ABSTRACT

Name of Institution: De La Salle University – Dasmariñas

Address: Dasmariñas, Cavite

Title: Evaluation of the Science and Technology IV Curriculum in Selected Schools in Cavite

Towards an Innovative Delivery Program: A Proposed Reference Model

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STATEMENT OF THE PROBLEM:

This study sought to evaluate the Science and Technology IV Curriculum in terms of the intended and implemented curricula to be able to determine its strengths and weaknesses as well as the opportunities and threats utilizing 27 complete high schools in the Division of Cavite as basis for the formulation of an innovative delivery program model.
Specifically, the following questions were answered:

1. What is the profile of the attributes of Science and Technology IV (Physics) instruction in terms of:
   1.1. teacher's educational attainment, number of years teaching Physics, and number of Physics seminars / trainings attended; and
   1.2. school's class size, student-teacher textbook ratio, Physics print and non-print references, laboratory rooms used and maintained and science equipment used?

2. What is the SWOT of the S & T IV (Physics) intended curriculum in the different groups of respondent schools in terms of:
   2.1. educational goals (EG);
   2.2. learning competencies (PSSLC);
   2.3. teaching guides / lesson plans (TG/LP);
   2.4. text books / references (TB/R)?

3. What is the SWOT of the S & T IV (Physics) implemented curriculum in the different groups of respondent schools in terms of:
   3.1. topics taught by the teacher (TpT);
   3.2. methods of teaching (TMU);
   3.3. teacher-made support instructional materials TmSIM);
   3.4. assessment strategies (AssStræ); and
3.5. test result utilization (TRU)?

4. What is the attained curriculum of the different groups of respondent schools in terms of the mean score of the performance level of the students in the S & T IV (Physics) division achievement test?

5. What are the relationships of the attributes of S & T IV (Physics) instruction and the attained curriculum of the respondents grouped according to enrolment size?

6. What are the relationships of the SWOT of the S & T IV (Physics) curriculum in terms of the intended and implemented curricula and the attained curriculum of the respondents grouped according to enrolment size?

7. Are there significant differences between the SWOT of the S & T IV (Physics) curriculum in terms of the intended and implemented curricula and the attained curriculum when respondents are grouped according to enrolment size?

SCOPE AND COVERAGE:

This study involved 1080 fourth-year students and 65 teachers in the 27 high schools in the division of Cavite. They were the respondents grouped by school enrolment size namely 1) Large (4001 and above), 2) Medium (2001-4000), and Small (2000 and below) to determine the SWOT of the Science and Technology IV (Physics) curriculum in terms of the intended and
implemented curricula relative to the attained curriculum to come up with an innovative delivery program.

METHODOLOGY:

The descriptive-evaluative type of research using the normative-survey approach was used in this study. Data were analyzed using frequency count, percentages, mean, weighted mean, Spearman rank coefficient of correlation and the F-test. The Excel computer program and the SPSS computer software were used in data analysis.

MAJOR FINDINGS:

Thirty-one (31) or 47.7% of the 65 respondent teachers teach S & T IV (Physics) which is their area of specialization as shown by the data that 25 or 38.5% have MA/MAT/Major and six (6) or 9.3% with a Certificate in Physics/Diploma in Physics Teaching. With an overall rating of 2.56, respondents have a moderately weak profile in terms of educational attainment.

The highest percentage (24.6%) of respondent teachers have been teaching S & T IV (Physics) for less than five (5) years while the least (10%) have been teaching the subject for 15-19 years. Usually, Physics teachers with higher number of years of teaching come from the large enrolment size
schools. Generally, respondents have a moderately favorable profile in terms of longevity in teaching Physics.

Teachers from the large enrolment size schools, with a 3.32 mean rating in terms of seminars and trainings attended have an edge over the other respondents with 2.58 and 2.19 from the medium and the small enrolment size schools respectively. On the average, respondents have attended at least three (3) trainings per year. Findings show that in terms of participation in seminars and trainings in the last three years, respondents have a moderately favorable profile.

In terms of class size, large and medium enrolment size schools with average mean ratings of 3.0 and 3.04 respectively have classes ranging from 71-85 on the average while small enrolment size schools with 3.56 mean rating have classes ranging from 56-85. Respondent schools have a favorable profile in terms of class size.

A student-textbook ratio with a mean rating of 3.84 for large, 4.0 for medium, and 4.5 for small enrolment size schools reveal that the three groups, with an average rating of 4.11, have a very favorable profile.

The three groups of respondents rated almost equally (3.23) with respect to Physics references in terms of books, journals, tapes and CDs. The overall profile is considered favorable.
With regard to laboratory rooms being maintained and used, large schools have a rating of 2.52, medium schools have 3.04, and small schools have 2.75, showing an average rating of 2.77. The students from the respondent schools share the laboratory rooms with the other year levels while others use the classrooms as laboratory room and vice versa. Respondents have a moderately favorable profile in terms of laboratory rooms being used and maintained.

In terms of science equipment and apparatus, large schools have a mean rating of 2.88, medium schools have 3.08, and small schools have 2.81 revealing an average of 2.9, hence described as having a moderately favorable profile.

For the intended curriculum, teacher's guide/lesson plan are both the top-rated strengths (3.83) and opportunities (3.82); the PSSLC was top-rated (2.85) in terms of weaknesses, and the text books / references got the highest rating of 2.54 in terms of threats among respondents grouped according to enrolment size.

