

## **Bench Top and Industrial Metal Lathes - Different and Similar, but needed in Technology Education**

Alex Johnson  
University of North Dakota  
[ajohnson@business.und.edu](mailto:ajohnson@business.und.edu)

Dave Yearwood  
University of North Dakota  
[yearwood@und.edu](mailto:yearwood@und.edu)

### **Abstract**

Engineering and manufacturing programs may need to be cost effective to survive, but cutting costs at the expense of the quality of programs does not seem to be an acceptable solution. Using bench top metal lathes in manufacturing technology educational settings may provide a more cost effective alternative to industrial lathes without impacting the quality of programs. The use of bench top equipment seems to be a viable option that is accepted by industry, faculty, and students alike, and one that will still allow programs to provide hands-on experience with machine tools that many in industry feel are important for students to know.

### **Biographies**

ALEX JOHNSON is an Assistant Professor in the Department of Technology at the University of North Dakota. He earned his BS from the University of North Dakota, his M.S. degree from the University of North Dakota (Industrial Technology, 2001), and a Ph.D. (Teaching & Learning, 2010) from the University of North Dakota. Dr. Johnson's research interests are in engineering and technology education, manufacturing processes and small wind turbine technology. Dr. Johnson may be reached at [ajohnson@business.und.edu](mailto:ajohnson@business.und.edu)

DAVID YEARWOOD is a Professor in the Department of Technology at the University of North Dakota. Dave earned his BS from Bemidji State University, his M.S. degree from the University of North Dakota (Industrial Technology, 1994), and a Ph.D. (Teaching & Learning, 1999) from the University of North Dakota. Dr. Yearwood has two research interests: 1. Electronic Pedagogy—the purposeful use of technology in education; and 2. Control or Semi-Automatic Systems for use in commercial and/or consumer settings. Dr. Yearwood is currently teaching at the University of North Dakota and may be reached at [yearwood@und.edu](mailto:yearwood@und.edu)