <b>however</b>, what makes <b>these activities</b> fit under the precision forestry would be an emphasis on site-specific management. New examples of this type of precision forestry <b>include</b> the use of information</p>	25 30

IV	technology to optimize the transportation of wood products from the forest to their most appropriate processing location. Advances in wireless communication are at the point <b>where</b> much of this information can be shared from the harvesting machine directly to transportation dispatching services and to the manufacturing facilities.	35
V	3.2 Site-Specific Silvicultural Operations	
	Site specific silvicultural operations involve the use of geospatial technologies, <b>such as</b> GPS and GIS, to improve operational efficiency and reduce the cost of wood fiber. This involves using much of the technology developed for precision agriculture. Example of the technology includes using GPS and variable rate controllers to improve the efficiency of herbicide spraying or fertilizer application.	40
	This technology is readily available and is currently being used in forest operations on a limited basis. New technology has been developed to provide automated machine guidance for agricultural tractors that could also be adopted in certain forest operations. <b>Although</b> the concept of yield maps as used in agriculture has not been attempted in forest production, it is technically feasible given the advanced product size sensors used on current cut-to-length harvesting systems. Also, research at Auburn has been developing similar instrumentation <b>that</b> can be placed on traditional wheeled feller bunchers to measure tree size. Combining the tree or log size data with GPS position will make possible the development of forest yield maps.	45
		50
		55

Sample Content-based Text Adapted From: LECTURE FHK 3403: FOREST ENGINEERING PRECISION FORESTRY: POSSIBLE TOOL FOR SUSTAINABLE FOREST MANAGEMENT IN MALAYSIA Instructor: Hj.Kamaruzaman Jusoff (HjKJ) Credit Hours: 3 (2 + 1) Venue: Room 143, Forestry Building Semester: 1 2007/8

To assist the ESLs deal with the above text, the text analysed with the language items that pose elements of comprehension using the following comprehension skills:

	Comprehension Skills	Instructions and Activities
1.	Meaning From Contextual Clues	<p><i>The best way to derive the meaning of an unfamiliar word in a sentence is to look at the words or sentence surrounding it. The words or sentences provide hints or clues to help ESL students figure out the meaning of the new/difficult word. The clues obtained in this way are called contextual clues.</i></p> <p>Task: Using the phrases in “....” below, find the meaning of the following terms/words</p> <p>Precision forestry “this term is similar” (Line 2).....</p> <p>Precision agriculture “can be defined”(Line 6).....</p> <p>Precision forestry “very similar meaning” (Line 11).....</p> <p>“is defined”(Line 21).....</p> <p>“include” (Line 36).....</p>
2.	Discourse Markers	<p><i>Knowing what discourse markers are enables the learners to understand and follow how the writer has organized or fitted his ideas together. In this way, comprehension of the text becomes easier.</i></p> <p>Task: The following words are used to join two ideas from the text. Write what the ideas are:</p> <p>.....while (Line 15).....</p> <p>.....moreover (Line 20) .....</p> <p>.....however (Line 34) .....</p> <p>.....such as (Line 42).....</p> <p>.....although (Line 50).....</p>
3.	References	<i>Reference words are words which replace other words or phrases. There are two</i>

		<p><i>types of references:</i></p> <ul style="list-style-type: none"> <li>• Words which refer to information or ideas mentioned before the reference word</li> <li>• Words which refer to information or ideas mentioned after the reference</li> </ul> <p>Task: These words in the text refer to:</p> <p>There (para 3) refers to .....</p> <p>Many (para 4) refers to .....</p> <p>Where (para 4) refers to .....</p> <p>These activities (para ) refers to .....</p> <p>That (para ) refers to .....</p>
4.	Main Ideas	<p><i>The main idea of a paragraph or text is what the text or paragraph is generally about. It can be identified by asking two important questions:</i></p> <ul style="list-style-type: none"> <li>• What is the topic of the paragraph/text?</li> <li>• What does the writer want you to know about the topic?</li> </ul> <p>Task: Write the main idea of Paragraph 4</p>
5.	Topic Sentence	<p><i>Sometimes one sentence within the paragraph tells the reader exactly what the paragraph is about. This sentence is often called a topic sentence. It may appear at the beginning, the middle or at the end of the paragraphs.</i></p> <p>Task: Identify the topic sentence of paragraph 4</p>
6.	Supporting details	<p><i>Supporting details are the explanations, reasons or examples that support the topic sentence of the paragraph.</i></p> <p>Task: Write three supporting details of Paragraph 4</p> <p>1. ....</p> <p>2. ....</p> <p>3. ....</p>

#### 4. Conclusion

The position of the language lecturer servicing the specialized schools in teaching can commensurate to that of the ESP teachers as suggested by Hutchinson and Waters (1992) as being “all too often reluctant dwellers in a strange and uncharted land.” They may face language teaching challenges all too often but with constant guidance from senior lecturers who are more experience need to be generated so that new language lecturers continue to upgrade teaching. The framework suggested above acts as guideline for lecturers and students as well, to have better awareness of comprehending texts that are read.

Conducting proper orientation to the content subject knowledge helps new language lecturer to acquire knowledge and information of the content material better. Every faculty needs to provide sufficient information or made available reading materials for language lecturers to be exposed to. This is however not recommending that the language lecturers learn subject knowledge but being aware of the content-based text is a useful guide to plan lessons and to teach ESL students the appropriate technique to enhance comprehension.

For continuous improvement, it is highly recommended that collaboration between language lecturers and content lecturers be further enhanced as synergizing efforts put by both parties can contribute to effective use of content based materials for language learning experiences. These efforts help the ESL students to acquire information of the course area and cope with the language demands that are met simultaneously.

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- <http://iteslj.org/Articles/Gatehouse-ESP.html> Key Issues in English for Specific Purposes (ESP) Curriculum Development Kristen Gatehouse khoey [at] khae-service.com [www.khae-service.com](http://www.khae-service.com).



## Probe into the Elements of Leisure Sports Practice

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### Abstract

This paper probes into the basic elements of leisure sports practice by referencing literature materials and logic analyses. Studies show that leisure sports practice consists of six elements, including leisure sports ideas, leisure sports environment, leisure sports time, leisure sports activity, leisure sports skill, and leisure sports state. All these six elements connect with and restrain one another. Absence of any element will affect the application of leisure sports.

**Keywords:** Leisure sports, Practice, Element

Modern social development and scientific & technological progresses serve as necessary preconditions (lots of spare time, rich material products, sufficient playgrounds and equipments) for the expansion of leisure sports practice. Meanwhile, changes of production mode and life style (mechanization of work; socialization of housework; reduction of body movements; and over-nutrition) turn leisure sports into a necessary way of relaxation. Leisure sports refer to certain leisure activities that people participate in by initiatives freely for the sake of self-satisfaction and self fulfillment, taking body exercises as basic ways, in certain leisure state and environment. Leisure sports can help to build up a scientific, healthy, and civil life style. Leisure sports practice depends on six elements as follow. All these six elements connect with and restrain one another. Absence of any element will affect the application of leisure sports.

### 1. Leisure sports idea

Leisure sports idea means the understanding and recognition of leisure subjects to leisure sports. It is a kind of leisure thought and leisure faith. Leisure sports aim at relaxing oneself by sports. It is a unification of matters and spirits, bodies and intelligence, physical activities and psychological activities. What it emphasizes is to drive people engaged in favorite sports to realize the spiritual satisfaction, physical relax, and psychological experience. As people are taking leisure sports activities, they perform organic physical movements, such as: the speeds, distances, and directions in completing certain actions, the consumption of body energy, and the expedited flow of blood. But the most prominent is the change of people's spirits in sports. From the fast and changeable action, the accomplishment of actions, the success and failure, the cooperation and competition, the smoothness and frustration, people can taste the interests of sports, and have a sense of self-efficiency, recalling the self, and fulfilling the self. In sports, people can achieve the sublimation of spirits, driving the match of bodies and spirits, and realizing the harmony. To build up correct leisure sports idea can benefit the application of leisure sports.

### 2. Leisure sports environment

Leisure sports environment is the conditions and circumstances in which leisure subjects perform leisure sports activities. It includes natural environment and humanistic environment. Leisure subjects must know and pay attention to the leisure environment. They have to select and adjust appropriate leisure sports activities based on changes of environment. In leisure sports activities, the subject is the leisure subject, and the object includes environment, skill, playground, equipment, and furnishment. Natural environment impacts playgrounds to a great degree. Undoubtedly, plain is not for mountaineering. Surfing must depend on an ocean. Skiing, skating, and ice hockey are right choices in

cold regions.

Social humanistic environment can also affect leisure sports profoundly. We summarize the culture into mainstream cultures and non-mainstream cultures. The mainstream culture includes traditional cultures and local core cultures. Relatively speaking, mainstream cultures have a decisive effect on leisure activities. People take preferences by following the direction established by mainstream cultures. Local core cultures are also important factors. The so-called local core cultures refer to the cultures that dominate over certain regions, including local customs, ceremonies, social relationship principles, and taboos. Leisure sports may suffer from taboos and customs. Taboos are extremely important in local cultures. They regulate what people should do or should not. In addition, in local core cultures there are some parts that can be used by us properly. Some customs are derived from religious conventions, traditional commercial party, or nationality feasts. In China, a multi-nationality county, lots of local cultures connect with leisure sports, such as holding a goat in mouth, dragon boat match, torch festival, and swing. Although these activities have special meanings and are not the same with the connotation of leisure sports, in forms they serve as sound foundations for local people accepting the leisure sports idea (Feng Lu, 2005, p159-61).

Non-mainstream cultures are new cultures caused by foreign cultures and technological development. Non-mainstream cultures also impact leisure sports greatly. To a great degree, the youth is the main carrier of non-mainstream cultures. For example, bodybuilding is a combination of ancient Grecian aesthetic idea introduced to China in 80s, 20th century, and modern sports. It is widely accepted and gains further development after it enters China. So does the exploration. In exploration, people can relax themselves in nature and learn to live with the nature.

### **3. Leisure sports time**

Leisure sports time is the time used for leisure sports by the leisure subject after getting rid of time for work and living. All human activities consume time. The time of human being is divided for different activities. In order to make the time characters clear, we classify the time into different time periods: the work time (used for production work in order to obtain necessary living materials), the living time (the time for normal living, such as time for eating, sleeping, and medical care), and spare time (the time excluding the work time and living time). Leisure sports activities aim at relaxation in spare time. Leisure sports time is the most basic element of leisure sports activities. The rise of modern people's leisure time reflects a kind of progress of social civilization. In modern society, modern scientific and technological development changes modern production mode thoroughly. The improved production efficiency makes the reduction of work time a must. Besides, the continuous update and development of home facilities shortens the housework time sharply. Meanwhile, the socialization of housework also generates lots of leisure time. All these factors contribute the application of leisure sports activities.

### **4. Leisure sports activities**

Leisure sports activities are the contents of certain leisure sports selected by leisure subjects. Leisure is the activity or experience in spare time. Leisure activities are "a series of activities by which people can liberate their wills freely after fulfilling their professional, family, and social responsibilities", including rests, self-amusement, improving knowledge and skills, and participating community activities by initiatives. Almost all human activities may be "leisure" activities. But some have higher possibilities. Leisure is not an activity but a process, which concerns certain specific activity inevitably.

Leisure sports can integrate bodies and minds together. Leisure sports activity needs not only minds but also body exercises. It differs essentially from reading, painting, appreciating music, and other leisure activities. In modern social work and living environment, leisure sports can effectively improve body qualities, defending against organic degradation. Meanwhile, because of the diversity of sports, people can achieve their leisure goals by choosing different sports. Sports have positive effects on people's bodies and minds. No matter when it is the past, today, or future, sports are meaningful for people's leisure life. Sports exert effects by re-creation of bodies. Also, leisure sports are not only for amusement or rest but for the positive recovery of humanism and the integration of human being. People should not waste the time liberated from the work and study. For the spare time, leisure sports are the most ideal activities that can adjust body states, driving the harmonious development bodies and minds.

Leisure sports have various activities, such as rock climbing, diving, surfing, and drifting. It demands for not only physical strength, but also intelligence, braveness, and will. People have to exert their initiatives and creativities completely in order to accomplish tough actions. In leisure sports, braveness, brawniness, and struggle spirits, and human feelings and wills are all necessary. However, literature and art leisure activities are almost static, concerning mainly thoughts but not bodies. Compared with other leisure activities, leisure sports activities can help leisure subjects realize the unification and harmony of bodies and minds, which is more in accord with leisure subjects' requirements in modern society.

### **5. Leisure sports skill**

Leisure sports skill is the ability mastered and applied by leisure subjects in taking certain leisure sports activity. Leisure

has become an important part of human life, which is an undoubted fact. People should prepare for leisure activities comprehensively, just as people prepare for work. In work, people with skills are more popular than that without skills. Similarly, in leisure sports, people with skills can easily taste pleasures and make progresses (Geoffrey Godbey, 2000, p197). The ideal leisure is a flexible continuous process, in which people devote themselves to leisure sports, learn from leisure sports, and achieve certain progresses.

Leisure sports, as an inevitable scientific relaxing way in modern life, have to depend on leisure sports skills. One of important characters of leisure sports is to realize relaxation with body exercises by different sports and activities. Any sports activity needs relevant sports skills and necessary physical fitness. Only when people grasp relevant skills and possess necessary physical fitness for certain sports activity, can they feel pleasures from this sports activity. A survey shows that one of important factors that stop people from joining in leisure sports is the absence of necessary skills and physical fitness. Although people realize that leisure sports are positive and scientific ways for leisure and also necessary leisure ways for modern social life, people can not take part in leisure sports due to lack of necessary skills and physical fitness. Even if people without necessary skills and physical fitness participate in leisure sports, they may give up finally because they can not get pleasures from it.