For the implemented curriculum, teacher-made support instructional materials are the top-rated strengths (4.09), test result utilization component which was rated 2.74, is considered the weakness, the teaching methods
used with a rating of 3.98 are the top opportunities, and the topics taught with the rating of 2.37 are considered the top threats.

The attained curriculum showed that large schools have an achievement level of 2.68, medium schools with 2.64 and small schools with 2.69 revealing an overall mean score of 2.67. Respondent schools have moderately favorable attained curriculum.

It was shown that the SWOT of the curriculum in terms of the intended and the implemented curricula have different degrees of relationships with the attained curriculum in each of the three groups. For large enrolment size schools, the attained curriculum has very high relationships with the strengths (r = -.775 at p = .014) and the opportunities (.713 at p = .031); has a high relationship with the threats (r = +.591 at p = .094); and a very small relationship with the weaknesses (r = -.032 at p = .934).

For medium enrolment size schools, the attained curriculum has a very small relationship with the strengths (r = .025 at p = .949) and the opportunities (r = .174 at p = .654); high relationship with weaknesses (r = -.610 at p = .081); and moderately small relationship with the threats (r = 3.29 at p = .387).

Likewise, for the small enrolment size schools, the attained curriculum has a high relationship with the strengths (r = .567 at p = .112); moderately
small relationships with the weaknesses ($r = -0.378$ at $p = 0.316$) and opportunities ($r = 0.393$ at $p = 0.295$) and a very small relationship with the threats ($r = 0.017$ at $p = 0.965$).

When described according to the 1-5 rating scale, relationships of the SWOT of the S & T IV curriculum in terms of the intended and implemented curricula and the attained curriculum revealed a 2.91 rating which shows a moderate relationship for the three groups of respondents.

The obtained F-ratio of 4.13 in large schools showed that the SWOT of the intended and the implemented curricula has significant differences with the attained curriculum; similarly, in medium schools, the obtained F-ratio of 6.23 also indicates significant differences; while in small schools, the obtained F-ratio of 1.87 showed no significant differences.

Grouped according to enrolment size, respondents revealed significant differences between SWOT of the Science and Technology IV curriculum in terms of the intended and the implemented curricula and the attained curriculum as shown by the obtained F-ratio of 8.90. The difference lies between the mean of the attained curriculum and the means of the SWOT of both the intended and the implemented curricula.
To sum up, the study shows that the SWOT of the intended and implemented curricula have moderate relationships and with significant differences with the attained curriculum in Science and Technology IV

CONCLUSIONS

The following are the conclusions of the study:

1. The attributes of Physics instruction are described as moderately weak in terms of teacher's educational attainment; longevity in teaching Physics, and number of Physics trainings and seminars attended and favorable in terms of schools' characteristics such as class size, student-textbook ratio, availability of Physics references, laboratory rooms being used and adequacy of laboratory equipment used and maintained.

2. The Science and Technology IV intended curriculum is strong and with most opportunities to improve instruction in terms of teacher's guide/lesson plan, weak in terms of the PSSLC; and with threats in terms of textbooks/references.

3. The Science and Technology IV implemented curriculum is strong in terms of teacher-made support instructional materials; weak in terms of test result utilization; with most opportunities to enhance instruction in terms of teaching methods used; and with threats in terms of topics taught.
4. The respondent schools revealed an attained curriculum that is moderately favorable.

5. The attributes of S & T IV instruction have low relationship with the attained curriculum.

6. Generally, the SWOT of the intended and implemented curricula have been found to have a moderate relationships with the attained curriculum.

7. The SWOT of the intended and the implemented curricula have significant differences with the attained curriculum hence the rejection of the null hypothesis.

Recommendations

Based on the findings and conclusions, the following recommendations are hereby forwarded:

1. There should be a continuing upgrading of Physics teachers in terms of short-term courses, seminars, workshop, participation in fora, and other professional activities. It is further recommended that administrators come up with quadrants of Physics teachers to be able to identify those who are in the most urgent / most important level of being sent to such upgrading opportunities.
2. There should be a clear-cut policy regarding the zoning scheme to address the problem of unequal enrolment size among schools in a municipality. Admission should be by virtue of distance from residence and not by preference to address the class size issue.

3. There should be an efficient system of textbooks, references, and science equipment distribution in every school for equity purposes.

4. There should be a review of the Philippine Secondary Schools Learning Competencies in Physics to come up with a competency gradation scheme that would be less daunting for the teachers in terms of prerequisite skills and the sequence of topics necessary for concept development.

5. There should be a thorough training needs assessment that should be conducted by the science supervisors and specialists so as to provide the necessary intervention to Physics teachers who find difficulties in contents as well as teaching and assessment strategies they are supposed to employ.

6. There should be well prepared S & T IV (Physics) Division Work Plan and Supervisory Program that should address identified areas where teachers are highly in need of.

7. School heads should be encouraged to cluster among themselves and to work cooperatively so as to address the instructional problems of their Physics teachers through a networking scheme.
8. In a capsule, there should be a retooling of teachers on the various aspects of effective instruction hounded by minimal resources and emerging weaknesses of and threats in Physics instruction through programs and projects in the division level.

9. Lastly, it is recommended that Physics teachers be guided by the Innovative Delivery Program prepared by the researcher as an offshoot of the identified SWOT of the Science and Technology IV curriculum via this study.