INVITED SPEAKER Paper: INTERNATIONAL CONFERENCE ON VOCATIONAL EDUCATION OF MECHANICAL AND AUTOMOTIVE TECHNOLOGY (ICOVEMAT) 20 October 2018 in YOGYAKARTA
INVITED SPEAKER

Dr. Pose Sedina, SIP
Faculty of Engineering, Universitas Negeri Yogyakarta, Indonesia

Prof. Hakeem Abbas, Ph.D.
Department of Electrical & Electronic Engineering
Southern University, College, Malaysia

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THE ROLE OF VOCATIONAL EDUCATION IN THE ERA OF INDUSTRIAL AUTOMATION

Dr. Putu Sudira, M.P
Electronics and Informatic Engineering Department

INTERNATIONAL CONFERENCE ON VOCATIONAL EDUCATION OF MECHANICAL AND AUTOMOTIVE TECHNOLOGY (ICOVEMAT)
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QUESTIONS REMARK
1. How does the world of work change in the next five to twenty years, and what is the meaning of vocational education in Indonesia?
2. What needs to be learned by the Indonesian people to be able to compete in the world of work and develop their work careers brilliantly in the digital era, the knowledge-based industry, and industrial revolution 4.0?
3. What competencies and skills are needed by Indonesian children to be able to maintain a career for the next 35 years?
4. How should they learn everything effectively?

NEW CHALLENGES:

Industry 4.0 has now been used coin AUTOMATION to the New Responses (Toynbee, Arnold)

AUTOMATION CONSEQUENCES in WORKERS

BMW X2 CAR MANUFACTURING

NEW REALITIES OF GLOBAL WORK
NEW REALITIES OF GLOBAL WORK

Cyber-Physical Productions System (CPPS)

- Integrate computers that work as devices for Artificial Intelligence (AI),
- Augmented Reality (AR),
- Virtual Reality (VR),
- Internet of Things (IoT),
- Internet of Service (IoS),
- Intelligent robots,
- 3D printers

INTELLIGENCE MACHINES BE ABLE TO LEARN AND SOLVE PROBLEMS CREATIVELY

Cyber-Physical Productions System (CPPS)

- AI as a logical layer;
- Internet of Things (IoT) and Internet of Service as a Connectivity Layer; and
- Virtual Reality (VR), Augmented Reality (AR), Wearable Devices (WD), Smart Robots (SR), 3D printers as Physical Layer.

Industrial automation 4.0 produces smart products, smart services, works with big data, and cloud computing.

Industrial automation 4.0 works with the principle of interconnecting machines, sensors, intelligent robots, actuators, and few people connected, communicating through IoT-based IoS media.
Cyber-Physical Productions System (CPPS)

- The application of sensors, VR, AR, in the AI system through IoS and IoT makes the system work with real time capabilities.
- The system becomes smart and becomes fast, accurate, real time servant.

VET RESPONSE TO NEW REALITIES

- Vocational education
  - Education preparing youth for Job/Production and Services
  - Relevance of EDUCATION & JOB need to be adjusted with the rapid development of science and technology, National Development
  - Global technology: Manufacturing, Construction, Communication, Transportation, Energy, Tourism, Health
- Response to Vocational Education
  - Vision. In Industry 4.0: The Internet of Things is the ubiquitous connection of people, things, machines, institution;
  - This connection is education and training, networking and collaboration, teaching and learning; job opportunity; producing a variety of new goods and services
  - Understanding
  - Clarity
  - Agility

Role of VET in Industries 4.0

1. As a provider of competency education and training programs in the field of AI, intelligent control, VR, AR, IoT, IoS, Robotic for young children.
2. As a provider of skill training programs the use of 3D printers, sensors and transducers.
3. As a provider of retraining programs for workers requires increased competence in the areas of AI, VR, AR, IoT, IoS, and Robotic.
4. As the executor of the competency certification program in the fields of AI, VR, AR, IoT, IoS, Robotic.
5. As the center of design and engineering for the application of AI, VR, AR, IoT, IoS, Robotic.

THERE IS NO WAY TO SUCCEED IN THE FUTURE

- Success is dependent on a balance of:
  - Iteration, Doing the same things better
  - Innovation, Doing the new things
  - Disruption, Doing new things that make the old one Obsolete
- If you dont disrupt yourself, It will be a gift given to you by some one else
- If A new generation do not disrupt them selves, another nation will displaced them
how to deal with it?

“It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.”
- Charles Darwin

Education is the most powerful weapon which you can use to change the world
(Nelson Mandela)

Terima Kasih
Thank You