



Changing school curriculum to suit modern day life demands

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In the modern world, new scientific inventions in every field of life are being introduced, improving on, and in some cases superseding older theories and technologies. Besides technology, changes have also occurred in lifestyles. For example, an increasing number of people spend less time cooking food, which has led to emergence and growth of the fast-food shops and business sector. These changes are having a great impact on the lives of the younger, so called 'new' generation.

In a recent survey in a primary school within a developed country, pupils were given a task to draw a picture of fish. An overwhelming majority (90%) of the pupils drew a square piece of fish, and wrote on it "fish and finger-chips", while the remaining 10% of pupils returned blank sheets of paper as they did not understand the word "fish". This outcome led to the invitation of a psychologist and team of teachers to help in solving the problem. It was revealed that since working parents had little time to purchase raw fish to prepare and cook in their homes, they depended upon fast food shops that packaged ready made fish and chips. After this experience the school decided to change the syllabus to include a trip for the children to an aquarium to familiarise themselves with appearances of different types of fish.

While a visit to the aquarium helped to address the fish 'knowledge gap', current and future advances in biotechnology (will) necessitate adaptation of teaching methods and knowledge resources. For example, types of fish that are being genetically engineered to exhibit fluorescent or translucent colours will need to be included in the curricula, which will introduce challenges of demonstrating amorphous terminologies, e.g. those associated with

hitherto undefined colours or new forms of behaviour expressed by living organisms. Should featherless chicken that are reportedly near the endpoint of the development pipeline continue to be called chicken? These kinds of questions will need to be addressed in new curricula.

In Pakistan, and elsewhere in the world, children grow up being taught that cattle, buffalo, goat and sheep eat fodder. However, advances in science have enabled formulation of animal feeds that contain bone meal. Likewise, meals based on vegetarian components have been developed for animals that traditionally were fed on meat, e.g. dogs and cats being fed on rice and wheat products. Do these developments require changes in school curricula to include more liberal definitions of the terms 'carnivorous' and 'herbivores'? In the past, a visit to the rural areas of Pakistan witnessed large populations of butterflies and other interesting insects. With the coming of the much hailed 'green-revolution', climate change and the associated global warming, these insects have been adversely affected and their populations have evidently diminished. What, then, will be the basis for persisting with the teaching in biology classes that butter-flies and insects play key roles in

transferring pollen from one plant to another? It is clear that research is needed to ensure that school curricula are adapted to the reality of current times. Arguably, advances in the biotechnologies encompassing genetic engineering, molecular biology and tissue culture have brought (and will continue to bring about) a revolution in agriculture. Today, it would not be surprising to see plants that were previously cross pollinated, having been developed (improved?) into new forms that are self-pollinated.

In developing countries, one important aspect of life that will be affected by these changes is the traditional system of knowledge transfer from the older to the younger generation. Science is bringing about new knowledge, which renders many centuries-old farming practices obsolete or incongruent to the modern days' demands. In the olden days seeds of almost all crops were preserved from one season to the next. Today, this practice is not possible with many crops following the development of hybrid varieties that require purchase of fresh seeds every season, and also introduction of intellectual property rights that are legally enforceable. Where previous curriculum taught that fruits and vegetable perished rapidly unless refrigerated, genetically engineered foods have now been developed that have long shelf lives. These are issues that need to be considered within the subject matter presented to pupils and students in schools.

Progress in science has even affected mankind's ways of references. Even daily use of language is being changed to accommodate

trends of modern day society. Where roses were always said to be red, new rose hybrids have been developed that express all manner of colours, including black and white. In Asia, traditional folklore made reference to the moon as a beautiful object, especially when referring to the beauty of a child. After scientists' findings that the moon has an uneven surface, the moon is no longer acceptable as a reference to beauty, as children would not take it kindly.

In the case of Pakistan, the curriculum used for teaching biology, mathematics, science and arts needs to be changed according to new circumstances in which our environment, urbanisation, technology and industries have changed. As technology and modern gadgets become more affordable, children are gaining access to new technologies much earlier than ever before. They are being introduced to computer sat an early age and for mathematics, young kids are using calculators more often. Rather than use their own memory, modern society prefers to store data in memory chips built into mobile phones, computers or calculators. Considering these changes, and to help the younger generation to understand issues of environmental pollution, health, nutrition, global warming and climatic change, it would be prudent to consider re-writing the syllabus and curriculum that are used as basis for training and education from primary to the university level.

