From the Editor

Engineering Education, Technology Education: Does it Matter? Are We Pursuing the Same Goals?

This edition's editorial is quite different than past editorials; I have planned a reflection (of sorts) for you. Below are a series of citations from scholarly technology and engineering publications. What I would like you to do is to answer each question with the best possible choice given.

1. Perhaps the most constant feature of _____ education has been the demand for change.
   A. Technology
   B. Engineering

How did you answer question one? According to Seely (1999), in his historical examination of engineering education between 1900 and 1965, the answer should be engineering. Could you have also chosen technology as your answer?

2. The combination of classroom instruction with practice in laboratories and shops describes _____ _____.
   A. Technology education
   B. Engineering education

The answer for question two, according to the original citation, is engineering education. In between the times of 1863 and 1878, Stillman Robinson was an engineering professor at the University of Illinois. Robinson educated his students with both knowledge and skill by designing and building such artifacts as steam engines and a tower clock, Seely (1999); Robinson balanced the theoretical with a hands-on approach – the verb of engineering. Could you have also chosen technology education as your answer?

3. The issue of general education has dogged _____ educators.
   A. Technology
   B. Engineering

The answer for question three, according to the original citation, is engineering (in both blanks). During the mid to late 1900s, Eric Walker, Dean of Engineering and later President of Penn State University, argued that engineering should be considered a liberal art (Seely, 2005). Could you have also chosen technology as your answer?

4. _____ is a profoundly creative process.
   A. Technology
   B. Engineering

Question four, especially given the only answers you could utilize, would be engineering, which is exactly how the National Academy of Engineering described engineering in The Engineer of 2020: Visions of Engineering in the New Century (2004, p. 7). Could you have chosen another answer for this question? Problem solving, technological design or engineering design would work.

5. _____ _____ utilizes curriculum that educates students on biotechnology, nanotechnology, materials science, information and communication technology, and logistics?
   A. Technology education
   B. Engineering education

In the citation from the National Academy of Engineering (2004), the answer is engineering education. The National Academy of Engineering discusses biotechnology, nanotechnology, materials science, information and communication technology, and logistics in substantial length and notes that these are tremendously important areas for engineers to study. Are these curricular areas also important for a technologically literate citizenry? Could technology education be inserted for the answer to this question?

6. The available evidence shows that engaging elementary and secondary students in learning _____ ideas and practices is not only possible, but can lead to positive learning outcomes.
   A. Technological
   B. Engineering

In the National Academy of Engineering and National Research Council's (2009) Engineering in K-12 Education: Understanding the Status and Improving the Prospects, the answer to question six is engineering. Could technological be inserted instead of engineering?

7. The potential effectiveness of K-12 _____ _____ has been limited by a number of factors, such as curriculum, professional development, new content with existing curricula in other subjects, standards-based education, teacher certification requirements, and pre-service teacher preparation programs.
   A. Technology education
   B. Engineering education

According to the information found in the National Academy of Engineering and National Research Council's (2009) Engineering in K-12 Education: Understanding the Status and Improving the Prospects, the answer to question seven is engineering education. Has technology education struggled with curriculum, professional development, new content with existing curricula in other subjects, standards-based education, teacher certification requirements, and pre-service teacher preparation programs?

8. The potential for enriching and improving K-12 STEM education is real, and _____ _____ can be the catalyst.
   A. Technology education
   B. Engineering education

The answer, engineering education, is based on the National Academy of Engineering and National Research Council's (2009) Engineering in K-12 Education: Understanding the Status and Improving the Prospects. Could you also insert technology education as the answer?

Does it matter what we believe? Yes, it matters what we believe as a profession. We all need to believe that teaching for technological literacy involves engineering concepts and teaching engineering (the verb) involves technological concepts, both of which also rely on scientific and mathematical understanding. We need to believe that there is no single right answer.

Are we pursuing the same goals? Yes, I believe we are pursuing the same goals if we are focused on students at the P-16 levels. Whether you call it engineering education, technology education, or technology & engineering education, should not be the issue. Rather, the issue should be preparing students to live in an ever changing world where technological, engineering, mathematical, and scientific knowledge and skill will satisfy our human needs and wants.

References

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