

Quality and Efficiency in Vocational Education through Sino-German Cooperation

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Statement

- **The concept – “Improving Quality and Efficiency in VET ” is often present in scientific literature;**
- **VET is generally believed to have a public-interest nature such as "promoting the development of vulnerable groups", there are few researches on "effectiveness and efficiency" of VET except for a few ones studying education "investment efficiency"**
- **The important subject of current research and practice is on the establishment of quality assurance system for VET.**
- **The importance of establishing an internal quality assurance system has been recognised, yet attention is still to be paid to external quality assessment researches and practices, particularly by third-parties.**

Statement

- **Now, from the government's perspective there are currently extensive publicity of Sino-German cooperation projects; however, there are limited empirical studies to assess benefits of such cooperation projects;**
- **Understanding of “benefits” were all limited to the scope of "outputs", such as "trained teachers and the management team" and "introduced concepts of vocational education" and so on.**
- **A few studies analysed the characteristic and results of Sino-German cooperation programmes and found that there are disagreements over the cooperation efficiency for workers in different backgrounds**
- **There has been little attention paid to the impacts of cooperation and the practical influence on China’s VE sector.**

Sino - German cooperation on VET has significant implications

From Sep,26,2012, *Guangming Daily*

An official of Ministry of Education said, Sino-German VE cooperation involve partnershipss beteen governmentss, industries, educaitional insstitutionss and private sector. The cooperation has rich content and extensive participants. The achievements are shown below:

- more than 100,000 people of both sides involved in communication and exchange;**
- established around 100 programmes, studied and developed several hundred kinds of majors, courses and textbooks;**
- trained over 700 headmasters and 2000 teachers for China'ss middle and higher vocational college.**

for
instance

**Jiang Dayuan : VE of Sino-German cooperation
in the field of higher vocational education**

From *Chinese Vocational and Technical Education* NO.32,2009

**China and German cooperate in the
field of higher vocational education,
including four aspects below:**

- Faculty training
- Cooperative education
- Technical training
- Reform exploration

Jiang Dayuan: Summarization of Sino-German cooperation in the field of higher vocational education

From *Chinese Vocational and Technical Education* NO.32,2009

Faculty training

➤ **Intergovernmental cooperation**

1. Sino-German Faculty Training Programme (results: formed curriculum developmental model ; developed some professional courses; trained some leaders of curriculum development; promoted curriculum reforms of some colleges)

2. Sino-German VE Teaching Methodologie and Quality Management Training. (results: held two training programmes)

➤ **Cooperation between schools**

1. Beijing Vocational College of Finance and Trade
2. Suzhou Industrial Park Vocational and Technical College

Jiang Dayuan: **Overview of Sino-German cooperation in the field of higher vocational education**

From *Chinese Vocational and Technical Education* NO.32,2009

Cooperative education

➤ Intergovernmental cooperation

1. GTZ/GIZ programmes of Tianjin Sino-German Vocational and Technical College and Anhui press and publicity vocational and technical college; 2. HSS programme of Shanghai electronic information vocational and technical college and Hubei light industry vocational and technical college.

➤ Cooperation between institutions

Chinese vocational colleges cooperate with 1. regular German schools 2. (private) educational groups 3. companies 4. research institutes 5. social organizations.

Zhao Zhiqun , Xu Han

Learning from Dual VET experience: Sino-German cooperation study and development programme

From 《Handbook of TVET research》 , Springer, 2009

The output of Sino-German vocational education cooperation can be concluded in four aspects below:

- Established training goals based on professional competence building;
- (Partly) developed comprehensive curriculum with vocational activities as the core component;
- Reformed teaching contents based on the principles of "basic, extensive, practical and advanced";
- explored student-oriented teaching forms and methodologies

