Curriculum Innovation in Hong Kong: A Study of the Perceptions of Primary School Teachers

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Abstract:

This paper aims to identify the perceptions of primary school teachers regarding current curriculum innovation in Hong Kong: the Target Oriented Curriculum (TOC). It examines the issues regarding the context, concept and practice of TOC. Focusing on the perceptions of teachers teaching Chinese, English & Mathematics, it attempts to clarify some issues related to the implementation of TOC and the improvement of relevant teacher education programmes. When changes take place in Hong Kong after it becomes part of China, a high priority of concern should focus on education. It is very important that TOC should meet the needs of students and the society.
Introduction

This paper reports on the major curriculum innovation in Hong Kong: the Target Oriented Curriculum (TOC) regarding professional development of teachers for the implementation of TOC, teacher competence for TOC teaching, resources for TOC teaching support and teachers’ attitudes towards TOC.

In Hong Kong, many educational changes have taken place in the last two decades. The full implementation of nine-year free, compulsory and universal education in 1978 has reduced elitism in education. As Wong & Lau (1993) have suggested there should be significant differences between the curriculum design for universal education and for elite education.

Associated with the provision of universal and compulsory education for all pupils up to the age of 15, the fundamental principle of curriculum development in Hong Kong at the Primary level is the provision of a curriculum composed mainly of a common-core. The common-core curriculum intends to fulfill the needs of the majority of pupils in Hong Kong. However, it is found that a common-core curriculum is eventually disadvantaged in meeting the needs of pupils at both ends of the ability range. Problems relating to mixed ability teaching have led to calls from the public for improvement.

Morris (1990) contends that there is an urgent need to develop a comprehensive system of curriculum development in Hong Kong which goes beyond a concern for the identification of official policy and the production of syllabuses and examinations: that is one area in which H.K. has lagged far behind other newly industrialized countries of Asia. Further, the Education
Commission’s Report No.4 (Education Commission, 1990) recommended the establishment of a cross-curricular framework of targets and target-related assessments which would set a clearer direction for teaching, learning and assessment. Based on this framework, Target-Oriented Curriculum (TOC) has been developed. TOC involves Chinese, English and Mathematics through four Key Stages (Key Stage 1 - Primary 1 to Primary 3; Key Stage 2 - Primary 4 to Primary 6; Key Stage 3 - Secondary 1 to Secondary 3 and Key Stage 4 - Secondary 4 to Secondary 5).

**Background of the Study**

In the study of improving the quality of learning: A framework for TOC renewal in Hong Kong, Clark et al (1994) recommend the establishment of an inclusive curriculum renewal process in the TOC initiative:

The Education Department should contract out much of the professional development and curriculum development work, tapping the expertise of tertiary institutions, teachers and others. There is scope for this, for example, in:

- the development and implementation of an appropriate in-service professional development plan for TOC coordinators and for teachers and schools;
- the development of video material for use in teacher education programmes;
- research and development of better resource and management strategies for learning;
- the development of database and of a bank of learning resources (p.76).
Further, they claim the following in their study:

The TOC initiative will need to be carefully monitored and evaluated. It will be judged over

time in terms of the extent to which:

- It has engendered and understanding of the need for educational change and a climate of
  willingness to engage in this;
- it has involved teachers and other contributors in the renewal process and brought about
  a sense of ownership among them;
- it has given rise to an ever-improving planned curriculum and resources, leading to
  better curriculum reality in the classroom;
- it has led to more classroom research and a wider range of classroom resourcing,
  teaching, learning and assessment strategies (p.78).

Likewise, on the implications for policy concerning TOC, Morris et al (1996) suggest the
following in the Interim Report on TOC Evaluation Project:

- The mechanisms used to disseminate information to schools need to recognize
  technological developments in this century. Specially, an interactive computer network
  should be established which would allow resources to be accessed by, and provide
  opportunities for, teachers to obtain and give advice on curriculum matters.
- Means should be identified to support and encourage staff development programmes in
  schools……;
- …….Similarly a reduction of class sizes would also contribute to providing an
environment more conducive to TOC (p.248).

The writer can identify at least four significant factors regarding the implementation of TOC as mentioned above by Clark et al and Morris et al: teachers’ professional training, teachers’ competence, resourcing support to teachers and teachers’ attitudes.

