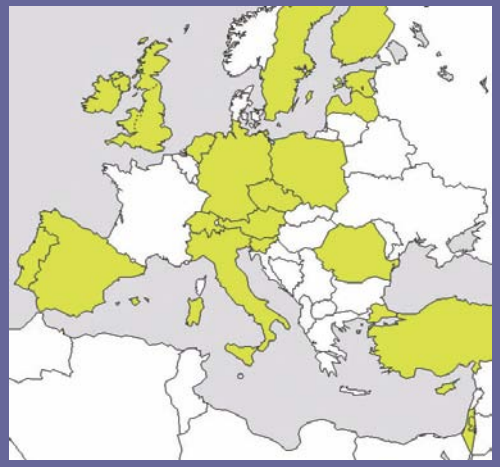

Teachers' Development of Ownership:WP6

Avi Hofstein, Rachel Mamalok-Naaman & Dvora Katchevich
The Weizmanan Institute of Science, Israel.

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Standards of Professional Development

Professional Development is specified by :

- **Content Knowledge**
- **Pedagogical Content Knowledge**
- **Experiences**
- **Dispositions**
- **Ownership (in the new vision)**

That teachers must have if they are to engage in teaching science

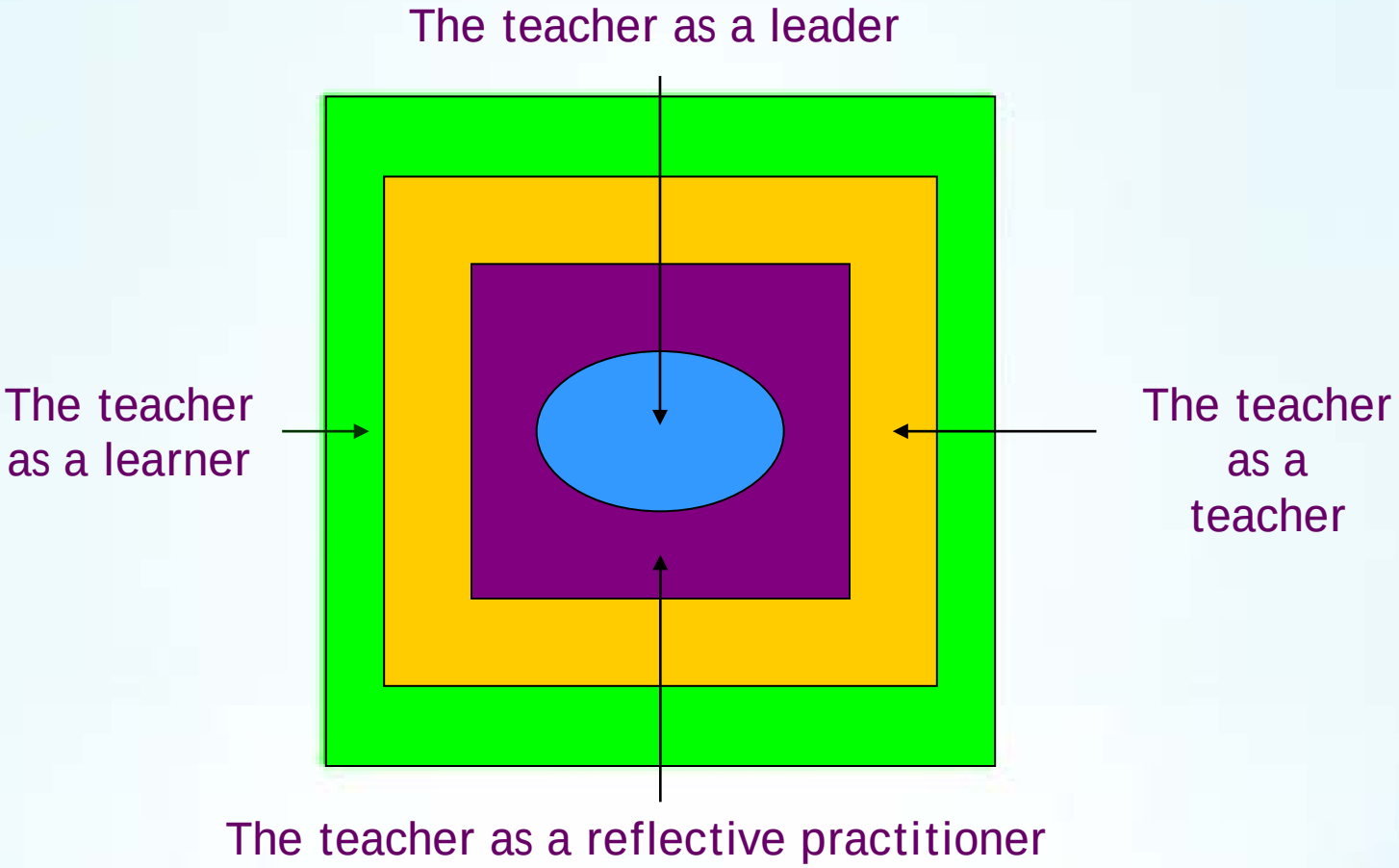
Conceptual Approach to the Teachers' Professional Development

