

TEACHING SCIENCE THROUGH INTERACTIVE AND INTEGRATIVE APPROACHES

Evaluation of a professional development program for teachers at the Philippines Science Centrum

About the program

The *Teaching Science Through Interactive and Integrative Approaches* seminar–workshop is normally scheduled for a three-day activity. But it can also be offered as a one-week training program, depending on the needs of the host–sponsors. The group size is always limited to a manageable level of 50 participants.

Since it began in 1995, the seminar–workshop program has trained more than 5000 science and art teachers, administrators and supervisors all over the country.

The training program has two main themes: critical and creative thinking (the art of questioning) and the interactive learning system. Methodologies used include lecture–discussions, critiquing sessions, demonstrations, simulations and hands-on experience. Participants are exposed to self-paced and self-directed learning approaches as well as face-to-face and group learning experiences.

Each participant has individual kits, modules and free food. Lecturers and the secretariat are very accommodating, well-prepared and efficient.

At the end of each training program, the participants are expected to:

- a. Introduce the interactive learning system as an alternative method to enhance/enrich the teaching of science in the classroom
- b. Integrate the hands-on, interactive approaches in the science curriculum
- c. Acquire the necessary competencies and skills to serve as teachers on teaching through interactive approaches
- d. Introduce other forms of media (as tools) for the preparation and presentation of instructional materials in science teaching.

Evaluation of the program

Data have been gathered during the last three years to assess whether the seminar–workshops achieve their objective of providing effective and alternative approaches in classroom teaching.

The participants acting as students during the various activities were all excited about performing the lessons and/or tasks at hand. If these teachers were all excited and participative, how much more if the same activities and approaches will be applied to their respective classes? Getting the students' attention and participation is a giant step in improving the learning process.

Summary of participants' responses

1. 65 % of the participants attended this kind of seminar-workshop for the first time.
2. 87% of the participants gave an 'excellent' rating to the workshops.
3. The lectures presented by the speakers were given an 'excellent' rating by 79% participants and a 'good' rating by 21%.

4. The resource speakers for the training program were rated by the participants as follows:

	Excellent	Good	Satisfactory
a. Technical expertise	93%	7%	—
b. Presentation of topic	86%	14%	—
c. Informative	89%	11%	—
d. Workshop	87%	12%	1%

5. The seminars were conducted properly and smoothly according 98% of the participants.

6. The good points of the seminar, judged by the numbers of similar responses, were:

- Hands-on materials and activities and various actual group participation; more interactive and integrative approaches.
- Lecturers are very good, accommodating, have mastery of their topics with available materials.
- This training-workshop can be a big help to become effective teachers because it offers activities that allow pupils to learn more.
- Integration of different subject areas was learned.
- It covered different topics and levels of skills for teachers.

7. Over-all impressions:

- 'It provides additional techniques and approaches in teaching science in an enjoyable, lively and educative way.'
- 'A knowledgeable and informative workshop, magnificent.'
- 'This really helps all teachers to teach better than before using the techniques learned in constructing tests and in making lesson plans as well as in presenting lessons and teaching styles to achieve such quality education.'
- 'Felt motivated to bring what is learned into the classrooms.'
- 'A great help to science teachers.'
- 'Realized some mistakes done during classroom discussions and other forms of educational information to students.'
- 'A great help in achieving the mission of the Department of Education.'
- 'The speakers were great. They were all knowledgeable as far as their topics are concerned. We teachers are ready to teach science with more love and most of all, passion.'
- 'These approaches if implemented correctly will help pupils not only in memorizing science concepts but also in understanding and appreciating science and its application to their daily lives.'

8. The areas that need improvement were the sound system, time management (more time needed) and additional instructional materials.

Summary

The seminar-workshop is different from other workshops because it teaches that an interactive approach can really be integrated in science teaching. It is well-participated by both the participants and the lecturers, which makes it more lively and enjoyable while learning.

Moreover, the seminar-workshop offers different activities that will bring out the use of multiple intelligences of the pupils and make science more enjoyable, fun and exciting.

Overall, responses from participants indicate that the seminar-workshop program is seen as very valuable in increasing the knowledge, confidence and motivation of teachers in relation to science in the classroom.