Carless (1994), in a study of the attitudes of serving primary school teachers towards TOC in Hong Kong, illustrates that the attitudes of Primary school English teachers towards TOC have become much more positive. As a member of the lecturing staff of the Hong Kong Institute of Education (HKIEd), a prominent teacher education institution in Hong Kong, the study by Carless stimulated the writer to study primary teachers’ perceptions of TOC.

**Purpose of the Study**

TOC intends to improve the quality of education in Hong Kong. This involves changes to the aims and objectives of the school system & of schools, teaching/learning strategies and the assessment in teaching and learning. However, if the curriculum changes, and teachers do not change, then stress is created for those as teachers.

Writers such as Argyris(1971), Schein(1972) and Marris(1974) support the view that teachers are naturally resistant to changes, especially those changes where require a change of behaviour. It is essential to change teachers’ attitudes if an innovation is to be implemented successfully. Further, Procter(1993) illustrates the most common definition of attitude as a predisposition to behave in a
particular way. Therefore, the writer regards measuring attitudes of teachers as one of the key factors in curriculum innovation such as TOC.

The major concern now is whether primary school TOC teachers perceive that they have been provided with adequate professional support concerning teacher training, teacher competence, teaching resources; and what are their overall attitudes towards TOC. The argument is whether the policy makers realize teachers’ attitudes towards the provision of TOC. The purpose of the study is to find out respondents’ perceptions concerning: teacher education opportunities to provide teachers with effective support for teaching TOC; teachers have acquired the competence of teaching TOC subjects; various resources are able to provide teachers with positive support to teaching TOC; and teachers’ attitudes towards TOC. The hypothesis the writer has set out to test is that teaching experience does not significantly influence attitudes towards TOC; and TOC subject teaching does not significantly influence attitudes towards TOC.

Methodology

Cohen & Manion(1994) describe survey as the most commonly used descriptive method in educational research. They further illustrate three prerequisites for the design of any survey: the purpose of the inquiry, the focused population, and the resource available. Kemmis and McTaggart (1988) describe the questionnaire approach to gathering data as probably the most commonly used method of inquiry.

However, it should be emphasized that the survey is small-scale and carried out by a lone researcher, the writer himself. Interviews plus postal a questionnaire based on some sampling of
the focused population - the serving primary school TOC teachers, would be expensive, time-consuming and labour-intensive for this small-scale survey. Owing to the financial implications and resources available, the writer believes that self-completed written questionnaire could be adopted.

McKernan (1994) suggests that attitude scales can be accurate and gauge pupil affect and interest to certain school subjects and curriculum experiences. On commenting the scaling procedure such as Likert scaling, Bryman and Cramer (1997) claim that the multiple-item scales are popular for these are more likely to capture the totality of an attitude than a single question. Accordingly, the writer made use of an attitude scale to help to determine the strength of attitude held by respondents. The aim was to invite respondents to indicate their attitudes and feelings about a number of issues concerning TOC. The writer provided respondents with an attitude questionnaire containing a number of statements. These statements were based on the four considerations as identified above, which were originally mentioned by Clark et al (1994) and Morris et al (1996). The questionnaire was divided into four parts. Part A collected respondents’ personal particulars. Part B, Part C and Part D were designed to obtain respondents’ attitudes towards professional education of teachers, teacher competence, and resources to support teachers respectively. Part E gathered respondents’ general and overall attitudes towards TOC. The questionnaire was developed in consultation with some key informants (selected from the student teachers) and experienced TOC teacher educators (colleagues invited by the writer).

Cohen & Manion (1994) suggest that small-scale surveys often resort to the use of non-probability
sample such as convenience sampling which involves choosing the nearest individuals to serve as respondents and captive audiences include pupils or student teachers. They further explain that the sampling is far less complicated to set up, is considerably less expensive.

As such, the sample group came from the in-service student teachers of the HKIEd. The in-service group includes qualified serving teachers with various years of teaching experience, who participate the in-service retraining course for primary school teachers in Hong Kong. In early 1999, written questionnaires were distributed to the respondents at HKIEd. In order to reduce the possible sample bias, purposes of the study were clearly explained to respondents. They were asked to select a response indicating whether they agreed or disagreed to a statement. The writer developed the questionnaire attitude items by using a four-point Likert scale technique (strongly agree, agree, disagree, strongly disagree) for Part B, C, D & E. Strength of attitude was measured by assigning a number of code to each attitude (strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1). Hence, the Mid-point of theoretical range was 2.50. Those statements with high Mean scores greater than the Mid-point of theoretical range (2.50) would be interpreted as respondents’ agreement or positive attitude, while those with low Mean scores smaller than 2.50 would be interpreted as respondents’ disagreement or negative attitude. Besides, Part A of the questionnaire collected data concerning respondents’ gender, teaching experience and the TOC subjects they taught.