## 6. Leisure sports state

Leisure sports state refers to the physical and psychological state of leisure subjects as they are engaged in leisure sports activities. One of values of leisure sports is to help people resume and relax bodies, enhance physical functions, obtain psychological satisfactions, get pleasures, and reach a high sense by means of leisure sports activities. That is a best experience of people in taking leisure or work activities. Similar to Maslow's "peak experience" or "peak expression", it is an extremely pleasure after realizing the self-fulfillment (Zhongguang Li & Changchong Lu, 2004, p179). As a leisure subject know clearly how to use leisure sports skills, under certain pre-determined goal and principle constraint, to deal with all challenges anytime, a high sense may appear. At this moment, the leisure subject focuses attentions on one thing and does not care about any other problem. The self consciousness disappears. People even do not realize the existence of time.

As realizing a high sense, difficulties of challenges match the skills of leisure subject. If the challenge is too demanding, the leisure subject may feel worried. While the challenge is nothing, the leisure subject may feel boring. Leisure sports activity is to make people relax their bodies, resume physical functions, obtain pleasures, and reach a high sense. A beneficial leisure sports state will help to make certain leisure sports activity lasting.

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## Thoroughly Applying Scientific Outlook on Development Implementing Sustainable Development Strategy in Higher Vocational Colleges

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### Abstract

To make breakthroughs, obtain further development, and win in the fierce competition, higher vocational colleges must apply scientific outlook on development, set up students-and-teachers oriented educational concept, enhance connotation construction, create competition advantages so as to fully improve education and teaching quality and realize sustainability development.

**Keywords:** Scientific outlook on development, People-oriented, Connotation construction, Sustainable development

Scientific outlook on development is the significant strategy ideology for the development of socialism with Chinese characteristics, is the important guidelines for the development of China's economy society, and is also the important guiding ideology for the development of higher vocational education. In the construction, reforms and development of higher vocational colleges, scientific outlook on development shall be applied thoroughly so as to realize sustainable development of vocational colleges.

### 1. To set up students-and-teachers oriented educational concept

It is raised in the Report to the Seventeenth National Congress of the Communist Party of China that "Endeavor to build education that people are satisfied with" is the material incarnation of people oriented ideology of scientific outlook on development on education aims. To apply thoroughly scientific outlook on development and to be people oriented, in terms of higher vocational college educational concepts, means to set up students-and-teachers oriented education concept.

#### 1.1 To set up student oriented education concept and to serve the growth of students

The development of higher vocational colleges aims at cultivating highly skilled talents for the society who have comprehensive development in morality, intelligence, fitness and virtue. In the process of applying scientific outlook on development, to build the morality and to teach to be good people shall be considered the fundamental task so as to serve the growth of students.

##### 1.1.1 To build morality and to teach to be good people

Higher vocational colleges shall stick to the concept where to teach to be a good person is the root and morality education shall enjoy priority, and shall take building morality and teaching to be good people as the fundamental task. Higher vocational colleges shall implement makings education to all students and through the involvement of all students and the monitoring in the entire process, colleges should realize comprehensive education, including teaching education, service education, management education and environment education, through which students will be



educated to be the constructors and successors for socialism construction. Hubei Urban Construction Vocational and Technology College (hereinafter referred to as “HUCVTC”) attaches great importance to morality education and takes “building morality, admiring ability, earnest learning, and innovation” as our guide, which is considered as the important part in enhancing education reforms and improving talents’ makings. HUCVTC also takes scientific outlook on talents, quality and teaching as the guidelines, integrates ideological and political education into the whole talent-cultivating process, and forms a morality education pattern where “ideological and political course” is the leading part, specialty courses is the support, and extracurricular science and technology, literary and sports activities and social practices are the supplements.

### 1.1.2 To cultivate students of harmonious development

We shall stick to people oriented concept and enhance comprehensive development of students, which is the basic requirement raised by scientific outlook on development on vocational education. In higher vocational education, professional skill cultivation and literature spirit shall be combined together organically. It is a must to emphasize professional makings cultivation. However, cultivation on students’ literature spirit and comprehensive and harmonious development of students’ literature spirit shall not be neglected. Therefore, HUCVTC enhances students’ literature spirit cultivation and harmonious development of students through enhancing psychological health education and psychological makings training, adding elective courses on literature, science and technology, art and psychology and giving various lectures.

### 1.1.3 Caring about and serving students

To recognize and respect education objects is the premise for being a teacher or it will move educational teaching management base. For one hand, teachers shall contact students frequently, care about students, get to know students, and study the psychology of students so as to make teaching and learning harmonious. In daily management and teaching, it is hard to avoid that in students’ study and life, there will be insufficient preparations. It may be students’ problems or schools’ problems. Hence, we need to provide channels for students to make complaints and to put forward opinions. Through multi-style and multi-level symposiums, we could collect students’ opinions and handle students’ complaints and problems properly. Further, through correct guiding, we need to help students to correctly recognize the relationship between ideality and reality. For another hand, students’ employment should be placed at the prominent position. It is raised in the report to the Seventeenth National Congress of the Communist Party of China that “obtaining employment is the people’s livelihood”. The fundamental road for higher vocational colleges to solve students’ employment is to scientifically set up specialties and timely adjust specialties according to social requirements. What is more, colleges could set up employment base through college-enterprise cooperation system so as to resolve students’ employment.

## 1.2 To set up teacher oriented teaching concept and to rely on teachers for good education

Education is a major program of lasting importance, in which teachers are one of the basic elements and are the main body for colleges’ teaching mode and teaching mode innovation. A team of teachers of high makings is the key in cultivating talents of high makings and is the root of core competition force of a college. The reason why many higher vocational colleges could form their teaching features and realize comprehensive, harmonious and sustainable development is that they own a group of excellent teaching and scientific research talents, management talents and specialty leading teachers of high levels.

HUCVTC ensures the central position of teaching through making a series of policies and rules and actively creating atmosphere where teaching and teachers are given priority and teachers are highly respected. In professional skill duty evaluation and engagement, human policy system reform, distribution system reform and post subsidy, HUCVTC gives priority to teachers and encourages teachers and teaching management personnel to take part in academic activities off college and to attend advanced studies, for which HUCVTC provides guarantee both from time and funds. At the same time, HUCVTC endeavors to constantly improve teachers’ income level and living quality. In reforms, humanism care is shown. HUCVTC fully activates positive elements from various aspects and conducts good higher vocational education by relying on teaching staff.

HUCVTC always views teaching team construction as the basic, crucial and strategy work in education career. Through enhancing internal and external training on teaching management personnel, endeavoring to conduct “double title teachers” team construction, implementing “tutorial system”, and retaining professional technicians from enterprises or other organizations or skillful craftsmen to assume teaching task, HUCVTC is constructing a “double title teachers”, part time and full time combined, and professional teaching team, whose structure is reasonable in the title of technical posts, education degree, double teachers and part time and full time teachers and whose teaching capacity, specialty capacity, practice capacity and vocational education research capacity are comprehensively developed.

## 2. To enhance connotation construction and to realize sustainable development of higher vocational colleges

Higher vocational education must take initiative to adapt to social demands and place the key point of reform and development on enhancing connotation construction, improving education quality, and providing highly skilled talents

for socialism construction with Chinese characteristics. To make breakthroughs, make further develop and win in fierce competition, higher vocational colleges must take scientific outlook on development as the guideline, enhance connotation construction, and create competition advantages so as to fully improve education and teaching quality and realize sustainable development.

### *2.1 Leadership capacity construction*

It is pointed out in the Report to the Seventeenth National Congress of the Communist Party of China that to improve leadership level and governance capacity shall be the core contents for leadership construction in various levels and shall be done in good mode. Strong capacity of leadership in vocational colleges is the key for promoting education and teaching reforms in vocational colleges and for constructing excellent vocational colleges. Besides strong enterprise and strong sense of duty, leadership of colleges shall also hold advanced teaching concepts and have good learning capacity, decision-making capacity, execution capacity, innovation capacity and personality charms. As leaders in higher vocational colleges, they should pay special attention to studying the guidelines and policies of our country on vocational education development, learning advanced vocational education concepts home and abroad, and correctly mastering objective situation of China's vocational education. In teaching practices, based on the policies of China, leaders should abstract teaching concepts by inheriting good traditions, making innovation, learning from other colleges, and presenting era spirit. Under the guiding of scientific outlook on development, leaders should make scientific decisions and push forward development of their colleges. In teaching practices, they should be good at finding out and resolving problems, be innovative, be brave to fight against difficulties, and dare to make exploration.

### *2.2 Teaching concepts*

New development strategy needs new concepts to bolster them. Human beings could pass through wrong areas and march towards bright future because we are guided by new concepts. Higher vocational colleges have formed their teaching concepts in their development. After practices in certain period of time, errors could be found and colleges are confronted with difficulties, at which time we need to "diagnose" the concepts and make certain adjustment so as to make it more mature. HUCVTC, based on national policies and taking into consideration economic and social development of Hubei and the actual condition of HUCVTC, conducted wide discussion and researches and then fixed our teaching concept, that is "reinforcing college and enterprise cooperation and engineering combination; setting up specialties according to the needs of market, setting up courses according to posts, and enhancing skills based on employment requirements". Under the guide of this new teaching concept, HUCVTC effectively advanced connotation construction. In recent years, the development of HUCVTC is showing advantage.

### *2.3 College orientation*

If to show special features, besides having special teaching concepts, higher vocational colleges shall also make scientific orientation from the following six perspectives, goals, types, levels, specialties, and teaching modes. Only when colleges make scientific orientation, could there be no fickle phenomenon and could teachers carefully follow teaching concept in their vocational education practices. The orientation of HUCVTC could be summarized as "basing on Hubei province, facing the entire nation, actively adapting to the demands of market on talents and the needs of social development, and serving regional economy construction; basing on architecture, facing construction system, taking higher vocational education of faculty level as the main body, and combining non-education-degree education, such as post training and national occupation certification; taking specialties of civil engineering as the lead and specialties of construction as the main body with the crossing penetration of specialties in management and information, and seeking for stable development; enhancing teaching mode where college establishes cooperation with enterprises and sets up engineering specialty combination in order to enable HUCVTC to become a provincial demonstrating higher vocational and technology college who is famous nation-wide in the field of construction and who takes the lead in national higher vocational colleges of similar type.

### *2.4 Industry and college's cooperation in education*

The combination of industry, schools and researches is the necessary road for development of higher vocational education. To survive in the competition and to seek development, higher vocational colleges shall also integrate social resources outside colleges to speed up the construction of connotation. In recent years, HUCVTC has been integrating resources outside school through the board of directors of college and enterprises and has been cooperating with enterprises in the set-up of specialties, cultivation aims and specifications, and cultivation plan designs, in the teaching of theories and practice courses, in making industrial, technological and post standards and education standards and giving technical trainings facing the society and industries, in helping enterprises resolve technology difficulties and promote projects, in mutually engaging employees, in students' internship and real trainings, in internal and external real training base construction, and in teachers' assuming or involvement in scientific researches of enterprises. The eight types of cooperation are united to realize industry and college's cooperation in education.

## 2.5 Teaching mode

To achieve sustainable development, higher vocational colleges must enhance construction on specialty development and construction, course system and contents, practice teaching construction and talent cultivation modes. Especially, higher vocational colleges must form talent cultivation modes with distinguished features. HUCVTC once tried “2+1” teaching mode only to find that it is too difficult in practice. In order to improve post competencies of students and decrease burdens on enterprises, HUCVTC, based on the characteristics of architecture specialties, applied “2+0.5+0.5” teaching mode, a mode that combines engineering, so as to train occupational makings and competencies of students. In the process of promoting the combination of engineering, we developed new teaching mode which focuses on training the occupational skills of students, such as order, project orientation, real simulation trainings and task driving, and applied real simulation teaching methods, project teaching method, role playing method, on the scene teaching method, phase progressing method, case teaching method, and introducing enterprise rule and industrial certification.

## 2.6 Specialty reforms and construction

Higher vocational colleges shall track the changes of market needs timely, take initiative to adapt to the needs of regions, industrial economy and social development and adjust and set up specialties with pertinence. HUCVTC proactively adapts to regional economy and development needs of the society, adjusts and optimizes specialty structure at proper times, and forms 5 specialty groups with civil engineering specialties as the lead, with the construction specialties as the main body, and with the cross penetration of management and information specialties. HUCVTC strengthens course contents of architecture engineering technology specialties that focus on energy saving and ejection decreasing, gives prominence to reform on courses for architecture decoration technology specialties that focus on exterior and interior environment quality, and reinforces construction on courses for engineering cost specialties that focus on decreasing real estate construction costs.

## 2.7 Course construction and reform

Specialty course reform is the core of course reform. HUCVTC starts from meeting the demands of industry and local economy construction and constructs specialty course system on the basis of full analysis on occupation post competencies. Firstly, according to various occupational competency structure knowledge course modules, HUCVTC vigorously updates education ideology and concept. In the set-up of specialty course, HUCVTC introduces industrial technology standards and post standards, establishes specialty course set-up system that shows various “occupational competency standards”, and forms practice teaching system that includes course training, special project training, and comprehensive training and post internship. Secondly, HUCVTC focuses on giving prominence to specialty features, strengthens specialty course teaching, and improves specialty competency of students. In order to give prominence to the specialty feature of students, HUCVTC resolves the situation where there are too many basic courses and course hour is too long while the course hours for specialty course are not sufficient, reinforces specialty skill training, cuts the too-difficult contents of the basic course, and increases the applicability of specialty course contents.

