

**HONG KONG CHEMISTRY TEACHERS' BELIEFS
ABOUT AND PRACTICES OF USING
INFORMATION AND COMMUNICATION TECHNOLOGY
FOR TEACHING AND LEARNING**

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ABSTRACT

The study focused on the use of information and communication technology or ICT based tools in chemistry teaching in secondary schools in Hong Kong. Local chemistry teachers were invited to participate in this study, as they are crucial in implementing ICT for teaching in schools. More specifically, the study aimed to develop an understanding on the following aspects.

1. What kinds of ICT-based teaching tools teachers are using?
2. What are teachers' perceived usefulness and perceived ease of use of ICT-based teaching tools?
3. What are teachers' context beliefs about the use of ICT-based teaching tools?
4. What are the relationships between the use of ICT-based teaching tools and teacher beliefs?

In order to answer these questions, a survey questionnaire was used to gather data about whether local chemistry teachers (N=124) were using ICT for teaching and how frequent were ICT tools being used. Then, in-depth interviews with five purposefully selected teachers, supplemented by document analysis were conducted. The data collected were analyzed using descriptive and inferential statistical analytical techniques, as well as constant comparison method. As there were no existing researches that focus on how local chemistry teachers make use of ICT, the findings of this study should contribute to the understanding in this domain. Furthermore, the findings could be illustrative reference for whether or not chemistry teachers in Confucian based societies like Korea, Malaysia, Singapore and Taiwan are using ICT for teaching.

A number of findings worth reporting are listed below.

1. Chemistry teachers are using ICT for teaching, but it is not the most frequently used strategy; also, they enjoy the use of ICT-based tools with a transmissionist oriented approach rather than a constructivist one.
2. Chemistry teachers have very positive perceptions that ICT-based tools are useful, and males show statistically significant more positive perceptions than females.
3. Chemistry teachers have positive perceptions that ICT-based tools are easy to use, and males show statistically significant more positive perceptions than females.

4. Chemistry teachers of high ability students, i.e. teachers working in schools with the majority of students belong to the first Territory Band, use more ICT-based tools than other teachers.
5. Chemistry teachers with the highest ICT competence use more ICT-based tools than others.

Plausible explanations of the findings like accountability practices and conflict of beliefs are then presented. At the end of the report, some pragmatic recommendations on how professional development programmes can be organized and the kinds of support chemistry teachers need are presented.

DECLARATIONS

I hereby declare that this dissertation represents my own work and that it has not been previously submitted to this university or any other institution in application for admission to a degree, diploma or other qualifications.

Production Note:

Signature removed prior to publication.

Raymond Wai-hung FONG

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