

SURVEYING EDUCATION AND TECHNOLOGY: WHO'S ZOOMING WHO

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SURVEYING

- The art, science and **technology** of making measurements on, above and below the earth's surface and to set out points in their desired location
- Technology intrinsically linked to surveying

TECHNOLOGY AND SURVEYING EDUCATION

- Summer camps, internships
- Apprenticeships – on-the-job training
- Codification in licensure acts
 - Additional experience in surveying
- QUESTION: degree of incorporation

EDUCATIONAL OPPORTUNITIES

- TYPES
 - Advanced graduate degrees
 - Baccalaureate degree
 - Associate degree
 - Certificate program
 - Training/workshops/seminars
- DELIVERY OPTIONS
 - Brick and mortar
 - Video – live leads versus plug and play
 - internet

ACCREDITATION

- ABET \Rightarrow ACSM & ASCE represent surveying
- 4 commissions \Rightarrow 3 of importance in surveying
 - EAC (8), ASAC (7), TAC (8)
- Performance on NCEES exams
 - Test takers with baccalaureate degrees perform better than those without degree
 - Baccalaureate programs with accreditation perform better than non-accredited baccalaureate programs

WHY NON-ACCREDITED PROGRAMS PERFORM POORLY

- CAVEAT (Remarks are in general and do not apply to all non-accredited programs since a program must have graduates before it can be accredited)
- Technical focus – often geared towards practitioner needs
- Faculty may lack credentials
- Program development heavily influenced by current practice and practitioners
- Focus on meeting legislative mandate, not education

TO EDUCATE OR NOT THAT IS THE QUESTION

- Comments from trade magazines belittle education
 - Job security for academics
 - Restrict entry into profession
 - Academics influence NCEES exam with questions having little to do with normal practice
- Educators ⇒ post traumatic stress disorder
 - Many courses worthless and useless
 - Do not reflect real world
- I get all the news I need from the weather report
 - Trade magazines = journals?

TRAINING VERSUS EDUCATION

TRAINING

- Task oriented
- Technical competency
- Need retraining
- Narrow view of professional paradigm
- Easier to grasp and master
- Evaluation performed by rules

EDUCATION

- Process oriented
- Educate for long-term
- Problem solving – think through
- Can handle new problems
- More expansive view of opportunities
- Some concepts extremely difficult to understand

WHAT IS THE TREND?

- Introduce more technologies (working knowledge) into classroom
 - Replacing theoretical concepts
- Reducing the number of credits within curriculum
 - Replacing theoretical concepts
- Reliance on software for problem-solving
 - Replacing theoretical concepts (or watering down delivery)
 - Question: Do we need to know how concepts were developed or just how to implement the concepts?

TECHNOLOGY'S IMPACT

ADVANTAGES

- Manual, repetitive tasks automated
- Students learn what is happening in profession
- Students better prepared to enter work environment
- Learning to measure with new technologies easier

TECHNOLOGY'S IMPACT

DISADVANTAGES

- Students understand how to run software but have difficulty calculating by hand
- Education becomes technic-centered and less inclined to question results
- Some complain that training is not what graduate will use
- More instructor's time dedicated to learning newer systems
- Teaching how to use technology takes away from other topics
- Problem in keeping hardware/software up-to-date

ARE YOU TRYING TO SEDUCE ME MRS. ROBINSON?

KEEPING ABREAST OF TECHNOLOGY CHANGE

- Cost high – shrinking budgets, scarce resources, enrollment problems
- Creating partnerships with vendors
 - Hidden costs/quid pro quo
 - May end up defining program
 - Compromise objectivity
 - Dependent upon vendor schedule
 - Advertising vehicle for vendor
 - Danger of dependency

TECHNOLOGICAL DELIVERY OF MATERIAL

- PowerPoint is great, but students do not like to see it.
 - Students take fewer (or no) notes
 - Students less attentive
- Need to mix up delivery

CONCLUSION

- Technology is important to surveying education
- Stop, look, listen – educators need to prioritize given X-hours of class time
- Education is for long haul, training for immediate results
- Educators should not apologize – push for more education
- Who cares about the name? – it's the paradigm stupid!
- The whole is greater than the sum of the parts – data integration, data fusion over tools
- Education prepares future leaders, training lacks focus on the big picture