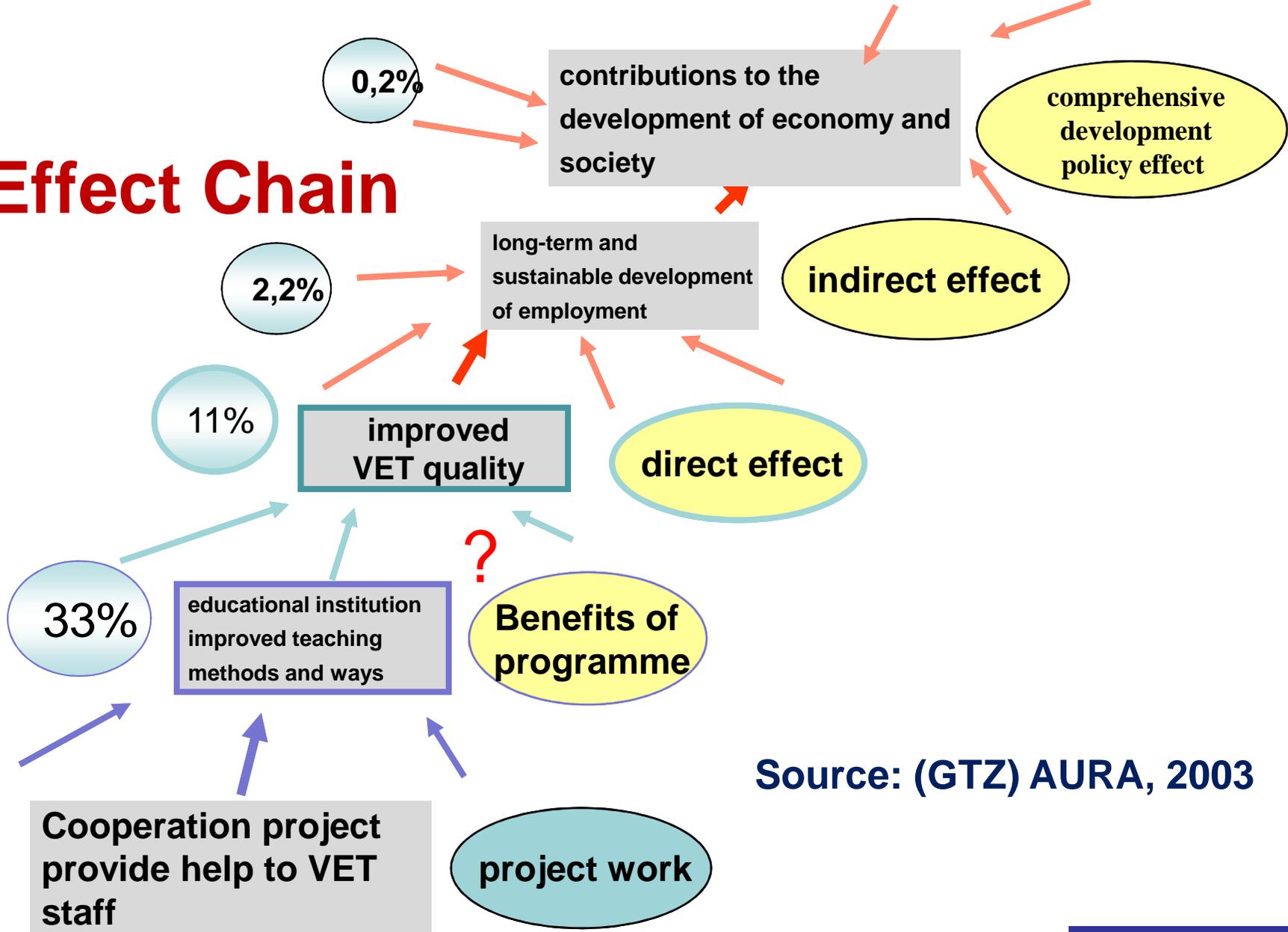
What is the Result/Effect?

- **Effect is the change of some original state (as a result of intervention) ;**
- **Effect can be planned or non-planned, expected or unexpected;**
- **Effect can appear at the early stage of intervention or throughout the project, even in completely different fields.**
- **Effect of cooperation is the result of social interaction.**

**From Deutsche Gesellschaft für Technische
Zusammenarbeit (GTZ):**

Handreichung zur Bearbeitung von AURA-Angeboten, 2003

Effect Chain



Source: (GTZ) AURA, 2003

for instance

Liu Bangxiang :

Contributions and limitations of Sino-German vocational education cooperation programme from different perspectives

Questionnaire: overall evaluation on Sino-German vocational education cooperation

**positive attitude towards contributions (√)
consider should be improved (×)**

professional staff	faculty	concepts of VE	Regulations	teaching material	best practice	curriculum develop	promotion projects	ability evaluation
12√ 3×	12√ 9×	14√ 2×	0√ 10×	6√ 1×	5√ 7×	9√ 7×	2√ 6×	2√ 11×