## 2.8 Experiment real-training base construction

To enhance real training and construction on practice base is the key part for higher vocational colleges to improve teaching condition, form teaching feature and increase teaching quality. For one hand, HUCVTC highly emphasizes construction on practice teaching conditions and constructs 153 independent and mutual-complement practice teaching bases inside and outside college. Under the guide of college and enterprise board of directors, HUCVTC constructs on-campus real-training base that unifies teaching, training, service and appraisal and that has “real simulation” function. This base takes engineering entity as the background, takes structure and construction craftwork exhibition models as the carrier, takes real simulated place as the scene and takes competency cultivation as the main task with action guide as the method and evaluation system as the standard. This base comprehensively constructs a real simulation training platform and forms a real training platform that is open and professional. For another hand, HUCVTC highly emphasizes the organization and management on practice teaching, perfects practice teaching organizations and sets up practice teaching system, such as standard file system, examining system and evaluation system, so as to ensure the smooth implementation of practice teaching and the completion of teaching tasks.

In the past years, HUCVTC, depending on the spring wind of higher vocational education reform and development, made correct and scientific decisions and grasped opportunities. With innovative thoughts and strong faith and through integrating resources, operating house properties and lands of HUCVTC, and enhancing connotation construction, radical changes occurred in HUCVTC in just two or three years. HUCVTC made new exploration and practice in education ideology, education concepts, education investment system, college teaching system and education management system. HUCVTC also formed features in the innovation in talent cultivation modes, real simulation training bases, college and enterprise cooperation and social services, which lays solid foundation for sustainable development and reform of HUCVTC.

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## Implementation of Continuous-Grouped-Self-Learning (CGSL) System in Engineering Education

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### Abstract

This paper presents a new method in engineering education called a continuous-grouped-self-learning (CGSL) system. In general, based on feedbacks acquired from the student at the end of the implementation, students better understanding and appreciation to the courses been taught. Out of 60 students 71.7% admitted that this learning system has improved their study style and knowledge acquisition, which then agreed to be implemented in future. The observation shows that this system increases the appreciation to the knowledge better than conventional method. Apart from that the system also produced better students in term of responsibility, self-confidence, competitiveness, group work, and knowledge sharing. This is realized with the implementation of mock teaching assessment.

**Keywords:** Continuous-grouped-self-learning, Group work, Mock teaching, Engineering education

### 1. Introduction

In recent years, teaching delivery methods have been shifted from a teacher centered learning to students centered learning. While the knowledge is expanding exponentially and dynamically in every second (Fujio, 2006), it is impossible for the tutors and the lecturers to deliver the lesson in the traditional manner anymore. The traditional teaching method places the burden of conveying the knowledge to the lecturers, tutors and laboratory instructors. More often than not, the students have the expectation that they will receive all the information and knowledge from the lecturers. Unfortunately, it happens that this approach limits the students' appreciation to the knowledge. However, leaping into the new millennium many academic institutions have adopted a modified students-lecturers role approach not only to enhance the knowledge delivery but also developing the students' soft-skills. Instead of the lecturers give the talks; the students now take the responsibility to enrich amongst themselves (Otung, 2001; Costa 2007; Ellis, 2007; Berry, 2003). Self-learning is a motivating self-enrichments teaching method. In conventional method, the students are being spoon-fed in lectures and tutorials whilst the exams are paper-based oriented. In this paper we propose an innovative self-learning system namely Continuous-Group-Self-Learning (CGSL) system. In this system, while the lecturer provides a minimal input (i.e fundamental concepts) to the students, they are subjected to explore and expand knowledge by acquiring the information in non-conventional way.

### 2. Working Principle

The working principle of CGSL system is summarized in Figure 1. This system comprises four important elements, which are lectures, group-tutorials, tests and course evaluation by students.

In the lectures, the lecturer delivers the fundamental knowledge and concepts to approach problems to the students. The information given should be sufficient enough to encourage the students to explore the knowledge themselves. Most of the time, the understanding of the knowledge implementation leads to knowledge appreciation. Apart from that, the lecturer may also suggest the information resources to the student. In this teaching approach, the roles of the lecturer and the tutor are as the guides in finding correct, useful and valid information to avoid misleading information being shared. In order to motivate the students to explore the knowledge, this system divides the students into smaller groups. This way, the study groups are unofficially formed where the student can help each other not only to find but to share the knowledge as well. The group work is a crucial factor that will decide the system's success. Therefore, methods to assure the students help each other have to be introduced.

### 2.1 Delivery Method

The information harvested is then delivered by the student during the weekly tutorial sessions, which are conducted as series of presentations to provide continuous learning. Question and answer sessions are part of the assessment. The students were grouped into five (similar as study-group) and divided into two classes, which took place not more than 60 minutes per class. To motivate the success of group-work, important pushing-factors are identified. The assessments are done in group rather than individually. The group member consists of the mixture of smart and weak students in which the smarter students are expected to help out the weaker ones to understand the problems assigned. On the other hand, the weaker students shall work hard to ensure they could stand at par with the rest of the group members and to contribute in the assessment. .

This way, the information is shared efficiently in the group, and consequently reduces the knowledge gap between the students. Continuous assessments from one week to another also encourage the students to practice continuous knowledge harvesting. Another important factor that can improve group work is by competition. Our tutorial is organized in such a way that the students feel that they are competing to deliver the best out of themselves. Each group has to compete in each tutorial and the winner will be receiving an incentive in terms of bonus mark. Besides from the correct answer, the group can also obtain extra marks from good questions asked in the Q and A session, which encourage students to critically induce good questions and communicate. Apart from the knowledge, we believe that this system also enable confidence gain leveling among the students.

### 2.2 Assessments and Evaluations

The tests, on the other hand, are done in two series, on the 5<sup>th</sup> and 10<sup>th</sup> week out of 14 weeks in a semester (Quality Assurance Unit, 2006). The test comprises group presentations where the question set is given impromptu with short but reasonable period of time to solve. The students are assessed by at least two examiners, who ask questions that dig out actual comprehension of the students. The students will take the role of the lecturer and solve the problem and they will take turn to utter out the solution. This method is known as Mock-Teaching-Oriented-Assessment (MTOA). MTOA has been used as reported in (Angelo, 1993; Shaeiwitz, 1998; Sage, 2000). This type of assessment provides the examiner clearer picture on the students understanding to the subject. In conventional writing examination, the lecturer may wrongly judge the ability of the student due to the bad handwriting, misleading question that results misleading answer, plagiarism, and the students' health condition. Using MTOA, which assesses the student on one-to-one basis, the marks given are reflecting the actual ability of the student more accurately.

Lastly in order to observe the effectiveness of the method; students evaluations to this method are done at least twice in a semester. The question set focuses on how the students perspective about the method and how much the method has improved their knowledge in the subject. We also ask the students' opinion on how to improve CGSL system. All these information will be analyzed and used to improve the system from one semester to another.

## 3. Results and Discussion

The response and observation on the implementation of Continuous-Grouped-Self-Learning (CGSL) in two engineering subjects, namely Electronics Circuit and Devices (ECC 3104); and Engineering Mathematics (ECC 3002) are reported. 60 students took part in experimenting the teaching approach in which 20 of them are from Electronics Circuit and Devices course and the rest are from Engineering Mathematics course.

As depicted in Figure 2, from 20 students who enrolled Electronics Circuit and Devices course, referring to scale 1 to 5 (bad to excellent), 46.7% found that the approach is at the level of excellent and very good (scale 5 and 4) for the lecture, while 53.3% felt the approach is at the level of good (scale 3). For tutorial and test, 60% agreed that the approach is at the level of 4 and 5, while 40% think the approach is only at level 3. None of the students opposed CGSL implementation.

For Engineering Mathematics students, 64.5% acknowledged that the lecture is best to be presented using CGSL (level 4 and 5). For the tutorial, 95.6 % reached agreement that it is best to be carried out using this approach (level 4 and 5) and 71.2% preferred (level 4 and 5) the test to be conducted this method. The percentages of disagreement to this teaching method are relatively low with 15.6% for lecture, 2.2% for tutorial and 8.9% for the test as shown in Figure 3.

Given a chance, in overall, 71.7% of the students agreed that they will implement this approach in the future while 15 % found that this approach could be implemented with some modifications. The remaining 13.3% felt that the approach is not suitable to be implemented as portrays in Figure 4.

## 4. Conclusions

The proposed CGSL approach envisions bridging the knowledge gap amongst students in the hope that knowledge is shared and evenly distributed. At the end of the course, the students developed the sense of responsibility not only to themselves but to the others as well. This approach makes the students appreciate the knowledge better and constructs a dynamic continuous learning environment that leads to the idea of engineers as problem solvers. A part from that,

confidence level of the student increases and the more importantly the students are able to present their work in better ways. The approach has shifted the paradigm from self-centered-spoon-fed-learning and paper-based-oriented-examination to Continuous-Grouped-Self-Learning (CGSL) with Mock-Teaching-Oriented-Assessment (MTOA).

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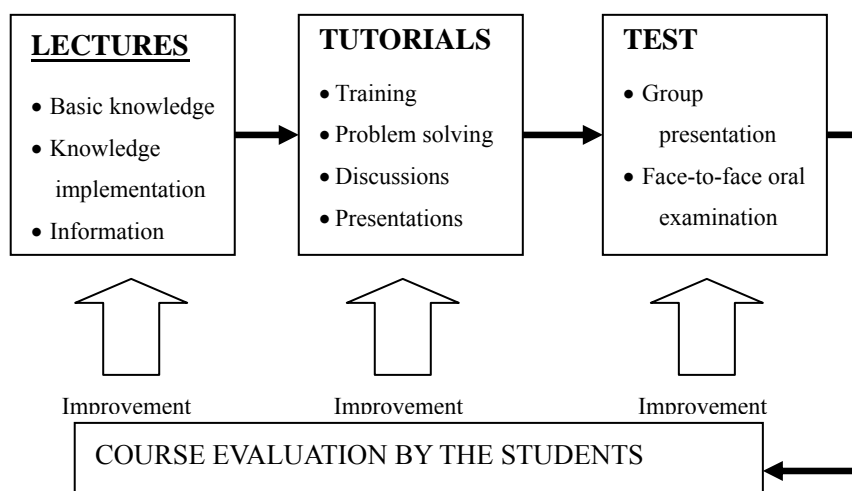


Figure 1. CGSL Working Principles

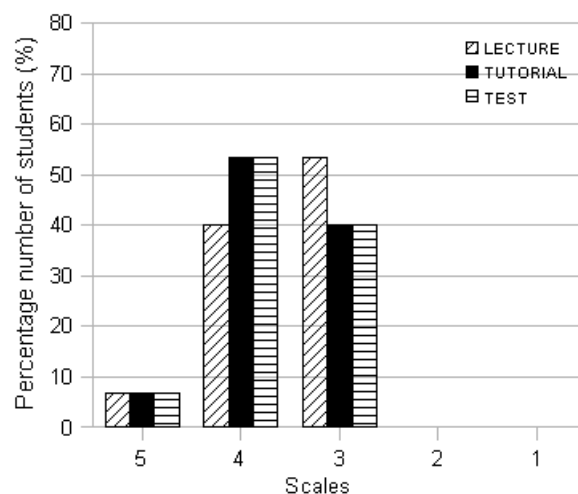


Figure 2. Students' evaluation of CGSL implementation on ECC 3104

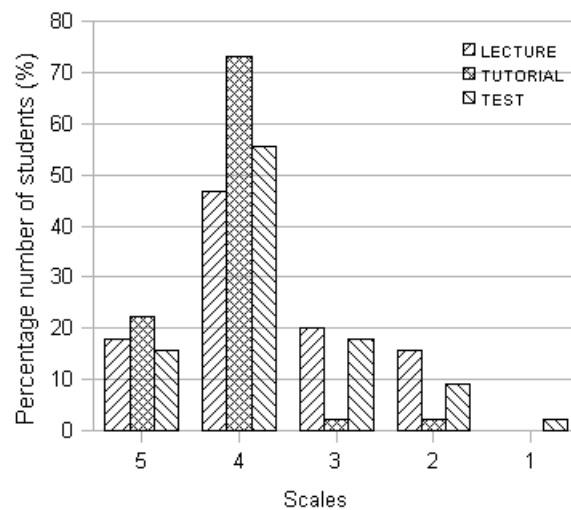


Figure 3. Students' evaluation of CGSL implementation on ECC 3002

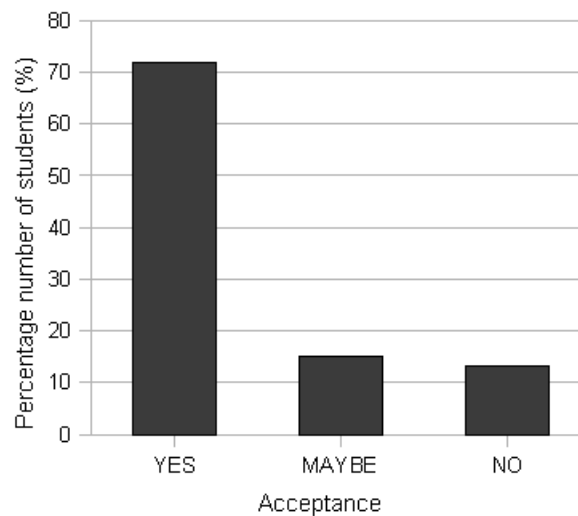


Figure 4. Overall students' acceptance to CGSL system





## Optimization of Multimedia English Teaching in Context Creation

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### Abstract

Using multimedia to create a context to teach English has its unique advantages. This paper explores the characteristics of multimedia and integrates how to use multimedia to optimize the context of English teaching as its purpose. In this paper, eight principles, specifically Systematization, Authenticity, Appropriateness, Interactivity, Coordination, Pluralism, Intelligibility, and Penetrability, are summarized to fulfill this purpose. Through using multimedia and the creation of context in optimizing English language teaching, the study also hopes to improve students' competence in thinking and practicing, which can be adopted to provide an effective method of using multimedia in English teaching and learning.