Moreover, Procter(1993) claims that the measurement of attitudes deserves great care and close attention to detail including reliability, validity and multiple indicator approach. He further describes that reliability of measuring attitude in terms of consistency is measured almost
universally by using Cronbach’s Alpha coefficient. It measures the consistency between clusters of items, and between clusters and the whole. Consequently, by using the Statistical Packages for Social Sciences (SPSS) programme, the results of reliability coefficients for section B, C and D were found to be 0.8699, 0.8458 and 0.8398 respectively. Bryman and Cramer (1997) have also suggested the rule of thumb is that the result should be 0.8 or above.

Regarding the validity, on the other hand, Procter (1993) argues that the best advice is to bear the problem in mind and find ways of improving validity, even if it cannot be definitively measured. He suggests to analyse a set of multidimensional attitudes by the most commonly used statistical method - factor analysis. According to Bryman and Cramer (1997), factor analysis enables researchers to assess the factorial validity of the questions. As such, the writer analyzed the data from Section B, C and D by using a varimax rotation technique in SPSS to increase the interpretability of factors. As a result, only one factor was extracted for both Section B and C. For Section D, two factors were extracted which the writer regards as significant factors of TOC resources (see Table 1).

For Section D, the writer is able to interpret that factor 1 is about resources concern with teaching materials and factor 2 is about resources other than teaching materials. Further, by SPSS, the Mean Scores of the factor(s) in various sections of the questionnaire have been illustrated in Table 2 where results greater than 2.50 (theoretical mid-point) indicate agreement and results smaller than 2.50 indicate disagreement:

Further, descriptive statistics results (see Table 3) were presented after using the SPSS to analyse the data. Since the Chi-square test is a direct measure of whether or not the two variables are
statistically independent, the writer used SPSS to prepare a cross-tabulation of these variables and the statistical significance by using chi-square to predict the chance of the correlation occurring by chance.

Bryman and Cramer (1997) further suggest that 0.05 level of significance is regarded as the usual minimum level for rejecting the null hypothesis and it is often indicated by NS (non-significant). In order to test the correlation between variables, the writer set the null hypothesis that the following sets of variables are statistically independent:

Item 1: “I support TOC” (E1) by “teaching experience” (A2)

Item 2: “I support TOC” (E1) by “TOC subject teaching” (A3)

Item 3: “teachers’ optimistic views to the future of TOC” (E2) by “teaching experience” (A2)

Item 4: “I am optimistic to the future development of TOC” (E2) by “TOC subject teaching” (A3)

**Item 1:**

SPSS Recode process was applied for the analysis in order to avoid one single cell having small (under 5%) expected number of cases and it is a common technique when doing crosstab analysis. SPSS calculated a significance level for the statistics, which for the Pearson chi-square was 0.04771. Since that the probability was smaller than 0.05, the writer concluded that the two variables were statistically dependent (see Table 4). The result should have some implications to the writer that further studies could be focused on the correlation of “I support TOC” and “teaching experience of teachers”.

Further, the writer investigated the correlation of “I support TOC” by “TOC subject teaching” controlled by TOC subject - “English”. SPSS calculated a significance level for the statistic, which
for the Pearson chi-square was 0.07267. Since the probability was greater than 0.05, the writer concluded that the two variables were not related (see Table 5). However, the significant level was very close to the 0.05 and might have some implications to the writer that this could be due to small sample size, an issue which the writer intends to address during further studies: the correlation of “I support TOC” and “teaching experience of teachers” among “TOC English teachers”.

Item 2, 3, and 4:

The Chi-square values gave probabilities (p) greater than 0.05 (0.29983, 0.35492 and 0.53280 respectively) indicating that the correlations could have occurred by chance; the data do not support the conclusion that they are related.

Major Findings

The major findings of the questionnaire survey are listed as follows:

- teachers mildly disagree with “teacher education provides primary school teachers with effective TOC teaching support”
- teachers mildly disagree with “primary school teachers have acquired the competence for TOC teaching”
- teachers agree that various kinds of “teaching resources provide primary school teachers with positive support for TOC teaching”
- teachers strongly agree that “resources other than teaching materials provide primary school
teachers with positive support for TOC teaching” especially on the improvement of “teacher
to student ratio”

• teachers mildly agree with “I support TOC”

• teachers disagree with “I am optimistic to the future development of TOC”

• “teaching experience” & “I support TOC” are statistically dependent

Discussion

In the introduction of the paper, the writer has mentioned that Argyris (1971), Schein (1972) and
Marris (1974) support the view that teachers are naturally resistant to changes and that it is
essential to change teachers’ attitudes if an innovation is to be implemented successfully.