Liu Bangxiang :

Contributions and limitations of Sino-German vocational education cooperation programme from different perspectives

- the main contributions are training teachers and management team, introducing concepts and developing curriculums;
- **knowledge of cooperation practice differs because of different working backgrounds;**
- funds and equipment availability is no longer barriers for project implementation. Expectations of decision makers on both sides, candidate for key execution team and cross-culture competence have become desive factors to ensure the success of cooperation.
- key point in next step: establish VE management system and regulations and **professional competence evaluation system**
- empirical studies are needed to explore cooperation experience and effects in depth. it is recommended to **advance China's VE with achieving particular breakthroughs.**

Comparisons of Sino-German teaching plan (mechatronics)

MOE's latest standards of VE on electromechanical application (ME equipment install and commissioning)

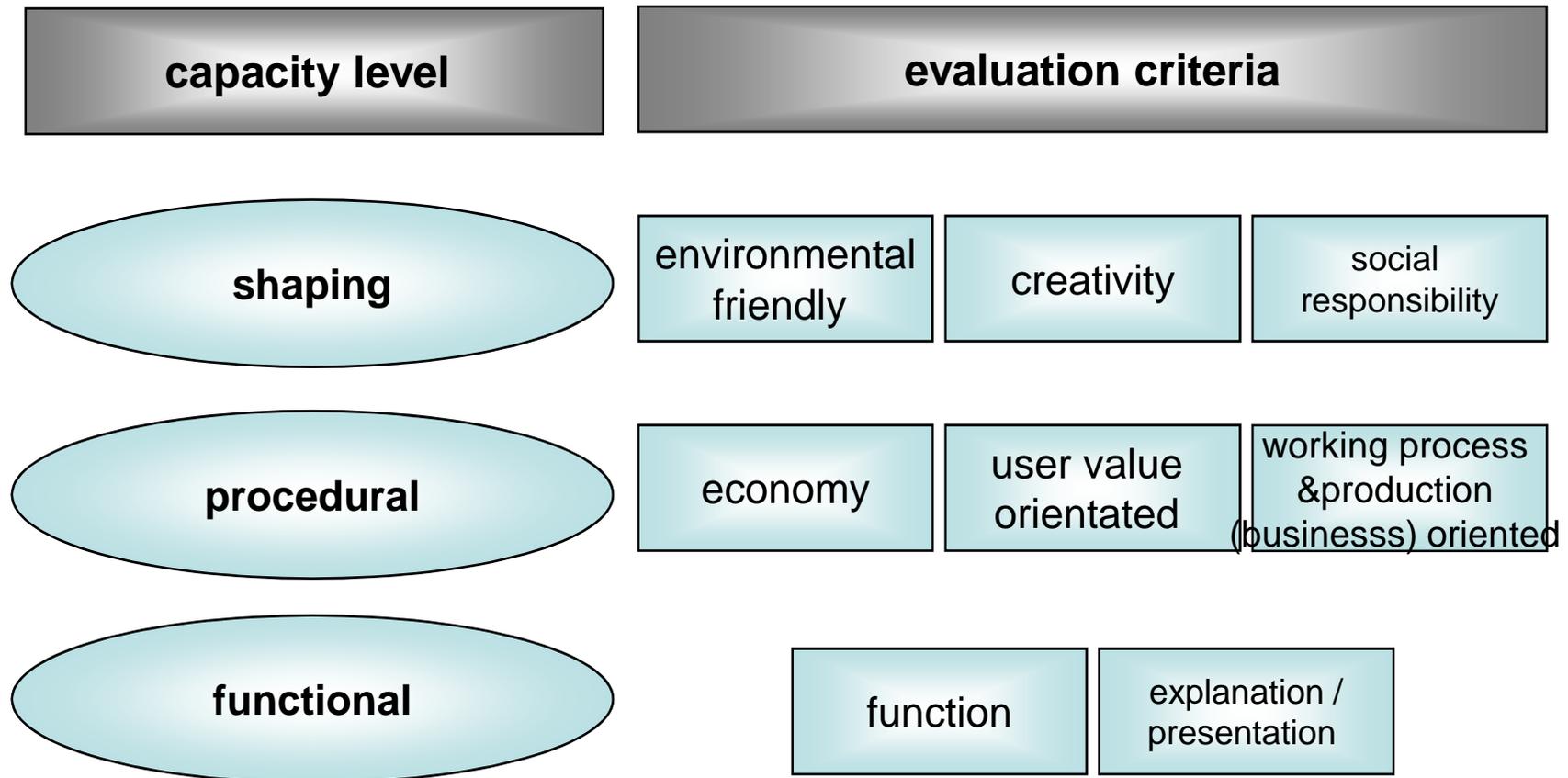
- electrical and electronic technology and skills
- mechanical drawing
- mechanical basis
- air motion and liquid pressure
- applying sensor technology
- electronic control and PLC
- installation and maintenance of circuits
- fitter skills training
- electrician skills training
- electronics skills training
- mechanical dismantling skills training
- special training

