Evaluation report regarding the use of DLG (gifted programme) 2011-2012

(Biology)

1. Brief summary

In order to support the diversification of NSS Biology Curriculum to cater for students’ needs, the Biology Department applied for the Diversity Learning Grant. The details of the programme are shown below:

Aims:

(a) To provide opportunities for high achievers to develop an in-depth understanding of biotechnology and its application.

(b) To enhance high achieving students’ knowledge and problem-solving skills in an increasing technological society.

(c) To provide enriched opportunities for top Biology students.

Target group:

The top 25 Form 6 Biology Students.

Approved budget:

HK$45,000 for biotechnology teaching and learning equipment and consumables.

Action:

Students attend a series of biotechnology workshops in the school laboratory conducted by the school teachers and completed a Forensic investigation starting from PCR (gene amplification) to electrophoreses in November 2011. They then analyzed the evidence and wrote up a full report of their investigations. The students also learnt the bacterial transformation techniques so as to make the bacteria glow green. Their successful works were also exhibited and demonstrated in the school open in May, 2012.

2. Evaluation methods, data collection and analysis on student learning

Students’ performance in biotechnological investigations, their investigative reports, the in-depth discussion, the exhibitions during school open day and public examinations are used to evaluate their learning.

3. Key findings and recommendations

- Key findings:

(a) Students showed their in-depth understanding of the scientific principal behind all the procedures of biotechnological investigation. They performed smoothly and showed their enthusiasm for conducting the investigation.
(b) Their results and investigative reports were of a high standard which indicated their knowledge in the practical and theoretical aspects of biotechnology and their problem-solving skills were much enhanced. The in-depth discussion of the report and class discussion indicated that their critical thinking, problem-solving skills and decision making skills regarding the ethical use of biotechnology were further enhanced.

(c) Students also demonstrated and explained their exhibits of their works to the public during the school open day.

(d) Four students in this Biology Class obtained 5** and 7 obtained 5*. The result was much above average and this reflects that the strategies for stretching the high achieving students to reach their full potential were useful.

- **Recommendations:**
  
  To further improve the workshop, more classroom discussions should be conducted to encourage students to understand and make the connection between their research for the vast potential for solving human health, food and environmental problems.

4. **Conclusion**

The aims of the program were achieved. Not only the students gained biotechnological knowledge through this programme, but also their confidence in conducting biotechnological investigations was raised. Last but not the least, some students also started initial research in the field of biotechnology to learn more about the industry and to explore their interests and career goals if they want to specialize within a particular section.
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(Liberal Studies)

1. Introduction

In the study of Liberal Studies, students need to acquire a relatively comprehensive understanding of the issues, master related facts, analyse the core of the questions, give balanced consideration to different views and make reasoned judgment. Two workshops with five sessions on critical thinking were organised to enhance the skills of evaluation, synthesis and application in LS writing. One workshop was for Form 5 students and one for Form 6 students. Students were equipped with a set of questions to help them evaluate systematically what they hear and read. They also learned to assess the completeness of any reasoning from different perspectives and to verify the quality of a conclusion.

Students who had demonstrated outstanding performance in their analytical thinking were chosen by their LS teachers to attend the workshop.

2. Evaluation methods, data collection and analysis on student learning

Towards the end of the workshop, students were asked to write an essay on a given topic applying the strategies acquired in the workshop. The instructor of the workshop then worked with the girls together to evaluate the work of different participants using the acquired strategies.

Students found that they are now more confident and better able to think critically. Teachers have made similar observations on these students’ assignments. A survey carried out at the end of the workshop shows that students were very satisfied with the outcome and would not hesitate to recommend the workshop to others.

3. Key findings and recommendations

The workshop provided the opportunity for the individual development of the many varied learning skills including creative thinking. Further enrichment opportunities could be provided for students to put into practice the cognitive, socio-emotional skills, concepts, and attitudes necessary for life-long learning, a goal that extends across different curricular.

4. Conclusion

As these workshops have been successful in enhancing students’ critical thinking, a similar workshop on thinking skills is arranged for F.5 students in the coming year.
Evaluation report regarding the use of DLG (gifted programme) 2011-2012
(Mathematics)

1. Brief summary
Tests and workshops were prepared and conducted by Canotta Maths Learning Centre. They aimed to improve the students’ mathematical problem solving skills, and the target group was F.6 students taking Mathematics Module 1 or Module 2. The tests were done on 6 Feb 2012, while the workshops were conducted on 24 Feb 2012. The two instructors of the workshops were very experienced Mathematics teachers. They marked the scripts of the tests and prepared the contents of the workshops based on the students’ strengths and weaknesses in the tests.

2. Evaluation methods, data collection and analysis on student learning
The test results, the instructors’ observations and comments, the attendance rate and the students’ feedback were analysed.

3. Key findings and recommendations
   - Key findings:
     (a) The tests results showed some weaknesses of students in particular areas, which were addressed in the workshop. During the workshops, students showed improvement in these areas.
     (b) The instructors commented that the arrangements of the tests and workshops were excellent. They also believed that students benefited from the experience.
     (c) The attendance rate of the tests and workshops were both 96%. A total of 43 students benefited from the programme. They generally agreed that the programme helped them improve their thinking and problem-solving skills.
   - Recommendations:
     (a) Similar programmes can be arranged next year.
     (b) It is recommended that such programmes are arranged for F.4 or F.5, instead of F.6, so that students can benefit earlier and apply the skills in their Mathematics learning.

4. Conclusion
The programme could help students improve their thinking and problem-solving skills. Similar programmes or Mathematics Olympiad training courses can be arranged next year.