The mean scores of the two factors obtained from Section D of the self-completed written
questionnaire clearly indicated that teachers’ responses were largely consistent with a favourable
agreement to the positive teaching support provided by various resources. However, the mean
scores of factors from Section B & C (professional education of teachers & teachers have
acquired the teaching competence) indicated that teachers’ responses were largely consistent with
a mild disagreement/negative attitude. Concerning the ‘practical considerations of teachers’
suggested by Doyle & Ponder (1977) and Hurst (1983), they describe teachers’ decisions about
choosing and accepting educational changes are determined by essentially ‘practical
considerations’ like resources which have little to do with overall objectives of the change.
However, Fullan (1972) contends that the modal process of change whereby innovations are
developed external to schools and then transmitted to teachers has led to no significant change at
the user level. Morris (1988) introduces a local example of how teachers accepted an education innovation without necessarily implementing it. Further, Morris (1992) demonstrates that teachers’ positive attitudes towards these innovations have been used by curriculum planners as the primary indicator that they are successfully implemented. However, Fullan and Hargreaves (1996) claim that proposals for change will come to nothing if teachers don’t adopt them in their classroom practice. As a consequence, the writer should point out that teachers indicated their mild positive agreement to the support to TOC in Section E1 of the questionnaire survey; however, they indicated negative attitudes to the future development of the curriculum innovation in Section E2. There should be a need to minimize the gaps between ‘intended curriculum’ concerning the overall objectives of the innovation and ‘adopted and implemented curricula’ concerning teachers’ practical considerations at user level.

As mentioned in the Report on Review of 9-year Compulsory Education (Board of Education, 1997, p.147) regarding the related curriculum improvements, recommendations have been made on the use of information technology in teaching and learning be made a policy. The Report further recommends that TOC provides a good example for how continuous assessment can be put into practices concerning the promotion of effective teaching. The writer suggests the policy-makers for the TOC initiative to put the provision of quality teacher training, appropriate and relevant teacher competence and resources which the writer has proposed in this study into serious considerations.

Concerning teacher competence in the use of information technology in teaching, one of the hot debates nowadays in Hong Kong, Morris et al. (1998) claim, ‘at the same time resources are now
being diverted to a new initiative, Information Technology, which has replaced the TOC at the top of educational policy agenda of the first Chief Executive of the Hong Kong Special Administrative Region’ (p.220). However, Clark et al. (1998) recommend:

The IT in Education initiative, for example, should be explicitly linked to TOC, since pedagogically IT is a powerful tool for realising TOC learning targets associated with investigative, problem-solving and communicative work. IT can usefully extend the range of multi-media resources available for TOC work. (p.20)

Moreover, Davis (1997) identifies some strategies for teachers’ professional development of IT in education. They are strategies for the institution, strategies for the individual/group, direct information/skill support, team teaching and indirect staff development. Davis also describes the development of IT in teachers’ professional work and its development within organisations as follows:

Evidence from around the world shows that it frequently starts with the adoption of an application or two by enthusiastic individuals. A middle phase involves leadership by a coordinator who frequently begins with an attempt to standardise hardware and software, then often changes the focus to curriculum. At the end of development an ideal situation can be the infusion of technology throughout the organisation, where it is used and developed by everyone, as and when appropriate (p.255).
As a result, the suggestions made by Clark et al. and Davis concerning teachers’ professional development and competence in the application of information technology to TOC teaching should also be considered seriously by the local policy makers. Other measures include the increase of clerical support, the provision of computer and accessories for TOC teaching, the provision of school-based curriculum development funding, the teaching materials/resources provided by various parties and especially the improvement in “teacher to student ratio” - teachers indicated a relatively strong agreement to this item in the questionnaire survey. At the same time, all of them have been put forward for the better implementation of TOC in Hong Kong.

