



THE ROLE OF EDUCATION IN MANUFACTURING AND INDUSTRIALIZATION

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CONSTRUCTION



Transformation of materials, substances or components into buildings and infrastructural works.

Local industry is labour intensive, low level of innovation/technology diffusion/technological advancement of on-site construction production = **low industrialization.**



Stages of construction



Product
development

Process
development
and production

Production
process





AAK | PROMOTING EXCELLENCE
IN THE BUILT ENVIRONMENT

INDUSTRIALISATION



- A building technology where modern systematized methods of design, production planning and control as well as mechanized and automated manufacture are applied.
- Entails application of knowledge and technologies to increasingly mechanize, rationalize, systematize, standardize, automatize and flexible



BENEFITS:

- reduction of costs;
- increased quality;
- elimination of dependence on weather conditions;
- increased productivity;
- improved coordination of planning and construction
- consumer satisfaction;
- profit maximization;
- better management
- mass production

REQUIREMENTS:

- highly skilled parties
- technology and knowledge
- know-why, when, where and by whom of the processes and products
- research and development on local knowledge, materials and technology
- customize foreign materials and technologies



CHALLENGES



- Lack of funding for:
 - Research and development
 - Software and hardware
 - Training of trainers
- Repository of local knowledge, materials and technology
- Demonstration sites
- Skilled artisans





INNOVATION

- Invention
- knowledge
- Diffusion
- Application

Process of development, distribution and application of technologies to suit customer requirements.





Craft based

Mechanization

Systematization
Standardization

Flexibilization
Integration

Automization

PREFABRICATION



- Transition is driven by accumulated technological and knowledge advances usually prefabrication.
- Benefits:
 - reduction of on-site activities
 - elimination of suboptimal site conditions
- Requirements:
 - Intensive planning and organization
 - Highly skilled staff





INCENTIVES

- Technological regime
- Economic and regulatory environment
- Accessibility of critical inputs
- Protected from imitation
- Long-term linkages
- Codified and documented project experiences

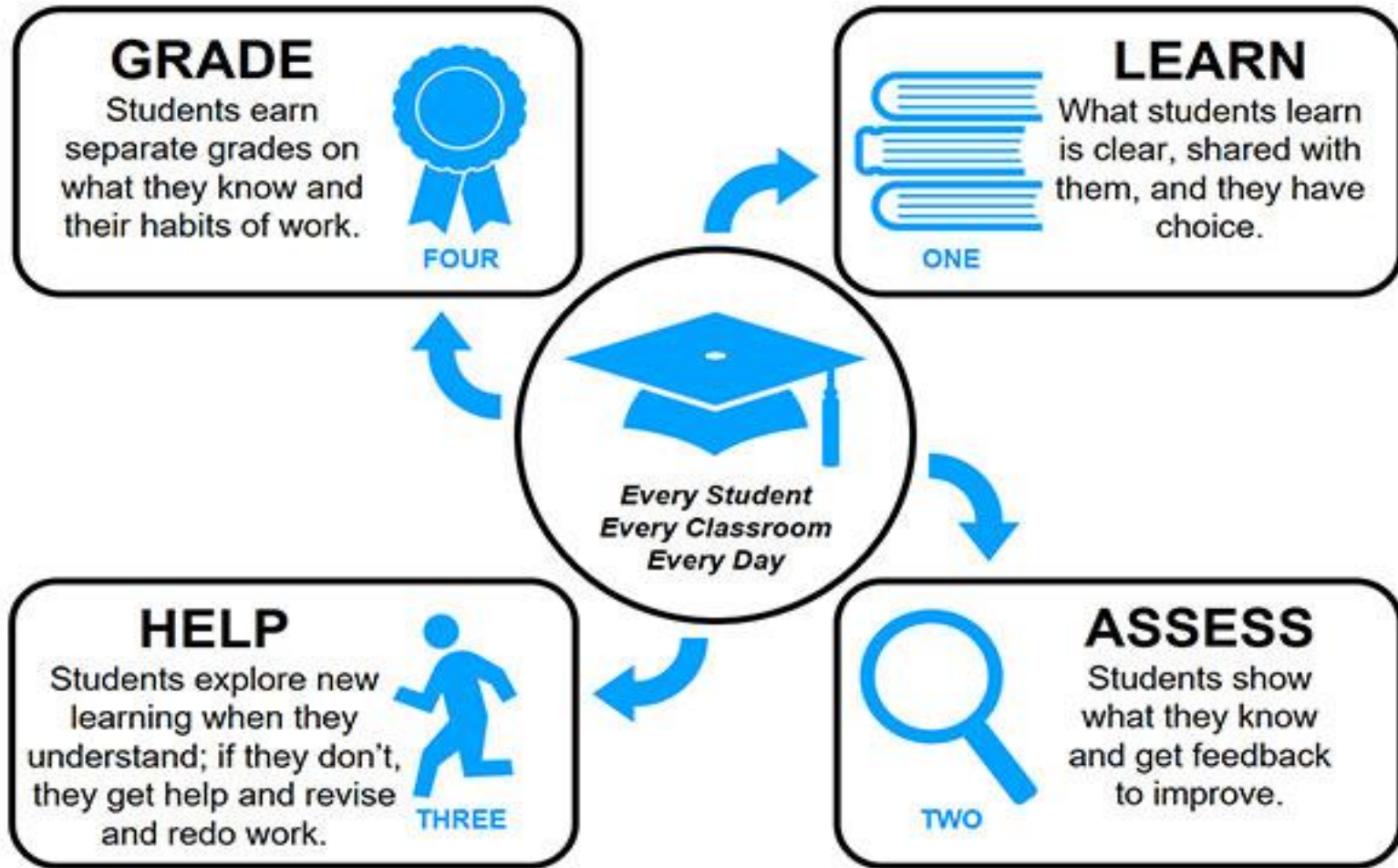
CHALLENGES

- Unduly conservative and prescriptive
- Conservatism
- Risks of unforeseen failure
- Marginality of profits
- Variety of contractual agreements
- Sensitization of consumers





WHAT IS COMPETENCY-BASED EDUCATION?



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TRADITIONAL Instruction

COMPETENCY-BASED Instruction

Structure

Time-based

Learner-centered

Teaching mode

Group learning

Individualized

Assessment Method

Summative, high stakes

Mastery-learning,
performance-based

Pace

Faculty-paced

Self-paced

Program completion

Finish when required
courses are passed

Finish when mastery of
courses is demonstrated



KEY CHARACTERISTICS



- Skilling is the ability to demonstrate acquired skills irrespective of how the skill was acquired.
- Certificates only certify holders competence
- Length of training depends on a candidate aptitude
- System more inclusive irrespective of their learning styles
- No failures - only persons at various stages on the road to competence.





REQUIREMENTS FOR OUR PROFESSIONS

- Research on the best methods of equipping the future professionals
- Skew the training system to practical skills
- Continuous professional development
- Personal initiatives to learn new technology, materials, systems
- Innovate our practices to offer better value for money to our clients



Education is the passport to the future, for tomorrow belongs to those who prepare for it today.

Malcolm X



FINAL THOUGHT



We all must industrialize and innovate the construction process to better meet future client needs.

If we do not, we shall become spectators as others take over and determine the future of our professions and industry.





**“THE BEST WAY
TO PREDICT
THE FUTURE
IS TO
DESIGN IT”
—BUCKMINSTER
FULLER**



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Thank You