**Keywords:** Multimedia English Teaching and Learning, Context Creation; Principle, Optimization

### 1. Introduction

With the spread and development of English around the world, English has been learned and used by more and more speakers. Taught as a foreign language, English also enjoys high prestige in China. The use of the English language in China has increased rapidly in recent years, particularly in response to the 2008 Olympic Games and joining the WTO. Adamson (2004: 195) points out the importance of English in China:

At present, the role and status of English in China is higher than ever in history as evidenced by its position as a key subject in the curriculum, with its growing use as a medium of instruction as many schools adopt a bilingual approach to education; and as a crucial determinant for university entrance and procuring well-paid jobs in the commercial sector.

Since there are more and more English learners in China today, different teaching methods have been implemented to test the effectiveness of the teaching process. One method involves using multimedia in English Language Teaching (ELT) in order to create English contexts. This helps students to get involved and learn according to their interests; it has been tested effectively and is now widely accepted for teaching English in the modern world.

The concept of "Context" was first proposed by Malinowski (1923). He distinguished two types of context: "Situational Context" and "Cultural Context". Context can also refer to the environment of using the language, while broader context refers to the specific environment of language (meaning both specific occasions and the social environment).

Narrowly, context denotes the specific context of the language forms, also known as the scenario (see also, for example, Davies, 2005: 28).

Halliday and Hasan (1989) think that situational context can be composed of three parts: “Scene”, “Manner” and “Communication”. It is true that as a social and cultural phenomenon, language is used to communicate both socially and culturally. Kramsch (1998: 6-8) points out:

Common attitudes, beliefs, and values are reflected in the way members of the group use language – for example, what they choose to say or not to say and how they say it. [...] Language is not a culture-free code, distinct from the way people think and behave, but, rather, it plays a major role in the perpetuation of culture, particularly in its printed form.

English learners must rely on a certain language environment to achieve the goal of communication when they are learning the language. We can make use of multimedia technology, combined with teaching scenarios for the creation of a suitable context in learning English. This creates an English communicative environment and provides as many opportunities to practice language as possible to enhance students’ interest in learning English. It is the primary task for English educators to train students in Communicative Competence (see, for example, Hymes, 1972) and optimize the effectiveness of ELT.

## **2. Advantages of Using Multimedia English Teaching for Context Creation**

### *2.1 The Status Quo of Multimedia Teaching in China*

With the rapid development of science and technology today, as well as the theme of globalization and economic integration, multimedia teaching has gradually entered the day-to-day classroom and has been especially well-promoted and popular in Chinese universities. It is known that the term “multimedia” was coined as a result of technological development; it is the combined form of words “multiple” and “media”, while its counterpart is “monomedia”.

There may be different definitions in terms of “multimedia”, but it basically includes using such elements development as multimedia wall charts, slide projector, video, television, networks, PowerPoint, Email, Bulletin Board System (BBS) forums, language laboratories, libraries and multimedia reading rooms. Generally speaking, the core of multimedia teaching is using the computer, based on the current information, to create a platform of exchanges and communication between teachers and students through sound and text. In this way, teaching effectiveness and quality can be improved based on specific and three-dimensional teaching.

However, we cannot deny that China’s multimedia teaching at the current stage is far from being prevalent everywhere. In colleges and universities among economically developed regions, multimedia teaching is still mainly in the second stage of its development. Moreover, multimedia teaching is also difficult to implement on a large-scale basis, and to develop in all locations. It is generally acknowledged that multimedia teaching, particularly using multimedia for ELT, is helpful in context creation, as well as in eliciting motivation from the students for the purpose of changing the traditional “cramming” teaching method, which may lead to so-called “Dumb English” or “Deaf English” (Note 1).

### *2.2 Advantages of Using Multimedia in ELT*

Given the issue mentioned above, a question may be easily raised concerning the unique advantages of using multimedia to create a context for ELT.

First of all, multimedia teaching stresses the role of students, and enhances the importance of “interaction” between teachers and students. A major feature of multimedia teaching is to train and improve students’ ability to listen and speak, and to develop their communicative competence. During this process, the teacher’s role as a facilitator is particularly prominent. Using multimedia in context creation creates a good platform for the exchange between teachers and students, while at the same time providing a language environment that improves on the traditional classroom teaching model. In this way, teachers in the classroom no longer blindly input information and force students to receive it in a passive way. Instead, the English context from multimedia creation enables students to participate actively during the process. Therefore, in this context, English teaching methods gradually diversify and bring students’ enthusiasm into full play with guidance from teachers. It is evident that using multimedia for context creation in ELT improves teaching efficiency and quality.

Second, multimedia teaching creates a context for language teaching. This method makes the class lively and interesting, as well as optimizing the organization of the class. Multimedia has its own features such as visibility and liveliness. During the process of multimedia English teaching, sounds and pictures can be set together, which enhances the initiative of both teachers and students. When using multimedia software, teachers can use pictures and images to enrich the content of classes, and also imagine different contexts in the process of producing teaching courseware. Students in the class can use multimedia to understand the class in a clear way. Through the whole interactive process, it is apparent that using multimedia in ELT is effective in nurturing students’ interest in learning English, as well as enhancing teachers’ interest in English teaching. As Zhang (2006: 111) points out:

Through multimedia and network technology we can offer students not only rich sources of authentic learning materials,

but also an attractive and a friendly interface, vivid pictures and pleasant sounds, which to a large extent overcomes the lack of authentic language environment and arouses students' interest in learning English.

In addition, multimedia teaching is also flexible. It is obvious that the context can be created not only in the classroom, but also after class. Multimedia language teaching can also create a multimedia language environment for the purpose of conducting language teaching. English teaching itself must focus on the guidance of teachers and be student-centered (see, for example, Holec, 1981), which we believe is one of the principles for language teaching. Students are bound to have some problems in classroom teaching, which can be addressed under the guidance of teachers. In such circumstances, students can use the new technology to their advantage, such as manipulating the network to contact teachers, and receiving answers by email.

Through this method of language teaching, teachers can also bring in cultural content and other topics in English teaching, such as education in Britain and the United States, as well as Western festivals and customs. Multimedia language teaching can be used to help students to study under "collaborative learning" (Note 2). Through the production of courseware such as PowerPoint, students receive the teachers' guidance and learn to cooperate with each other. As Zhang (2006: 112) also points out: "Multimedia and network-based language teaching provides students with learning flexibility as far as learning materials, learning time, learning place and learning pace are concerned".

### 3. The Principles of Optimizing Multimedia English Teaching on Creation of Context

English teaching scenarios require teachers to engage in classroom teaching according to the real world. The main materials, rich emotional scenes and the specific atmosphere, inspire and attract students to take the initiative to study. As a result, they ensure the effectiveness of the multimedia context creation in English teaching. Multimedia technology is a remedial teaching method in addition to the traditional teaching process. The focus of ELT is still on students' class activity; therefore, the design of multimedia courseware materials should be close to the content, identifying the entry point of the contents, and following students' thought. In order to fulfill these goals, we identify eight principles to be noted in the process of optimizing multimedia English teaching in context creation, using different forms and methods to design all kinds of practical contexts for language students. We believe that these principles will fully embody the advantages of multimedia English teaching in achieving satisfactory results.

#### 3.1 The Principle of Systematization

Based on the linguistic theory of systematic functions of Halliday and Hasan (1989), the purpose of English teaching is the development of students' *Meaning Potential*, which uses the cultural significance of the target language to raise the English communicative competence. Students not only learn the vocabulary, grammar, and text systems, but also the principles of cross-cultural communication and practices of special meaning systems, behavior, and choices in the language according to the context. The aim of English teaching is to provide students with such a learning environment and conditions. Multimedia and network teaching also provide a more advantageous condition for the development of *Meaning Potential* to students. For example, when we set the English curriculum for multimedia English teaching, we should consider the establishment of different systems of language teaching for the target language and then divide the learning process into different phases. Through the background and introduction processes, students improve their *Meaning Potential* in the various language networks in the project through learning and memorizing; through the construction learning process, students put these projects in the appropriate places in the system, from which the students learn the project by heart; through the choice learning process, students learn to choose their own language according to their needs, composing the communicative structure for the language environment, and grasping the *Meaning Potential* of the language.

#### 3.2 The Principle of Authenticity

The real context can meet students' practical needs in communication. During the process of implementing context into language teaching, students will gain a profound feeling for language learning; we believe that it is a convenient and effective measure to provide real context through a multimedia network. In ELT, teachers have various choices of multimedia software, videos, films, slides, photographs, and other media. They can also use multimedia tools to provide vivid materials, creating real contexts and giving background information in order to help students to create an atmosphere of participation and exchange in different contexts. This method of context creation brings students into the real situation of communication and provides *Context*, *Correlation*, *Embedded Text*, *Synchronic Text*, *Super Text*, and other *Inter-text Contexts* (see, for example, Henige & Zamora, 1989) to make it a benefit for changing knowledge into practical skill.

#### 3.3 The Principle of Appropriateness

Multimedia and networks are characterized by the prolific development of information. Although students can access massive amounts of information, they cannot digest and absorb it directly. Therefore, they cannot develop their long-term memory and communicative competence. In order to optimize multimedia English teaching in context creation in terms of the appropriate selection of information, we should take care to classify and organize information

effectively and make choices according to students' needs. Otherwise, there will be too much information for them. Moreover, attention should also be paid to fit students' different requests when designing the curriculum, following the process of information exchange. For example, when setting the curriculum, it should be known that the difficulty should be slightly higher than the students' actual level. It is true that appropriate control of the type and amount of material, as well as making good use of time, can be more effective when learning English through multimedia language teaching.

### 3.4 The Principle of Interactivity

During the process of in-classroom English multimedia teaching, it is believed that the goal of interaction between teachers and students is to achieve exchanges in the real language context. Teaching content should be designed with consideration of how to achieve interaction between teachers and students, among students themselves, and between students and modern technology (see, for example, Brown, 2001). Through these different types of interaction, personalized learning, collaborative learning (see, for example, Beckman, 1990), and other modes of learning can be combined in order to help students to take the initiative. Through this process, students can discover ideas and methods, and learn how to solve problems by themselves. This method of language teaching provides various ways to promote the growth of students' creativity, cooperation, and interaction. It also makes multimedia language teaching and learning active and vivid, from which we can see that the interactive exchange of information reflects the characteristics and advantages of multimedia teaching in context creation.

### 3.5 The Principle of Coordination

During the process of optimizing multimedia English teaching in context creation, it is inappropriate to change the classroom into a platform for information exchange between students and modern machinery. Multimedia language teaching is not simply a "means of introducing multimedia" (see, for example, Gong & Zhou, 2007). Attention should be paid to coordination between teachers and students, teaching materials and methods, theory and practice and multimedia teaching and the real learning environment. Students learn to take the initiative to promote exchanges with teachers, and vice versa; it is not appropriate to apply too many teaching methods or provide too much courseware to students. It is important to choose the most suitable teaching method for creating a real teaching and learning environment to help students gain the most intuitive and cultural information using various functions and forms of multimedia presentation. In this way, students can develop self-confidence in communication and improve their overall English skills.

### 3.6 The Principle of Pluralism

*Pluralism with Intelligence* requires teachers to choose and create appropriate and comprehensive educational methods to promote the full development of students based on the educational content, their intelligence structure, their interests, and their different characteristics. Teaching English in order to create a multimedia classroom context not only restricts but also affects the students' own intellectual development. English teachers should constantly make use of the advantages of multimedia teaching to update English teaching concepts and teaching strategies, and produce scenario-style, animation-style, case-style, analogue-style, and game-show-style films as self-supporting material to inspire students. This will create multimedia English teaching context conducive to the development of *Multiple Intelligence* (Gardner, 1983) (Note 3), as well as diversifying the teaching forms, to fully motivate students to capture and understand the information, and encourage them to learn English. We believe that this is an effective way of promoting students' all-round development of intellectual awareness, and to maximize their potential for intellectual development.

### 3.7 The Principle of Intelligibility

The process of understanding discourse is the process of the context establishment. An effective way to understand the discourse is to choose and establish an appropriate context to get people involved in the context. This includes communicative context, communicative environment, and communication based on common sense. English teachers should socialize and contextualize the multimedia classroom, as well as trying to transplant the real use of English into an in-classroom multimedia environment to improve students' interpretative skills. It is helpful for teachers to use the characteristics of contexts in teaching materials to enable students to learn when and where they should speak English in line with the discourse and ultimately improve their English language skills. Teachers can also use multimedia to help students to predict the text in order to grasp the context and enhance their comprehensive skills. From a practical context to language understanding and usage based on different types of training, students may improve their communicative competence effectively in different contexts.

### 3.8 The Principle of Penetrability

To achieve the success of multimedia English teaching in context creation, English teachers should involve their own sincere feelings in the classroom and make use of multimedia to stimulate students' emotions. This is a joint method, where the two elements complement each other to promote and optimize the context creation of multimedia English

teaching, which is one of the internal driving forces of students' learning interest. The learning process can stimulate students' desire to learn, so that students leave with positive feelings after class. English teachers should also learn to explore aesthetic factors in the context creation in multimedia language teaching, and make use of the "display" functions of multimedia to make timely demonstrations to help students learn about the aesthetic capacity of English, so that they are able to express their personalities in the foreign language.