Conclusion

Cohen and Manion (1994) illustrate the principal types of triangulation used in research as follows: time, space, combined levels, theoretical, investigator and methodological triangulations. This paper concerns with teachers’ perceptions of TOC in Hong Kong. The sample population of the study came from convenience sampling - participants of the in-service retraining course for experienced primary teachers. The study is not on a large scale and the data collected represented respondents’ attitudes at a particular period of time. Regarding the techniques of triangulation as illustrated by Cohen and Manion, the approach of data collection for the study could be, if sufficient time and resources are available, applying postal questionnaire by random sampling as well as semi-structured interview of key informants. Perhaps the attitudes of teachers towards TOC may be strengthened or modified after some time. Therefore, the writer recommends further studies, focusing on teachers’ change of attitudes towards TOC, are to be conducted some time later. As mentioned in the findings concerning Table 5, the focused population could be teachers
who have different years of teaching experience, especially those teachers who teach the subject - TOC English.

To conclude, the introduction of the TOC initiative is an issue of major concern. Amongst many, Hong Kong Institute of Education (HKIEd), other tertiary institutions, Education Department, publishers and even individual schools, should always be committed to work in relation to curriculum innovation such as the implementation of TOC. Having provided adequate places for teacher training and professional development, they need to raise the standard of training and to undertake many quality-related issues. Furthermore, the writer believes that curriculum innovation of any kind will fail if serving teachers do not acquire the relevant competence such as use of information technology in teaching, the methods of assessment and positive attitudes towards TOC teaching. When important changes are taking place in Hong Kong after 1997, the highest priority of concern should be focused on education. It is very important that the Target-Oriented Curriculum (TOC) should undergo continuous evaluation and updating so as to meet the needs of students and the society. There are many factors contribute to the teaching and learning in schools, but success depends on professional development of teachers, competence of teachers, resources provided for teaching, and teachers’ positive attitudes towards the curriculum innovation.

References

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Clark, J. L. & Research Team (1998) An Investigation into the Development and Implementation of TOC Initiative with Special Reference to Professional Competencies, Professional Development and Resources - Executive Summary. The Hong Kong Institute of Education & Education Department.


Tables

Table 1: Rotated Factor Matrix for Section D of the questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>D5</td>
<td>0.77608</td>
<td></td>
</tr>
<tr>
<td>D6</td>
<td>0.72483</td>
<td></td>
</tr>
<tr>
<td>D7</td>
<td>0.69256</td>
<td></td>
</tr>
<tr>
<td>D8</td>
<td>0.63875</td>
<td></td>
</tr>
<tr>
<td>D2</td>
<td></td>
<td>0.96698</td>
</tr>
<tr>
<td>D1</td>
<td></td>
<td>0.68468</td>
</tr>
<tr>
<td>D3</td>
<td></td>
<td>0.63816</td>
</tr>
<tr>
<td>D4</td>
<td></td>
<td>0.43190</td>
</tr>
</tbody>
</table>

Table 2: Mean Score

<table>
<thead>
<tr>
<th>Section</th>
<th>Factor (s)</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Teacher Education (TEACEDU)</td>
<td>2.46(&lt;2.50)</td>
</tr>
<tr>
<td>C</td>
<td>Teacher Competence (COMPETEN)</td>
<td>2.32(&lt;2.50)</td>
</tr>
<tr>
<td>D</td>
<td>Resources (RESOURC1)</td>
<td>3.06(&gt;2.50)</td>
</tr>
<tr>
<td></td>
<td>Resources (RESOURC2)</td>
<td>3.31(&gt;2.50)</td>
</tr>
</tbody>
</table>

Table 3: TOC QUESTIONNAIRE
(The response rate was 83% and respondents were informed of the findings.)

<table>
<thead>
<tr>
<th>A. Personal Particulars:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sex:</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>2. Teaching Experience:</td>
</tr>
<tr>
<td>less than 10 years</td>
</tr>
</tbody>
</table>
more than 10 years 47.0%

3. **TOC Subject Teaching**: (choose one only)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>31.3%</td>
</tr>
<tr>
<td>English</td>
<td>30.1%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>38.6%</td>
</tr>
</tbody>
</table>