German teaching plan in form of "learning field" Mechatronics

- analyse relationship of mechatronics function
- develop mechatronics subsystem
- instal electronic system with safety concerns
- electronic parts energy and information flow analysis for air motion and liquid pressure
- communication with data process system
- plan and organise working procedures
- simple mechatronics unit
- design and assemble mechatronics system
- information flow analysis on complex mechatronics system
- develop install and uninstall plans
- production of come mechanical systems
- commissioning, overhaul and error detecting
- preventive maintenance
- deliver mechatronics system to customers

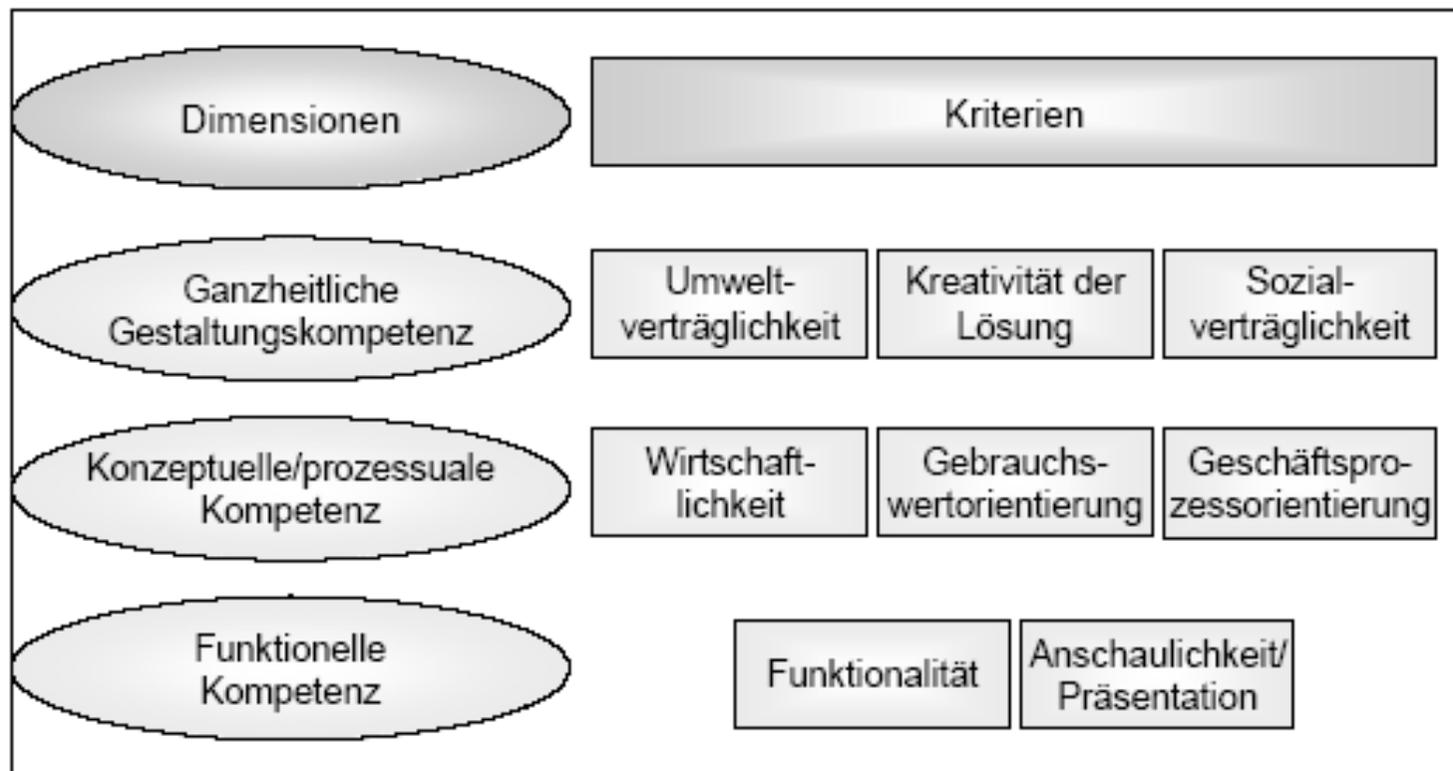
Still discipline oriented, no relationship to German curriculum model

