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Editorial

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Editorial

As an engineering educator, researcher, and mentor of researchers, I am always interested to think and even speculate about the future of education in general and engineering education in particular. Predicting the future of education and R&D is no more precise than prediction of weather weeks or months in advance. Developments of the past or present are not necessarily good predictors of the distant future. The proverbial crystal ball becomes increasingly hazy, even opaque, when one tries to be a futurist and predict what the globe will be like five decades from now. An article by the futurist Hazel Henderson entitled "Education for the Third Millenium" presented at a conference held in Argentina in April 2002 is a fascinating and thought-provoking must-read for educators concerned about the future of education. It is available at http://www.newhorizons.org. Her account of the outlook for the future of the globe is very optimistic. I am sure this is based on some key assumptions, but that is not the theme of this editorial.

Among the many predictions for 2050 that her article enumerates, I would like to mention just a few here, viz. haphazard globalization of the present will become more systematic; global interests will override regional interests in technological and social innovations; ecological awareness and technological developments will restore the ozone layer; oil will be used as feedstock than as fuel; renewable resources will reduce use of fossil fuels; world population will stabilize at 8 billion, etc. Clearly, these are all very positive forecasts and I am sure we all hope they will come true.

To achieve these outcomes, however, there will be global need for improved education at all levels. The world is indeed becoming flat in the sense of accessibility to information and knowledge. However, there are major economic peaks and valleys that are evident even regionally, both in developed and emerging nations. It is hoped that these will also flatten out over the next few decades. Technological innovations can speed social and economic changes by making them available to the entire global village. This is particularly true for developments in the agricultural, energy, and environmental technologies, which are important for human survival. Indeed, these technological sectors themselves are closely intertwined. For example, use of biofuels as an energy resource has direct and often adverse influence on availability of food as well as the carbon imprint. When one examines the issue of production of biofuels from resources such as corn, it is not clear whether this is a sustainable technology since it affects both the food supplies and the environment. A holistic approach is needed when examining new technologies as they may have coupled and nonlinear implications.

Readers of this journal should be particularly concerned about the inherently energy-intensive nature of thermal drying technologies. Using existing technologies and knowledge and know-how, it is possible to develop highly efficient dryers, although it is still not common practice in industry for various reasons. For example, one can envisage use of superheated steam as drying medium to enhance energy efficiency. However, I believe that this will not suffice in a couple of decades when the energy crunch will be much more severe. It will be essential to use renewable resources to power dryers either fully or to a great extent. Use of solar and wind power coupled with the use of biomass would be increasingly important in the future. It is important to look into these technologies to make them efficient and cost effective for drying applications. Since such technologies will have very long-term returns, they are unlikely to be developed by industry. Government granting agencies will need to identify R&D needs of the future and support such work even if there are no returns on such investment over a time span of decades.

As the global technological playing field becomes level, large-scale R&D projects of global interest can be carried out collectively by sharing human and economic resources as the outcomes will be available to all nations. The eventual impact of such R&D will be global in scale. A start has to be made somewhere, however.

I hope that the drying R&D community, possibly through the IDS series as a way of networking, will propose and embark on a global ultra-efficient dryer development project of broad global interest with researchers from all continents contributing their expertise and resources on a continuing basis. Indeed, such international cooperation has been happening right from the inception of the IDS series three decades ago. What is needed is extension of the idea to a much larger scale collaborative project of global interest with global participation.

I would be happy to hear from our readers their ideas about the future of education as well as R&D in general and that in drying in particular.

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