B. The following teacher education provides primary school teachers with effective TOC teaching support:

<table>
<thead>
<tr>
<th>Education Provider</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course offered by the Hong Kong Institute of Education (HKIEd)</td>
<td>0.00</td>
<td>42.20</td>
<td>56.60</td>
<td>1.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.59</td>
</tr>
<tr>
<td>Course offered by the Education Department (ED)</td>
<td>2.40</td>
<td>39.80</td>
<td>53.00</td>
<td>4.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.60</td>
</tr>
<tr>
<td>School-based education course offered by individual school</td>
<td>7.20</td>
<td>56.60</td>
<td>33.70</td>
<td>2.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.31</td>
</tr>
<tr>
<td>Course offered by the local Tertiary Institutions</td>
<td>6.00</td>
<td>57.80</td>
<td>33.70</td>
<td>2.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.33</td>
</tr>
<tr>
<td>Course offered by the publisher</td>
<td>10.80</td>
<td>49.40</td>
<td>38.60</td>
<td>1.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.30</td>
</tr>
<tr>
<td>Pre-service teacher education</td>
<td>8.40</td>
<td>37.30</td>
<td>49.40</td>
<td>4.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.51</td>
</tr>
<tr>
<td>In-service teacher education</td>
<td>3.60</td>
<td>42.20</td>
<td>49.40</td>
<td>4.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.55</td>
</tr>
</tbody>
</table>

C. Primary school teachers have acquired the following competence for TOC teaching:

<table>
<thead>
<tr>
<th>Competence</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of curriculum</td>
<td>3.60</td>
<td>38.60</td>
<td>53.0</td>
<td>4.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.59</td>
</tr>
<tr>
<td>Teaching skills</td>
<td>4.80</td>
<td>38.60</td>
<td>53.00</td>
<td>3.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.55</td>
</tr>
<tr>
<td>Methods of student assessment</td>
<td>18.10</td>
<td>54.20</td>
<td>25.30</td>
<td>2.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.12</td>
</tr>
<tr>
<td>Use of Information Technology in teaching</td>
<td>13.30</td>
<td>65.10</td>
<td>20.50</td>
<td>1.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.10</td>
</tr>
<tr>
<td>Positive towards TOC teaching</td>
<td>8.40</td>
<td>63.90</td>
<td>25.30</td>
<td>2.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M=2.22</td>
</tr>
</tbody>
</table>
D. The following resources provide primary school teachers with positive support for TOC teaching:

1. **improvement in teacher to student ratio**
   - Mean (M) = 3.52
   - Comparison: 3.60 6.00 25.30 65.10

2. **increase of clerical support**
   - Mean (M) = 3.46
   - Comparison: 1.20 7.20 36.10 55.40

3. **provision of computer and accessories for teaching**
   - Mean (M) = 3.23
   - Comparison: 1.20 12.00 49.30 67.30

4. **school-based curriculum development funding**
   - Mean (M) = 3.02
   - Comparison: 1.20 16.90 60.20 21.70

5. **video tape & teaching material provided by ED**
   - Mean (M) = 3.00
   - Comparison: 0.00 18.10 63.90 18.10

6. **textbook & teaching package provided by publishers**
   - Mean (M) = 3.11
   - Comparison: 0.00 12.00 65.10 22.90

7. **computer software provided by publishers**
   - Mean (M) = 3.10
   - Comparison: 0.00 13.30 63.90 22.90

8. **official document and publication provided by ED**
   - Mean (M) = 3.04
   - Comparison: 0.00 14.50 67.50 18.10

E. Overall:

1. **I support TOC.**
   - Mean (M) = 2.58
   - Comparison: 3.60 38.60 54.20 3.60

2. **I am optimistic to the future development of TOC.**
   - Mean (M) = 2.21
   - Comparison: 10.80 57.80 31.30 0.00

M = Mean  N = 83

Table 4: "I support TOC" by “teaching experience”

<table>
<thead>
<tr>
<th>Teaching Experience</th>
<th>less than ten years (%)</th>
<th>more than ten years (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I support TOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disagree</td>
<td>52</td>
<td>31</td>
</tr>
<tr>
<td>Agree</td>
<td>48</td>
<td>69</td>
</tr>
<tr>
<td>Total</td>
<td>N=44</td>
<td>N=39</td>
</tr>
</tbody>
</table>

Chi-square = 3.92
p = 0.04771
Significant, p < 0.05
Table 5: “I support TOC” by “teaching experience” controlled by “TOC subject teaching - English”

<table>
<thead>
<tr>
<th>I support TOC</th>
<th>Teaching Experience (controlled by TOC subject teaching - English)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>less than ten years (%)</td>
</tr>
<tr>
<td>Disagree</td>
<td>69</td>
</tr>
<tr>
<td>Agree</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>N=13</td>
</tr>
</tbody>
</table>

Pearson Chi-square value is 3.22
p = 0.07267
Not Significant, p > 0.05
END