Sino-German Cooperation Research Project: KOMET

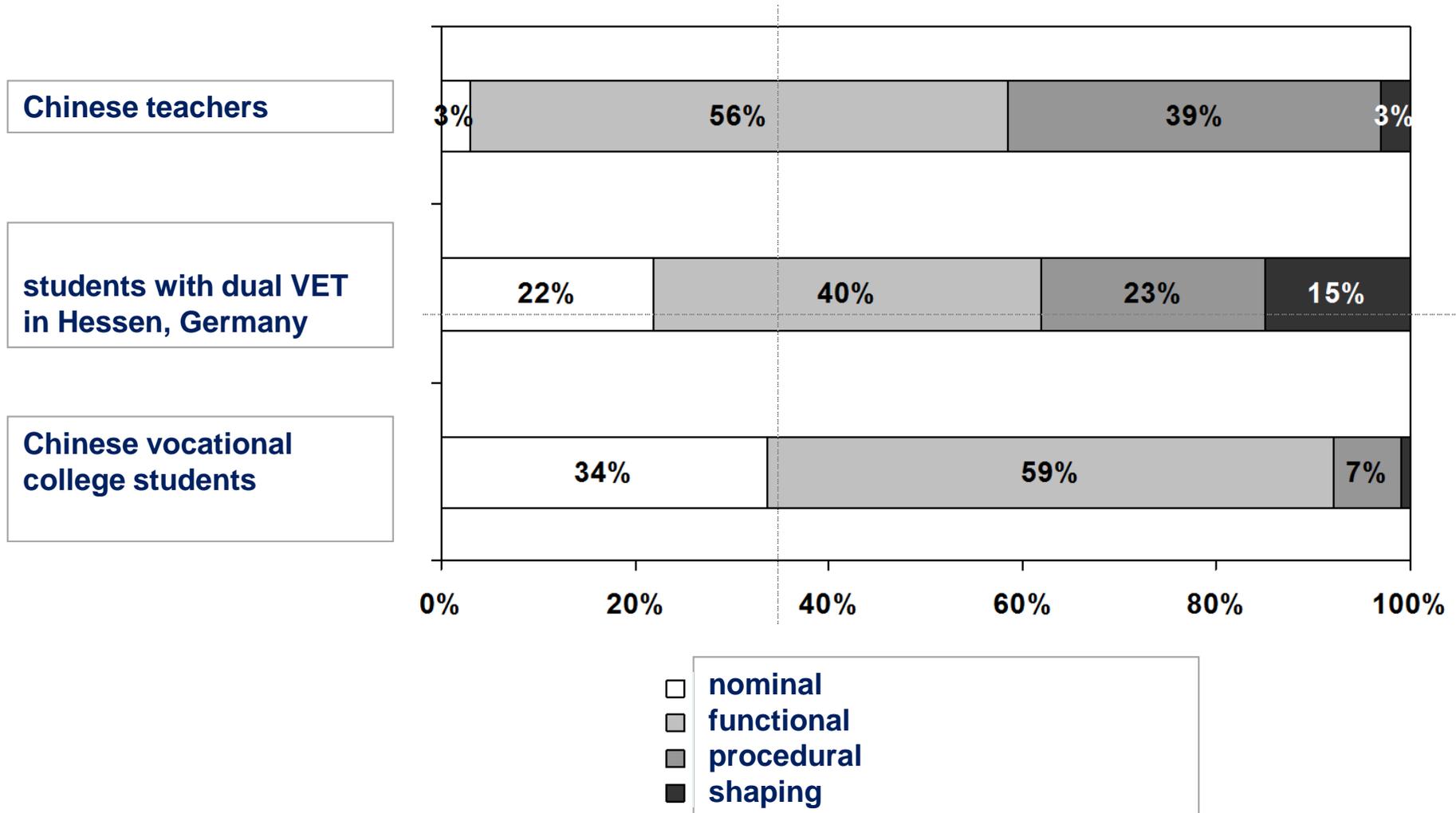