- Providing teachers professional Support in innovative teaching approaches.
- Developing stronger teacher professionalization and enhancing the self-efficacy in teaching IBSE

⬇ Will lead to:

More enhanced teachers' ownership

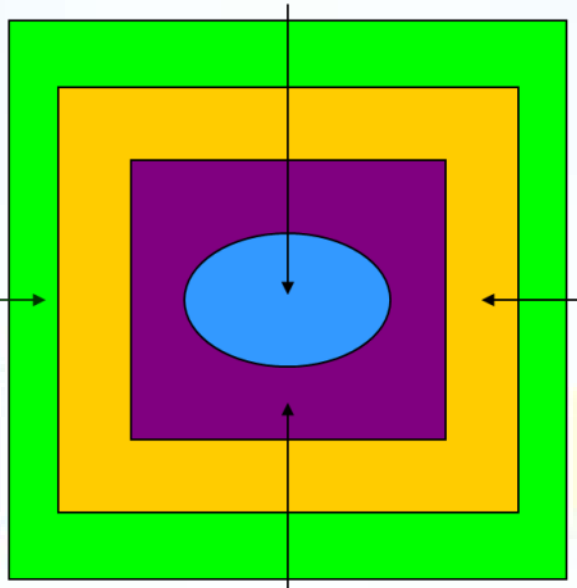
A workshop model for CPD providers



The PROFILES CPD Model

4th front
Developing self-efficacy and ownership to induce leadership

The teacher as a leader



The teacher as a learner

The teacher as a teacher

1st front
Introducing the PARSEL philosophy working on one module; IBSE - focus

2nd front
Introducing several PCK approaches, Discussing PROFILES ideas

The teacher as a reflective practitioner

3rd front
Making PCK more explicit, Developing more reflective practices, Exploring teaching strategies

1st Front: Adopting/or Developing a Module

I Setting the scene

II Inquiry-based science education: appropriate knowledge, skills, attitudes and/or values

III Appropriate decision-making

2nd Front: Developing the teachers' PCK

- Methods to vary the classroom instruction (enhance motivation).
- Teaching and learning by inquiry
- Alternative assessment methods cognitive and practical abilities and skills
- Implementation and dissemination of new curricula
- Coping with students' learning difficulties

3rd Front: Self-Reflection on Teaching

- Reflective-type activities
- Planning a possible solution
- Implement the new plan
- Reflect on the outcomes
- Development of initial stages of “ownership”

4th front: Ownership

Innovations succeed when teachers feel a sense of ownership of the innovation, or that it belongs to them and is not simply imposed on them (Ogborn, 2002).

Ogborn, J. (2002). Ownership and transformation: teachers using curriculum innovations. *Physics Education*, *37*, 142-146

The Development of Ownership among Science Teachers during the PROFILES Workshops

- **The willingness to involve other teachers in school in the project**
- **Identifying one self with the news letter (published on the web)**
- **Involving the principle in the project (stake-holders).**

Categories which Emerged from Teachers' Reflections

A. I feel empathy towards the project's objectives.

B. The project promoted my status among the teachers' community.

C. The development of the module enhanced my ownership feeling towards the project.

Fullan (1991), Defined Leadership as:

"The ability of a person to bring about Changes among teachers and teaching"

Prepare Teachers to Serve in Leadership Roles:

- Planning and implementing professional development opportunities for themselves and others.
- Acting as agents of change
- Promoting a shared vision of science education.
- Supporting other teachers in school or region

Loucks Horsley et al (1996) NISE (vol1, no1)

Pratt (2001)

There are four basic skills relevant for effective leaders:

(1) **Technical skills**

(2) **Conceptual skills**

(3) **Interpersonal skills**

(4) **Self-learning skills**

These are in someway aligned with the Bell & Gilbert (1994) model for Professional Development. Stating that this should be a long-life learning process allowing teachers to develop

- **Personally**
- **Professionally**
- **Socially**

Based on Several Years Experience with CPD We came to Conclude that the Most Effective Models are:

1. ***Action research***: **In which the teacher in collaboration with science educators research their own classes.**

2. ***The teacher as a curriculum developers***: **In which they are intensively involved in the various curriculum development stages**

3. ***Focus groups***: **In which the teacher in collaboration with other teachers as a community of practice.**

Community of Practice