#### 4. Optimization of Multimedia English Teaching to Achieve Context Creation

The MIT Open Course Ware (OCW) (<http://ocw.mit.edu/>) of America and the National Program of Web-Delivery for Elaborate Course (NPWDEC) of China can be used as examples of this process; both of these projects are based on the integration of the Internet and multimedia Information Technology (IT), and are also open and sharable projects with wide influence. The NPWDEC integrates texts, pictures, videos, and students' self-evaluation. Through sharing information and course resources on the Internet, some basic public required courses such as "computer" and "College English" have brought about teaching reform and course construction, as well as optimizing the context of the multimedia teaching of English.

Currently, software such as *PowerPoint*, *Authorware*, *Flash*, *Director*, and *Founder Author Tool* can all be used to make multimedia courseware. We believe that it is quite important for English teachers to learn, master, and create interactive courseware to optimize the context creation of ELT. It is also important that English teachers fulfill the aim of multimedia English teaching for the purpose of context creation through meeting certain requirements such as *Intuition with Association*, *Inference with Summary*, and *Cooperation with Interaction*, as well as being aware of the relationships between them.

##### 4.1 The Creation of Intuition with Association

This method of context creation aims to use multimedia skill to record reality, and to present a story or topic background to students in terms of their teaching need. In this process, students are provided audio-visual materials, English newspapers, journals and movies, through which they can learn how to relate these materials to the knowledge they learn; this will impel them to develop their imagination and creative thinking. We believe that through this method of language teaching, students can enlarge their horizon of knowledge as well as constructing a system of knowledge concerning language.

For example, when talking about "Earthquakes", teachers can find videos, pictures, texts, news, and reports concerning the topic and create courseware in the teaching process. During the process, students come to understand the consequences of an earthquake, as well as learning related vocabulary and phrases such as *aftershock*, *disaster relief supplies*, *Quake Lake*, *mountain landslide*, *life detection instrument* and *hydroelectric plant*. Students can also write an essay to summarize what they have learned after learning the topic. In this way, students not only understand the text more effectively, build up a vocabulary and enhance their understanding of the life value, but also relate the learning process with the real world. In this way, students participate in language learning directly and improve both the input and output of the information.

##### 4.2 The Creation of Inference and Summary

This method aims to use multimedia technology to create a particular situation. During this process, various situations and examples with which students are familiar can be created, as well as relating these to students' experiences and helping them observe and summarize the general rules of language learning. This method of context creation has the advantage of helping students to construct more knowledge, and to improve their memory and inference ability. For example, when talking about the preposition "against", teachers can find examples of the usage of this word in an online dictionary such as JuKuu (<http://www.jukuu.com/>) and provide different contexts with specific meanings of this word:

- a. Five members voted for the proposal, eight voted against, and two abstained.
- b. A group of men were charged (with) conspiring against the duly elected government.
- c. They accused him of having a prejudice against his women employees.
- d. We make copies of our computer disks as a safeguard against accidents.
- e. He had the idea of shooting them against a completely plain white background.
- f. The tide of public opinion seems to be turning against the government.

In this way, we hope that different meanings of the word "against" in different contexts can be learned effectively by students.

##### 4.3 The Creation of Cooperation with Interaction

This process is a method using online communicating tools such as BBS, ICQ or email to create a learning platform. An interactive multimedia language laboratory can also be used to create a cooperative and communicating environment for

teachers and students. The creation of multimedia English teaching breaks the limitations of time and space of ELT. Therefore, context creation is not limited to class time. In this way, students have more opportunities to “get in touch with” English, while teachers can also understand students’ needs in language learning and communicate with them in a timely fashion.

For example, when talking about the topic of “Environmental Protection”, teachers can ask students to have group discussions about the general background of the topic. After class, teachers can also find background information of this topic, and use these methods of communication (BBS or email) to contact students and give them the names of different kinds of pollution, such as *Water Pollution*, *Air Pollution*, *White Pollution*, *Acid Rain*, and *Red Tide*. Courseware can also be used for discussing the solutions to these environmental problems. Teachers can tell the students: “Write down as many general environmental problems as you can think of. Then, think of solutions to one of the problems you have come up with”. Internet resources can also be used to create an interactive context during this process. Using this method, we hope that students’ positive outlook concerning language learning can be enhanced. This is a rapid and economical teaching method.

However, this method of context creation requires interaction and communication between teachers and students. If one party is lacking, the coordination and context creation is difficult to implement. Therefore, we believe that in the current situation, the spread and achievement of using multimedia English teaching in context creation should be carried out step by step.

## 5. Conclusion

“Ideally, the purpose of both the traditional and computer-assisted cooperative language learning classrooms is to provide a space in which the facilitation of learning, and learning itself, can take place” (Shi, 2008: 76). It is true that one of the ultimate goals of multimedia language teaching is to promote students’ motivation and learning interest, which can be a practical way to get them involved in the language learning. Context creation of ELT should be flexible to fit the students’ needs. Moreover, a good multimedia English teaching context should be based on the openness and accessibility of the teaching materials and information. During the process of optimizing the multimedia English teaching, students are not too dependent on their mother tongue, but will be motivated and guided to communicate with each other.

Concerning the development of technology, we believe that in future, the use of multimedia English teaching will be further developed and combined with the use of the Internet (this method of language learning has been applied in some universities in China, such as Beijing Foreign Studies University, Fudan University, Nanjing University, and Shantou University). The process of English learning will be more student-centered but less time-consuming. Therefore, it promises that the teaching quality will be improved and students’ applied English skills can be effectively cultivated, meaning that students’ communicative competence will be further developed.

It is also important that using multimedia English Teaching can be an appropriate method to help students to “get a sense of the sociocultural context in which the language is used” (Kramsch, 1999: 31), as well as raising students’ language awareness under the framework of World Englishes (see, for example, McKay, 2002, Kunschak, 2004). In conclusion, we believe that this process can fully improve students’ ideation and practical language skills, which is helpful and useful to ensure and fulfill an effective result of teaching and learning.

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#### Notes

Note 1. “Dumb English” or “Deaf English” can both refers to “a consequence that students cannot use English to communicate with others”.

Note 2. Cooperative Learning is “an approach to teaching and learning in which classrooms are organized so that students work together in small co-operative teams. Such an approach to learning is said to increase students’ learning since a) it is less threatening for many students, b) it increases the amount of student participation in the classroom, c) it reduces the need for competitiveness, and d) it reduces the teacher’s dominance in the classroom” (Longman Dictionary of Language Teaching & Applied Linguistics).

Note 3. According to Gardner, the eight core intelligences include: Linguistic Intelligence, Logical-mathematical Intelligence, Spatial Intelligence, Bodily-kinesthetic Intelligence, Musical Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence, and Naturalistic Intelligence.



## Reading Strategies' Variations Can Boost Overall Language Competences' Enhancements of Senior Middle School Students

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### Abstract

Language competences are based upon the accumulation, assimilation and utilization of the learnt language, whose acquisition depends upon the practice amount and practice opportunities of the language, so students are supposed to plunge into the activities of language practice actively and habitually by acting on their initiative. I think strengthening the guidance on reading strategies is a satisfactory solution to the pressing question of providing Ss with adequate self-experience opportunities, because reading can provide Ss with adequate self-experience and practice opportunities for the comprehensive acquisitions of language skills due to reading's intrinsic characteristic.

**Keywords:** Variations, Enhancements, Senior Middle School Students

### 1. Some evaluations about the current commonly-seen teaching mode in schools

Language acquisition is more imitation and self-experiences than teaching, though teaching plays a certain role in the whole process. In the traditional bilateral activities of teaching and learning, Students are in a passive status being regarded as containers of storing knowledge, while teachers' functions are highlighted, with Ss' learning substituted by teaching and self-experience opportunities suppressed or constrained, which severely affects students' showing their initiative in obtaining knowledge and hinders the abilities' cultivations of students' utilizing what they've learnt. Though teachers' necessary teaching and guidance are indispensable, teaching activities should be student-centered, with students being the 'main body'. However, the core of our education is how to arouse the initiative of language learners. It's time that we advocated the concepts of strengthening their self-study abilities and consummating the pedagogy methodology of language acquisition. A methodology shift from grammar-centered to reading-centered should be attempted.

### 2. Some phenomena I've experienced or observed in schools

#### 2.1 Low structural percentages in test paper

When my students are tested each time by using the standardized test paper which is in conformity with the paper's structures of the entrance examination to college in Guizhou province, which includes the following sections: phonetics(listening), grammar, cloze, reading, situational conversation, words spelling, error correction and writing, I find that most of them lose many points in each section. When it comes to the reading parts, the situation is even worse with the average score between 20-30, which is not an ideal percentage of the total score 45.

#### 2.2 The prevailing traditional grammar-centered teaching mode

In our school, the traditional grammar-centered teaching mode prevails, which tends to spend at least two thirds time laying emphases on the imparting of grammatical points, considering it as a short cut to language acquisitions and hoping to make conspicuous progress. We take it for granted that this kind of teaching method is sure to boost overall enhancements of the learners' language competences. Actually, grammar-centered method is not a highly efficient way according to my personal experiences.



### 3. The reasons why I lay emphases on English readings' strategies

#### 3.1 Self-experiences produces genuine knowledge

There's a saying which goes roughly like this: Practice produces genuine knowledge, which implies the significance of self-experiences, here because of the intrinsic qualities of reading, it can provide Ss with lots of practice opportunities in all-sided competences: phonetics, listening, grammar, cloze, reading, situational conversation, words spelling, error correction, writing and so on.

#### 3.2 Practical and constructive theories on the manipulation of reading

Many educators or teachers have done lots of researches on reading and have formed their practical and constructive theories on how to manipulate teaching English reading effectively and efficiently, which provide me with theoretical methodology substantially. Reading has become the most important way for students to participate in language practice and cultivate their language competences. Theoretically speaking, reading is advanced sublimation of competence. Therefore, a shift of teaching methods from grammar-centred method to reading-centred method, I suppose, may be a feasible way to achieve an all-sided improvements in the language acquisitions and should be attempted.

### 4. The concrete measures I've taken and the beliefs I've held in my teaching Ss to read

#### 4.1 The most fundamental factors of reading abilities

Accumulation and consolidation of glossary and syntactic rules are the most fundamental factors of reading abilities. Only by combining the appropriate amount of vocabulary with the basic syntactic rules can we settle the problematic core, both being indispensable. In the aspect of syntaxes, simple sentences are easy to handle, but noun clauses, adverbial clauses, attributive clauses, emphatic sentences, inversion sentences, subjunctive mood, non-predicate verbs, parentheses and so on are the hard nuts to crack. We must lay a solid foundation on them to make our reading results smooth and bumper. Syntax and reading are mutual propelling, which means that syntax makes reading smooth and reading consolidates a firm grip on the learnt syntaxes and a virtuous cycle can be achieved. The escalation of reading abilities must have the extensive reading as the prerequisite, which can contribute to forming the language sense over a long period of time. However, even if you have stored a large glossary in your brain and have had a good mastery of the grammatical points, without reading much, the escalation of reading abilities will run counter to your efforts or go astray from the right path. Progress by leap and bound will be impossible. Words are the basic units of sentences, sentences make up paragraphs, paragraphs form an entire passage. The understanding of them cannot be separated. Macro group senses and passage senses must be built up. Word-for-word reading affects the reading speed as well as the fathoming of the themes of reading materials.

#### 4.2 Development of good reading habits

Students are supposed to develop the habits of reading fast, locating the needed answers accurately. The strategy of training students by setting time limit to the given reading amount is beneficial to increasing their reading speed. Good reading habits are the cornerstones for the fast improvements of reading abilities. While reading, the phenomena of stop, repetition, making sound, consulting dictionaries, quoting meanings out of contexts, word splitting and dillydallying ought to be avoided habitually. We should get a reading done without any letup with energy focused on the process. Time concept must be observed to have a quick findings of the main ideas. Making proper guesses at new words through contexts and word-building regularities is essential to comprehending reading.

#### 4.3 The cultivation of Ss' interests in reading.

Teachers must cultivate Ss' interests in reading. Interest can be defined as desire, need, motivation as well as the best teacher. Mood and enthusiasm are inter-dependent and mutual-propelling. Enthusiasm can arouse the motivation of language learning. Interest is the best teacher. Therefore, the cultivation of mood in language acquisition outweighs cognitive skills. In the process of teaching and learning, the input of teachers' glamour, mood and enthusiasm can achieve a benign interaction in driving students to excavate their latent abilities and passion. Only when Ss show strong interest in reading are they able to transfer passiveness into activeness, regarding English reading as a happy thing instead of a burden. In the initial stage-senior Grade One, we must put the cultivation of reading interest into the place of first priority. The enhancement of reading capacity cannot be accomplished in an action and it should be gradually advanced according to the planned agenda, prevent students' polarization, grope after the rules of reading activities and testing modes of reading and put them into practice. The teaching mode of teaching reading should be simplified with high feasibility. Teachers should be fast in leading students into the required reading by utilizing the situation, illustration and conversation and what not. Arouse their reading desire and avoid taking a roundabout way. Be straightforward, concise and comprehensive. Traditional reading-related teaching modes are unfavorable to the cultivation and improvement of students' reading enhancements, for teachers are accustomed to spending longer time in narrating the reading materials depriving them of the comprehension opportunities with students positioned in a passive status.

#### *4.4 Making guesses at the meanings of the new words from the contexts*

The purpose of fast reading is how to acquire the ability of finding the required answers to the designed questions, breaking away from relying on English dictionaries.

#### *4.5 Techniques for putting forward questions*

The questions for different students ought to be stratified and the principle of teaching students in accordance with their aptitude should be followed. The questions for backward Ss should be simpler for the purpose of motivating their reading desire.

#### *4.6 Steps for describing reading materials*

Multi-phase description of the reading materials: give a rough idea after a fast reading and a more detailed narration after an intensive reading, whose reading speed should be comparatively slower. After teachers' more advanced elaborations on the difficult points over a long time's training, Ss' abilities of analyses, induction, memory, organization and spoken expression can ascend to a higher level.

