Chapter 23
Be It Elementary or Tertiary Level of Biology that We Teach, We Need TPACK

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Abstract Whether one is teaching elementary science or genome biology, the ability to create innovative biology lessons requires Technological Pedagogical and Content Knowledge (TPACK). We have come a long way since the early twentieth century … the world is changing. The laptop in the classroom has become commonplace and new technological tools can be integrated in the biology classroom. Today when we hear about the technology in the teaching–learning environment, we think of word-processing software, presentation software, animation software, multimedia, online learning (including interactive features such as chat rooms, forum, etc.), distance learning, laptops, tablet PCs, handholds and such. Related to the technology-supported learning environments (for biology and other subjects) and the learning experiences, Brown (Why students still need teachers in the internet age. Keynote address presented at the ‘International educational conference: Education and ICT in the new millennium’, University Putra Malaysia June 30 2000) purported that five key components were necessary in learning which are motivation, structure, knowledge, guidance and evaluation. Educators and technical developers need to rethink their roles in the light of new fast evolving technologies (Naismith L., Lonsdale P., Vavoula G., Sharples M., Literature review in mobile technologies and learning. Retrieved May 23 2006. from http://www.futurelab.org.uk/, 2005).

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Introduction

All of education is aware of the technological renaissance that is happening. What can this mean for biology education? There is an increasing need for varied and flexible approaches for learning in elementary, secondary or higher education. The needs of students are changing and flexibility in teaching–learning approaches must