#### *4.7 Emphases on the rhythmic beauty, grammatical points and overall consideration*

Teachers need to pay attention to the rhythmic beauty of teaching reading, expound the difficult and important grammatical points thoroughly and explicitly and never leave students in a state of bewilderment.

#### *4.8 The transition from quantitative cognitive accumulation to qualitative sublimation*

The focus of English teaching in junior middle school is laid on the quantitative cognitive accumulation of glossary, sentences and syntaxes, while English teaching in senior middle school is shifted gradually towards qualitative sublimation. The significance of language skills is more protrusive. Laying more emphases on reading intensively and extensively can accelerate the comprehensive abilities' acquisitions of listening, speaking, reading, writing and translation (interpretation). The combination of extensive reading and intensive reading broadens our knowledge range, deepens our understanding of diverse cultures, enlarges our vocabulary and takes full advantage of the syntactic knowledge. The all-sided destinations of learning English are permeated in reading activities organically, effectively and efficiently. Learning English well through reading is the short cut to a larger extent.

#### *4.9 Combination of the enlargement of glossary with reading*

Glossary resembles building materials, without which buildings would be just mirages. Similarly, without a certain amount of glossary as the foundation stone, the bettering of reading abilities would be unimaginable, consequently, enlarging Ss' glossary is imperative under the situation. Glossary are the basic units of reading materials, hence the mastery of glossary should be accounted for in the concrete contexts and their meanings can never be quoted out of the contexts. Naturally, the best way to enlarge vocabulary is through increasing the amount of reading. Reading materials should be typical, wide-ranged and stratified according to Ss' actual levels, including politics, economy, military, historical cultures, characters, natural environment, science development, customs and what not. The application of language should be native to the English-speaking countries, writing styles or types of literature should be diversified. To name a few, *English Tutoring Newspaper*, *English Weekly*, *China Daily*, and *the 21<sup>st</sup> Century* are of such kind.

#### *4.10 Controlling of the choices of reading materials appropriately*

The types and contents of reading materials should be in conformity with the development law of Ss' bodies and minds, on which the cultivation of reading interest and readability are based. Readability is the reference standard or criterion of deciding on reading materials. Reading parts in the textbooks are the perfect and all-inclusive materials with sound, glossary and syntaxes interwoven as an organic entity. Choosing texts from textbooks as reading materials is the most productive resort in dealing with the cultivation of Ss' reading capacity.

#### *4.11 The significance of teachers' proper and timely guidance*

Teachers' proper and timely guidance on Ss' reading is greatly significant to the building of Ss' confidence in reading, which can counteract on the accomplishment of their reading abilities. The introduction about the reading-related background is especially indispensable and the methodology guidance can never be neglected.

#### *4.12 The benefits of getting immersed into pure language atmosphere*

The cultivation of reading skills is beneficial to Ss' forming the language sense due to its pure language atmosphere. It's the comprehensive training of the desired abilities (listening, speaking, reading and writing according to the relevant theories of pedagogy and psychology). Intensify the reading skills of skipping and scanning. Scanning techniques are aimed at working out the main ideas of the reading materials quickly, for the purpose of foretelling the contents through the titles, fore and hind paragraphs, introductions, illustrated pictures, catalogues and key words. Skipping techniques are mostly used for fast locations of the key words of the pre-designed questions. What the two reading methods have in

common is the training of reading speed. To draw a conclusion, English skill reading is the omnipotent key to the overall enhancements of English reading abilities. The crux of the problem is how to proceed the reading trainings. The essence of methodology is to guide our practice effectively and productively.

#### *4.13 Habit is second nature*

Persistent perseverance makes reading an enjoyable part of our daily life. Work out a target management system and a self-supervision system according to one's actual situation. Time-fixed and quantity-limited reading is the usual practice.

#### *4.14 The training of comprehension ability*

Comprehension ability is a more advanced ability among reading abilities. Whether a reading is accomplished smoothly and successfully is often evaluated according to whether the grasp of structures, interrelations of the paragraphs, backgrounds, purpose of the writing and communicative functions are achieved.

### **5. The benefits of highlighting the reform of reading strategies**

English reading, virtually, is a synthesis of phonetics, listening, grammar, syntaxes, writing, which means it's a comprehensive activity. So the cultivations of interests in reading, good reading habits, appropriate reading methods and techniques can pose counteractions on the overall grasp of language abilities. By collecting the data from my teaching career and analyzing them in scientific statistics (SPSS) comparatively, objectively, horizontally and longitudinally, I find that the average scores' increases are sure to result in Ss' overall enhancements and are in direct proportion to those of reading, the changes being conspicuous and significant. so strengthening reading strategies' reforms is conducive to overall improvements in language acquisition, shifting teaching methodology from grammar-centered to reading-centered is to the benefits of both teachers and students. Meanwhile, moral educations are permeated into readings organically. Practically. Self-dependent reading activities cover the following aspects: self-reading, self-understanding, self-assessment and self-questioning, which is aimed at increasing their reading quantities, cultivate their capabilities of resolving questions independently, actively and creatively. In reading, we need to fuse reading and actual life, emphasize its practicalities, make students enjoy studying and be good at learning and learn willingly. The ultimate aim is to enjoy the senses of happiness and accomplishments. The traditional teaching mode for reading must be updated to bring students' initiatives into full play in excavating their reading potentiality. Getting rid of the stale and bringing forth the fresh to form characteristics are the soul of life and development.

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## Implementation of Outcome-Based Education in Universiti Putra Malaysia: A Focus on Students' Learning Outcomes

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### Abstract

The move towards applying outcome-based education in teaching and learning at tertiary education level has become an important topic in Malaysia. Apart from the three learning domains; namely, cognitive, psychomotor and affective, the Ministry of Higher Education has determined eight learning outcomes which are important in providing wholesome quality education to students. Universiti Putra Malaysia has conducted a study to determine the extent to which these learning outcomes have been achieved. The result shows the overall perceived achievements were as follows: cognitive domain was at level four, psychomotor domain at level four and affective domain at level three. The Ministry's set of learning outcomes revealed the following results: The highest score went to providing KNOWLEDGE to students, while the least achievable learning outcome was MANAGERIAL AND ENTREPRENEURIAL SKILLS. The results infer that soft-skills among students were lacking and this problem needs to be addressed quickly and effectively.

**Keywords:** Outcome-based education, Learning domains, Learning outcomes, Cognitive, Psychomotor, Affective

### 1. Introduction

The move towards applying outcome-based education (OBE) in handling teaching and learning instructions at tertiary education has been one of the most widely considered topics in educational sector in recent years. Concerns on the fact that the education system widely practiced ill-adequately prepares graduates to face challenges in life and at work places in the 21st Century have prompted people across the world to explore new ways of designing and re-branding academic and educational curriculum.

OBE was developed and has been in practiced since 1950s in Malaysia. It is now being implemented at all levels of education especially at higher institutions of learning. OBE is an education philosophy organized according to several basic beliefs and principles for the learners to practice in order to become successful in life when they finish their studies. It starts with the belief that students can benefit from any educational program only when the instructional outcomes can be measured as a result of any instructions. Higher educational institutions should be able to monitor the levels of outcomes expected from any academic courses through the propagation of quality teaching by qualified lecturers. These will in-turn result in meaningful learning experiences for the students. Instructions should be strategized in accordance with the desired exit outcomes. This would be largely dependent on relevant instructional

strategies utilized by the lecturers in order to achieve relevant skills with high standards of achievement in line with high expectations of all students.

Universiti Putra Malaysia (UPM) has implemented OBE in its teaching and learning strategy. Apart from the three learning domains; namely, cognitive, psychomotor and affective, UPM has also emphasized that students achieve eight learning outcomes as determined by the Ministry of Higher Education (MoHE) which are important in providing wholesome quality education to students. The learning outcomes are Life Long Learning and Information Management, Communication Skills, Managerial and Entrepreneurial Skills, Psychomotor / Practical / Technical Skills, Knowledge, Social skills and Responsibility and Professionalism, Values, Attitudes and Ethics. This study was conducted to determine the extent to which the learning outcomes have been achieved.

## **2. Outcome-based Education at Universiti Putra Malaysia (UPM)**

At its most basic level, OBE is where the school and community first determine what skills and knowledge students should possess upon graduation, then work backwards from there to develop curriculum, strategies and materials to help students achieve those goals, or “exit outcomes”. Generally, in OBE learning, all educational programs and instructional efforts are designed to have produced specific, lasting results in students by the time they leave school (Blust 1995). Schools that have successfully implemented OBE programs which ascribed auspicious results such as Alhambra High School in Phoenix, Arizona, reported significant improvements in attitude and performance by both students and teachers within the first year (Briggs 1988). And, after four years of OBE, the Sparta School District in Illinois achieved radical gains in grades and test scores in spite of its previous financial and labour problems (Brown 1988).

In Universiti Putra Malaysia (UPM), the teaching and learning instructions are conducted using the semester system where one academic year is divided into two semesters. During the course of each semester students will be given instructions according to the aims and objectives of each subject/course offered by the university. Evaluations on students’ academic performance are conducted in the forms of quizzes, assignments, examinations and other forms of assessment such as practical works and field practices.

There are 64 academic programs offered by 16 academic faculties in UPM. Each program needs to fulfil a total number of credit hours for a student to undertake before he or she is considered qualified for a degree in that program. Some of the programs prescribed major and minor courses in related fields as a requisite to qualify for a degree. The academic courses offered by each faculty can be divided into three different categories; the university courses, core courses and elective courses. The core courses are compulsory for all students to take, lest, their study will be considered incomplete. While the university and elective courses are courses offered for the purpose of enriching students’ general knowledge in fields related to their programs. Students have the freedom to choose from the list of courses provided by the university.

UPM has a vision to become an internationally renowned university. Though the University has achieved much and made great strides in recent years, particularly in the areas of research and innovation, there is still much to be desired and done before UPM can attain the status of a first-class, world-renowned institution of higher learning. If UPM is to achieve its goal of becoming an overall excellent institution, it must address the claims made by some quarters that the University is not actually producing world-class, ‘top quality’ graduates that are highly sought after by prospective employers. For example, there are anecdotal evidences that come from government officials, the media as well as industry representatives in Malaysia which indicate that many UPM graduates are found to be having difficulty and weak in the skills of communication and creative self-expression to such an extent that they even have difficulty in getting through their job interviews. Once hired, many are said to be lacking in higher-order and lateral thinking skills, creativity, analytical skills and other skills required to make them efficient and proficient problem solvers and decision makers.

In order to produce quality graduates at UPM, teaching and learning instruction, assessment procedures and techniques should be highly tailored for the desired exit outcomes (Universiti Putra Malaysia 2004). UPM’s goal of producing first-class graduates should be reflective in the teaching and learning objectives which are observable and achievable via the adequate and appropriate teaching and learning approaches and strategies. Assessment should possess high degree of discriminating effect that classifies student according to their actual skills and abilities. There is a wealth of assessment methods used in higher education to assess students’ achievements. The choice of assessment procedure should be tailored to meet the learning needs of students.

The intended goal also implies that UPM lecturers should be equipped with first-class quality of teaching instruction and are capable of delivering the finest education to their students. Lackadaisical instructional strategies with lacklustre attitude would not be at all warranted. There is a need to be flexible in approaching and creative in strategising while meeting the needs of both students and lecturers in the process of achieving the course learning objectives. Lecturers can choose suitable learning methods such as Problem-Based Learning (PBL), Student-Centred Learning (SCL) and other relevant approaches. There is also a need for lecturers to undergo courses in aptitude assessment to determine their

teaching styles and preferences, including obtaining personality and socio-historical profiles that underlie their educational beliefs and practices. This type of assessment can provide much toward determining the training needs of lecturers that will ensure the right ingredients that are necessary to make the needs of students.

The purpose of OBE is to equip all students with the knowledge and competencies needed for their future success. Thereby, it is necessary to implement programs and conditions that maximize learning experiences. The objective of the study is to assess lecturer's perception on how far the students have achieved the stated learning domains and learning outcomes.

### 3. Literature Review

Learning outcomes can serve as a benchmark to measure a success of a university. Learning outcomes as 'being something that student can do now that they could not do previously' are changes in people as a result of a learning experience (Watson 2002). Learning outcomes can be used in a way that meets the needs of all stakeholders in university (i.e. the student, the lecturer and external parties). It has been theorized that learning outcomes consists of three broad categories or domains of learning as shown in Table 1.

"Student learning outcomes," on the other hand, encompass a wide range of student attributes and abilities, both cognitive and affective, which are a measure of how their college experiences have supported their development as individuals (Bloom 1977). Cognitive outcomes include demonstrable acquisition of specific knowledge and skills. Affective outcomes are also of considerable interest; how has their college experience impacted students' values, goals, attitudes, self-concepts, worldviews, and behaviours? Psychomotor domains involve physical movement, coordination, and use of the motor-skills areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures or techniques.

The outcomes also serve the following purposes:

- The specific outcomes of the learning areas are organized so that UPM can prepare learning programmes appropriate for each phase of education.
- Lecturers will prepare lessons and activities to assist student in meeting the required outcomes.
- The student will be assessed to see if he or she can demonstrate the outcomes. The results of the assessment show whether the student is competent or still needs assistance in order to achieve a particular outcome.
- If a student still needs assistance, more activities are designed around the same outcomes in the learning programme. These activities address the learner's weaknesses.
- If the student is competent, he or she can start working on more complex outcomes

The purpose of student learning outcomes is to ensure that the graduates acquire the essential core of a university-educated person in keeping with the university's mission and its strategic plan. In addition, the learning outcomes provide an opportunity for graduates to acquire the knowledge and skills. The MoHE has determined and categorized the learning outcomes for the local institutions of higher learning as shown in Figure 1.

Teaching approach can be defined as the behaviours or actions that lecturers and learners exhibit in the learning exchange (Heimlich and Norland 2002). Teaching behaviours reflect the teachers' beliefs and value about the learner's role in the exchange. Learners' behaviours provide insight into the ways learners perceive, interact with, and respond to the environment in which learning occurs.

Each teacher is unique and can use his or her style to be as effective an educator as possible. In the teaching and learning contexts, teaching effectively is a learned skill requiring knowledge of educational process, mastery of the instructional methods, and an ability to use with a variety of learners and setting (Ladd and Ruby 1999).

### 4. Methodology

This study involves lecturers teaching diploma and degree programs in UPM. The instrument was developed by a research team. The instrument has been developed by focusing on two (2) major domains, they are; teaching and learning taxonomy (cognitive, psychomotor, and affective) and MoHE learning outcomes. Levels and explanation for each domain are referred from Bloom's Taxonomy.

The instrument also measures the perceived attainment level of learning outcomes that have been developed by MoHE for courses that have been taught in the semester. The scale is from 1 to 10 where 1 indicates the lowest perceived attainment level of learning outcomes and 10 indicates the highest perceived attainment level.

By the same token, the instrument covers respondents' profile and the background for courses taught. The respondents are UPM lecturers from all faculties. The instrument was distributed to the departments in faculties according to the number of degree courses taught at week 10th. The instrument was distributed to all lecturers from each faculty via the Head of Department who will in-turn sent the completed ones back to CADE.

The entire courses offered from 16 faculties are categorized into three clusters which are Social Sciences, Biosciences & Medical and Physical Sciences & Engineering. Courses offered by Faculty of Educational Studies, Faculty of Human Ecology, Faculty of Economics and Management and Faculty of Modern Languages and Communication are categorized under Social Sciences cluster while Faculty of Agriculture, Faculty of Forestry, Faculty of Veterinary Medicine, Faculty of Food Science and Technology, Faculty of Medicine and Health Sciences are categorized under the cluster of Biosciences and Medical. Faculty of Engineering, Faculty of Science, Faculty of Design and Architecture, Faculty of Computer Science and Information Technology and Faculty of Environmental Studies are chosen to represent the cluster of Physical Sciences and Engineering. Table 2 shows the responses from each cluster.

The data was analyzed using descriptive analysis to determine the frequency, mean and standard deviation. Analysis of variance, using ANOVA, was to see whether there are significance differences between teaching and learning domains and learning outcomes among clusters of Social Sciences, Biosciences & Medical and Physical Sciences & Engineering.

## 5. Results and Discussion

### 5.1 Students' Attainment based on Learning Domains

#### 5.1.1 Cognitive

The cognitive domains involve knowledge and the development of intellectual skills. These domains consist of six major categories starting from the simplest behaviour to the most complex. The categories can be thought of as degrees of difficulties. Table 3 shows the distributions of response.

#### 5.1.2 Psychomotor

The psychomotor domain consists of physical movement, coordination, and use of the motor-skill areas. Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques. Table 4 demonstrates the distributions of response.

#### 5.1.3 Affective

This domain includes the manner in which the study deals with things emotionally, such as feelings, values, appreciation, enthusiasms, motivations, and attitudes. The other skills in the affective domains were fairly utilized by the lecturers as illustrated in Table 5.

The result shows that from general perspective, the level of perception perceived by all lecturers in the domains used in their teaching instruction in Semester I 2006/2007 and Semester II 2006/2007 were consistent as shown in Table 6.

#### 5.1.4 Analysis of Variance for Teaching and Learning Domains

Table 7 shows the relationship between level of perception of utilization of teaching and learning domains by lecturers from different clusters.

### 5.2 Learning Outcomes

Table 8 presents the distributions of response by the perceived attainment level of learning outcomes. The details of the percentage levels of attainment of learning outcomes for all courses using eight elements of learning outcomes by clusters are shown in Appendix 2.

Using the Likert scale ranging from 1 to 10, where 1-3 indicates 'Low', 4-6 indicates 'Moderate' and 7-10 indicates 'High', it is noticed that the overall perception ranged from low to high, the MANAGERIAL AND ENTREPRENEURIAL SKILL were regarded as 'Low' in terms of attainment, while the rest lies in the region from 'Moderate' to 'High'. The results were illustrated in Table 9. The details of the means levels of attainment of learning outcomes for all courses using eight elements of learning outcomes by clusters are shown in Appendix 3.

#### 5.2.1 Analysis of Variance for Learning Outcomes

Illustrated in Table 10 were the results for relationships of the attainment of learning outcomes by lecturers from different clusters

## 6. Summary and Conclusion

This paper has indicated that majority of the lecturers of UPM were able to infuse the required levels of cognitive, affective and psychomotor domains in their instructions in line with the effort of producing students with wholesome and global qualities. The utilization of all levels of domains from the three major constructs was prevalent. As indicated by the instructions conducted in both semesters 1 and 2, all domains of cognitive, psychomotor and affective were evenly utilised across the board.

The infusion of low order cognitive domains in an instruction, which concentrates on providing students with basic understanding of facts is equally as important as providing them with the higher order categories that call for the

employment of critical and creative thinking skills. Students need to understand the facts of the matter before engaging in employing those facts for higher order thinking, such as to analyse, synthesise, evaluate, or even spiritualize. There is a need to highlight that each instruction must ensure that higher order thinking skills must be made the ultimate aim. Some lecturers were engaging on the low-order cognitive domains in their instructions could be due to the fact that students were newly recruited and there is a need for them to understand the basics of instruction or it could also be due to the objective nature of certain subjects which require employment of literal instruction. This needs to be ascertained.

The utilisation of psychomotor domains was well spread out in the instructions. As indicated by table 4, students were able to utilise levels 3 and 4, i.e. 'guided response' and 'mechanism'. This shows that some students still require instructors' guidance in their psychomotor activities. Nevertheless, it is acknowledge that the other half of the majority is already gaining confidence in doing things on their own. Overall, about 26% of them can be considered substantial in attaining the ability to engage the higher order categories of the psychomotor domains i.e. 'complex overt response', 'adaptation', and 'origination'. It is acknowledged that a sizeable percentage of the students were already attaining the higher order psychomotor skills.

The affective domains were well infused in the instructions. Students were seen to be well equipped with all the domains that are important to their development of moral, attitudes, and feelings. This aspect of development is of utmost important to ensure that intellectual development as prescribed by the cognitive domains is fairly substantiated by the moral aspects of character development. This is in line with the intention of producing students who are not only cognitively smart but also morally upright and upstanding.

In the effort of producing first class graduates with wholesome quality, characteristics and aptitudes in UPM, we need to also consider assessment procedure and approaches that are truly valid and reliable to measure the learning outcomes of the students. The goal of the producing first class student must be commensurated by first class teaching instructions. The assessment procedure used to assess students' performance must possess high degree of discriminating effect so that students' categorization in term of their academic performance is highly reliable.

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## Appendix

### Appendix 1: Ministry of Higher Learning's Learning Outcomes

- i. Knowledge
  - Demonstrate possession of a body of knowledge of the relevant discipline.
  - Ability to apply the knowledge.
  - Apply principles to new situation.
- ii. Professionalism, Values, Attitudes, Ethics
  - Possess technical knowledge and skills with commitment to a set of shared values.
  - Have autonomy to enforce the values.
  - Have responsibility to promote, protect and enhance the values for the benefit of the consumers, the profession, self and society at large.
- iii. Social skills and responsibility
  - Able to participate in appropriate community actions in collaborative multidisciplinary and multi sectoral teams



- Demonstrate understanding and sensitivity to as well as respect of cultural diversity and beliefs.
- iv. Psychomotor, practical and technical skills
  - Possess knowledge, skills and attitudes for the effective and efficient execution of psychomotor, practical and technical skills.
- v. Communication skills
  - Able to create an environment of sensitivity to cultural and personal factors for effective communication and improved interactions with and among:
    - o Peers
    - o Supervisors
    - o Members of work team
    - o Colleagues
    - o Public
- vi. Life long learning and information management
  - Able to use ICT to assist in work processes.
  - Able to anticipate and show willingness to participate in charge by reflecting on own limitations and self assess, accepting peer evaluation and undertaking continuous self-directed study.
- vii. Critical thinking and scientific approach
  - Able to apply problem-solving process in learning.
  - Synthesize data from different sources and apply probability theory and evidence to refine hypotheses.
- viii. Managerial and entrepreneurial skills
  - Ability to apply the principles of management in business activities.
  - Able to access and use information from various sources for problem solving and decision-making.

Appendix 2: Percentage Perception Level of Attainment of Learning Outcomes through Courses

Learning Outcomes	Cluster	Semester I 2006/2007			Semester II 2006/2007		
		1	2	3	1	2	3
Life Long Learning and Information Management	Social Science	2.7	24.6	72.8	3.7	13.0	83.3
	Biosciences & Medical	10.2	24.4	65.5	10.2	15.7	74.1
	Physical Sciences & Engineering	8.9	26.2	64.9	7.5	21.5	71.0
Communication Skills	Social Science	4.7	23.6	71.8	4.7	15.3	80.0
	Biosciences & Medical	12.2	32.0	55.8	14.2	28.4	57.4
	Physical Sciences & Engineering	8.4	8.4	54.0	15.1	32.8	52.2
Critical Thinking and Scientific Approach	Social Science	3.7	30.6	65.8	5.1	26.5	68.4
	Biosciences & Medical	8.1	26.9	65.0	7.1	22.3	70.6
	Physical Sciences & Engineering	6.4	27.2	66.3	9.1	17.2	73.7
Managerial and Entrepreneurial Skills	Social Science	19.6	41.2	39.2	20.0	34.4	45.6
	Biosciences & Medical	32.0	29.9	38.1	35.5	32.5	32.0
	Physical Sciences & Engineering	35.6	35.1	29.2	31.7	40.9	27.4
Psychomotor / Practical / Technical Skills	Social Science	15.6	32.2	52.2	18.1	31.6	50.2
	Biosciences & Medical	14.2	19.3	66.5	12.7	21.8	65.5
	Physical Sciences & Engineering	10.9	29.7	59.4	14.0	21.0	65.1
Knowledge	Social Science	0.3	10.3	89.4	1.9	4.2	94.0
	Biosciences & Medical	2.5	10.2	87.3	2.0	6.1	91.9
	Physical Sciences & Engineering	1.0	16.8	82.2	7.5	8.1	84.4
Social skills and Responsibility	Social Science	3.0	21.3	75.7	4.2	10.2	85.6
	Biosciences & Medical	11.7	30.5	57.9	14.2	24.4	61.4
	Physical Sciences & Engineering	15.3	34.7	50.0	19.4	41.4	39.2
Professionalism, Values, Attitudes and Ethics	Social Science	2.0	18.3	79.7	3.3	13.5	83.3
	Biosciences & Medical	14.7	26.4	58.9	15.2	21.3	63.5
	Physical Sciences & Engineering	14.4	31.7	54.0	14.0	38.2	47.8
<b>Total</b>		<b>10.8</b>	<b>25.5</b>	<b>62.6</b>	<b>12.1</b>	<b>22.6</b>	<b>65.3</b>

Note: 1- Low 2-Moderate 3-High

Appendix 3: Mean Score for the Attainment of Learning Outcomes through Courses by Clusters

<b>Learning Outcomes</b>	<b>Cluster</b>	<b>Semester I 2006/2007 (Mean)</b>	<b>Semester II 2006/2007 (Mean)</b>
Life Long Learning and Information Management	Social Science	7.43	7.82
	Biosciences & Medical	6.99	7.20
	Physical Sciences & Engineering	6.97	7.28
Communication Skills	Social Science	7.35	7.64
	Biosciences & Medical	6.47	6.45
	Physical Sciences & Engineering	6.42	6.28
Critical Thinking and Scientific Approach	Social Science	7.12	7.18
	Biosciences & Medical	6.97	7.13
	Physical Sciences & Engineering	7.06	7.34
Managerial and Entrepreneurial Skills	Social Science	5.64	5.83
	Biosciences & Medical	5.19	4.84
	Physical Sciences & Engineering	4.64	4.75
Psychomotor / Practical / Technical Skills	Social Science	6.43	6.20
	Biosciences & Medical	7.04	6.85
	Physical Sciences & Engineering	6.65	6.78
Knowledge	Social Science	8.50	8.70
	Biosciences & Medical	8.28	8.51
	Physical Sciences & Engineering	8.14	7.90
Social skills and Responsibility	Social Science	7.63	8.06
	Biosciences & Medical	6.54	6.46
	Physical Sciences & Engineering	6.17	5.59
Professionalism, Values, Attitudes and Ethics	Social Science	7.79	7.86
	Biosciences & Medical	6.64	6.55
	Physical Sciences & Engineering	6.37	6.32

Table 1. Learning Domains

Domain	Learning Domains	Teaching Strategies/ Teaching approach
<b>Cognitive</b> ("Thinking" domain)	Involves the acquisition of information and refers to the learner's intellectual abilities, mental capacities and thinking processes.	1. Lecture 2. One-to-one instruction 3. Computer-based instruction
<b>Affective</b> ("Feeling" domain)	Involves increasing internalization or commitment to feelings expressed as emotions, interests, attitudes, values or beliefs.	1. Case study 2. Role-playing 3. Simulation 4. Games 5. Group discussion
<b>Psychomotor</b> ("Skills" domain)	Involve acquiring motor abilities and the capabilities to perform perceptual-motor tasks.	1. Demonstration 2. Practice

Table 1 illustrates the three domains: cognitive, affective and psychomotor domains. In the implementation, these are the strategies that have been adopted to achieve higher level of the above three domains.

Table 2. Distribution of Respondents by Cluster

Cluster	Semester I 2006/2007		Semester II 2006/2007	
	n	%	n	%
Social Sciences	301	43.0	215	36.0
Biosciences & Medical	197	28.1	197	32.9
Physical Sciences & Engineering	202	28.9	186	31.1
Total	700	100.0	598	100.0

n = number of response received

The response for the study is as presented in the above table. About 700 course lecturers responded from 1678 courses offered (43.2%) in Semester I 2006/ 2007 and 598 course lecturers responded from 1691 courses offered (33.7%) in Semester II 2006/ 2007.

Table 3. Distribution of Respondents by the Levels of Perception in Cognitive Domains by Clusters

Cluster	Semester I 2006/2007						Semester II 2006/2007					
	1	2	3	4	5	6	1	2	3	4	5	6
	%						%					
Social Science	2.3	4.3	17.9	24.6	19.9	30.9	2.3	5.1	22.3	19.5	20.5	26
Biosciences & Medical	3.0	15.2	23.4	19.8	17.8	20.8	3.6	8.1	29.4	25.4	11.2	21.8
Physical Sciences & Engineering	3.0	7.4	27.7	33.2	17.8	10.9	1.1	4.8	22.0	36.0	15.1	18.8
Average	2.8	9.0	23.0	25.9	18.5	20.9	2.3	6.0	24.6	27.0	15.6	22.2

Key:

- 1- Knowledge
- 2- Comprehension
- 3- Application
- 4- Analysis

- 5- Synthesis
- 6- Evaluation

Table 3 illustrates the following interpretation; (i) 25.9% (average) of the lecturers from Semester I 2006/2007 perceived that students were able to attain level 4 of the cognitive domains (i.e. analysis) in their. (ii) 27% (average) of the lecturers from Semester II 2006/2007 perceived that students were able to attain level 4 of the cognitive domains (i.e. analysis) in their learning. (iii) All levels of cognitive domains were fairly utilized by lecturers from all clusters. It shows that fairly equal emphasis were given towards utilizing all the domains in cognitive skills.

Table 4. Distribution of Respondents by the Levels of Perception in Psychomotor Domains by Clusters

Cluster	Semester I 2006/2007							Semester II 2006/2007						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7
	%							%						
Social Science	5.3	14.0	27.9	15.6	12.6	15.6	9.0	8.8	12.1	23.7	12.6	13.5	14.0	7.9
Biosciences & Medical	8.6	8.1	28.4	25.4	14.2	9.6	5.6	4.6	10.2	24.9	37.1	7.1	12.2	0
Physical Sciences & Engineering	5.9	9.9	35.6	28.7	8.4	10.4	1.0	2.2	8.6	26.9	36.0	10.2	9.7	3.8
Average	6.6	10.7	30.6	23.2	11.7	11.9	5.2	5.2	10.3	25.2	28.6	10.3	12.0	3.9

Key:

- 1- Perception
- 2- Set
- 3- Guided Response
- 4- Mechanism
- 5- Complex Overt Response
- 6- Adaptation
- 7- Origination

Table 4 illustrates that 30.6% of the lecturers (average) Semester I 2006/2007 generally perceived that their students have achieved psychomotor domains of level 3 (Guided Response). In Semester II 2006/2007, 28.6% of the lecturers (average) perceived that their students have achieved psychomotor domains of level 4 (Mechanism).

Table 5. Distribution of Respondents by the Levels of Perception in Affective Domains by Clusters

Cluster	Semester I 2006/2007					Semester II 2006/2007				
	1	2	3	4	5	1	2	3	4	5
	%					%				
Social Science	2.0	13.6	28.6	27.2	28.6	0.5	13.0	29.3	23.7	27.9
Biosciences & Medical	2.0	17.8	35.0	29.4	15.7	3.0	13.2	41.1	27.4	13.2
Physical Sciences & Engineering	3.5	16.3	47.5	24.8	7.9	3.2	18.8	39.2	28.0	8.1
Average	2.5	15.9	37.0	27.1	17.4	2.2	15.0	36.5	26.4	16.4

Key:

- 1- Receiving Phenomena
- 2- Responding to Phenomena
- 3- Valuing

- 4- Organizing Values
- 5- Internalizing Values

The above table illustrates that 37% of the lecturers (average) perceived the students have attained affective domains of level 3 (Responding to Phenomena) in Semester I 2006/2007. 36.5% of the lecturers (average) from Semester II 2006/2007 perceived their students have also attained level 3 of the affective domains.

Table 6. Levels of Perception in Teaching and Learning Domains

Taxonomy	Semester I 2006/2007			Semester II 2006/2007		
	Mean	Level	Taxonomy level	Mean	Level	Taxonomy level
Cognitive	4.16	4	Analysis	4.07	4	Analysis
Psychomotor	3.82	4	Mechanism	3.63	4	Mechanism
Affective	3.45	3	Valuing	3.29	3	Valuing

Most of the lecturers perceived that the students have achieved cognitive domains of level 4 (Analysis), psychomotor domains of level 4 (Mechanism) and affective domains of level 3 (Valuing). The analysis shows that the utilization of each of the three domains was diminishing as they moved to Semester II 2006/2007.

Table 7. Analysis of Variance for different domains by cluster

Taxonomy	Cluster	Semester I 2006/2007				Semester II 2006/2007			
		Mean	SD	F	Sig-F	Mean	SD	F	Sig-F
Cognitive	Social Sciences	4.48	1.33	15.27	0.00*	4.16	1.59	0.97	0.38
	Biosciences & Medical	3.96	1.46			3.96	1.42		
	Physical Sciences & Engineering	3.88	1.20			4.09	1.33		
Psychomotor	Social Sciences	3.99	1.70	4.07	0.02*	3.61	1.99	1.05	0.35
	Biosciences & Medical	3.80	1.55			3.56	1.45		
	Physical Sciences & Engineering	3.59	1.31			3.80	1.43		
Affective	Social Sciences	3.67	1.09	14.55	0.00*	3.49	1.33	5.27	0.01*
	Biosciences & Medical	3.39	1.02			3.28	1.08		
	Physical Sciences & Engineering	3.17	0.92			3.11	1.08		

Note: \* Significant at 0.05

The means of the perception level of achievement in teaching and learning domains from Social Science cluster are as follows; Cognitive - 4.48, Psychomotor - 3.99, Affective - 3.67. These are higher compared to those achieved by the students from other clusters. This shows that the three major domains in teaching and learning were adequately applied by all lecturers in their instructions.

There is a significant difference between the level of perception of utilization of teaching and learning domains by lecturers from different clusters in Semester I 2006/2007 as presented in. For Semester II 2006/2007, it is seen that there is no significant different between the levels of perception among lecturers form different clusters especially in the two domains of cognitive and psychomotor.

Table 8. Distribution of Respondents by the Level of Attainment of Learning Outcomes through Courses by Cluster

Cluster	Semester I 2006/2007			Semester II 2006/2007		
	1	2	3	1	2	3
	%			%		
Social Science	6.5	25.3	68.3	7.6	18.6	73.8
Biosciences & Medical	13.2	25.0	61.9	13.9	21.6	64.6
Physical Sciences & Engineering	12.6	26.2	57.5	14.8	27.6	57.6
Average	10.8	25.5	62.6	12.1	22.6	65.3

Note: 1- Low 2-Moderate 3-High

Majority of the lecturers perceived that the students are highly fluent in attaining all the eight elements of learning outcomes as proposed by MoHE for all courses. It constitutes 62.6% of attainment in Semester I 2006/2007 and 65.3% for Semester II 2006/2007 of the total samples.

Table 9. Mean Score for the Attainment of Learning Outcomes through Courses

Learning Outcomes through Courses	Semester I 2006/2007		Semester II 2006/2007	
	Mean Score	SD	Mean Score	SD
Life Long Learning and Information Management	7.17	2.03	7.45	2.19
Communication Skills	6.83	6.83	6.79	2.41
Critical Thinking and Scientific Approach	7.06	1.89	7.20	2.18
Managerial and Entrepreneurial Skills	5.23	2.65	5.18	2.77
Psychomotor / Practical / Technical Skills	6.66	2.49	6.59	2.72
Knowledge	8.33	1.57	8.37	1.92
Social skills and Responsibility	6.90	2.27	6.74	2.60
Professionalism, Values, Attitudes and Ethics	7.06	2.27	6.94	2.56

Note: 0-3 =Low, 4-6= Moderate, 7-10= High

The highest perception level goes to the KNOWLEDGE SKILLS where in both semester it was ranked the highest at 8.33 and 8.37 respectively (Table 9). Except for MANAGERIAL AND ENTREPRENEURIAL SKILL which ranked as 'Low' (i.e. 5.23 and 5.18 respectively) the rest of the learning outcomes were fairly perceived at 'High' levels of achievement.

Table 10. Analysis of Variance for Learning Outcomes by Cluster

Taxonomy	Cluster	Semester I 2006/2007				Semester II 2006/2007			
		Mean	SD	F	Sig-F	Mean	SD	F	Sig-F
Life Long Learning and Information Management	Social Science	7.43	1.79	4.25	0.02*	7.82	1.79	5.09	0.01*
	Biosciences & Medical	6.99	2.22			7.20	2.49		
	Physical Sciences & Engineering	6.97	2.13			7.28	2.17		
Communication Skills	Social Science	7.35	1.85	17.53	0.00*	7.64	1.90	20.86	0.00*
	Biosciences & Medical	6.47	2.23			6.45	2.52		
	Physical Sciences & Engineering	6.42	1.97			6.28	2.53		
Critical Thinking and Scientific Approach	Social Science	7.12	1.77	0.36	0.70	7.18	1.93	0.48	0.62
	Biosciences & Medical	6.97	2.08			7.13	2.30		
	Physical Sciences & Engineering	7.06	1.89			7.34	2.27		
Managerial and Entrepreneurial Skills	Social Science	5.64	2.55	8.94	0.00*	5.83	2.55	9.86	0.00*
	Biosciences & Medical	5.19	2.76			4.84	2.92		
	Physical Sciences & Engineering	4.64	2.59			4.75	2.71		
Psychomotor / Practical / Technical Skills	Social Science	6.43	2.54	3.61	0.03*	6.20	2.75	3.68	0.03*
	Biosciences & Medical	7.04	2.54			6.85	2.65		
	Physical Sciences & Engineering	6.65	2.33			6.78	2.68		
Knowledge	Social Science	8.50	1.46	3.30	0.04*	8.70	1.55	9.79	0.00*
	Biosciences & Medical	8.28	1.67			8.51	1.75		
	Physical Sciences & Engineering	8.14	1.60			7.90	2.29		
Social skills and Responsibility	Social Science	7.63	1.89	31.31	0.00*	8.06	1.90	55.94	0.00*
	Biosciences & Medical	6.54	2.35			6.46	2.60		
	Physical Sciences & Engineering	6.17	2.38			5.59	2.64		
Professionalism, Values, Attitudes and Ethics	Social Science	7.79	1.75	30.93	0.00*	7.86	1.96	23.66	0.00*
	Biosciences & Medical	6.64	2.54			6.55	2.74		
	Physical Sciences & Engineering	6.37	2.36			6.32	2.60		

Note: \* Significant at 0.05 level

There is a significant difference in the attainment of different learning outcomes (Life Long Learning and Information Management, Communication Skills, Managerial and Entrepreneurial Skills, Psychomotor / Practical / Technical Skills, Knowledge, Social skills and Responsibility and Professionalism, Values, Attitudes and Ethics) by lecturers from different clusters in Semester I 2006/2007 and Semester II 2006/2007. On the other hand, there is no significant difference in the attainment of learning outcomes in courses related to Critical Thinking and Scientific Approach among different clusters.



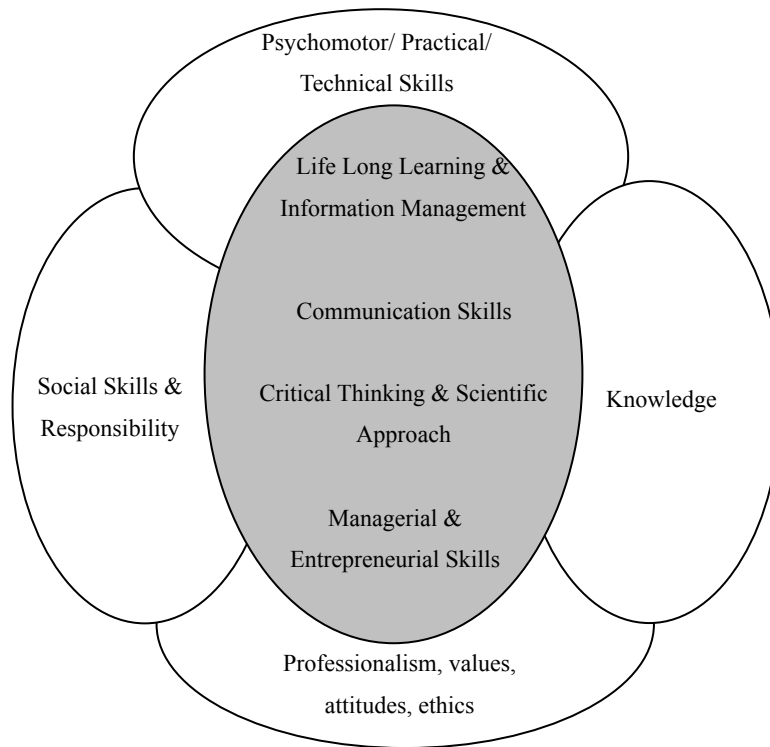


Figure 1. Categories of Learning Outcomes

This figure demonstrates the skills expected of each category of domains. These eight learning outcomes are the most influential factors in providing quality education. Details are provided in the Appendix 1.

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