Sino-German Cooperation Research Project: KOMET

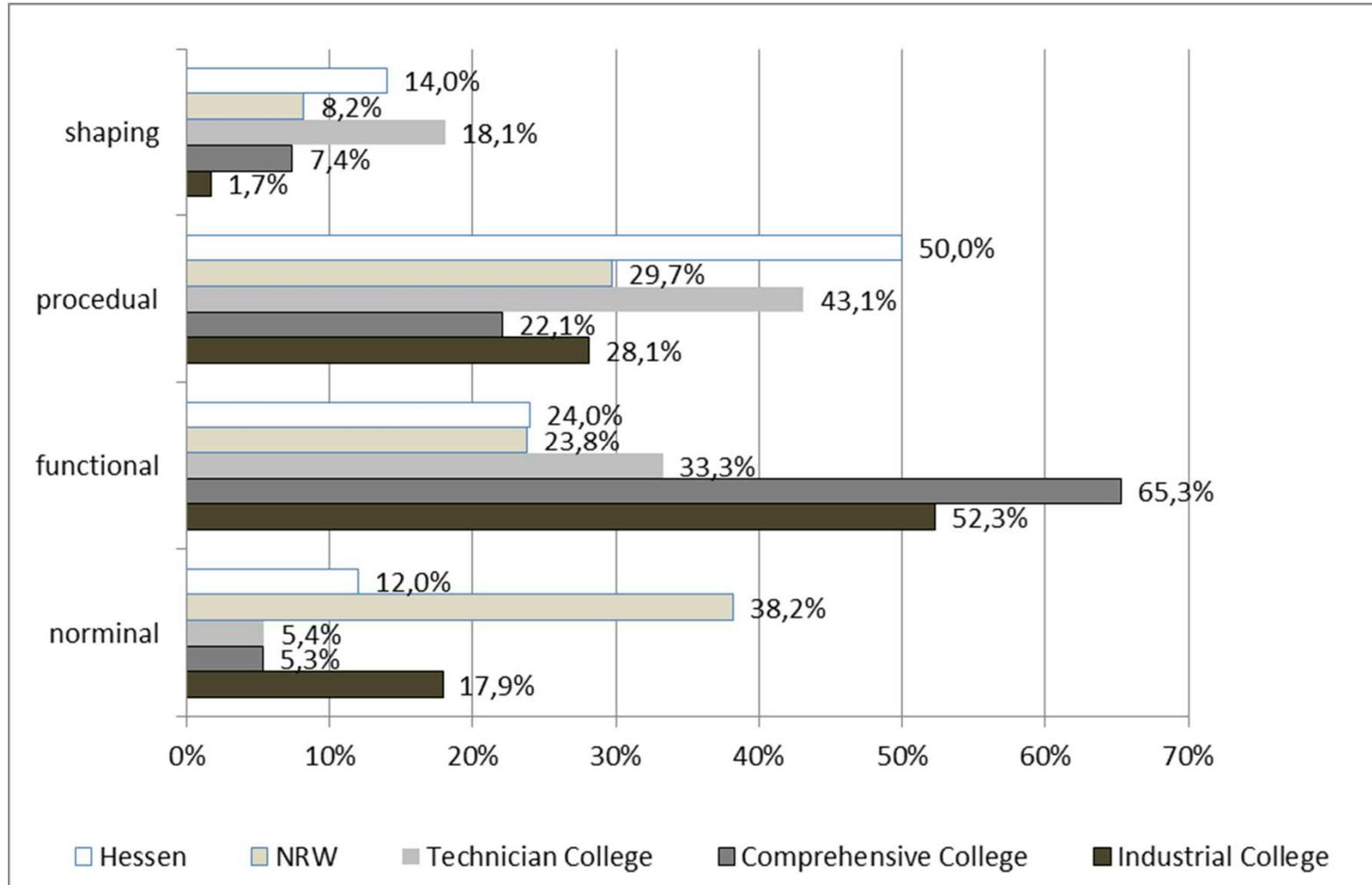
Kompetenzmodell



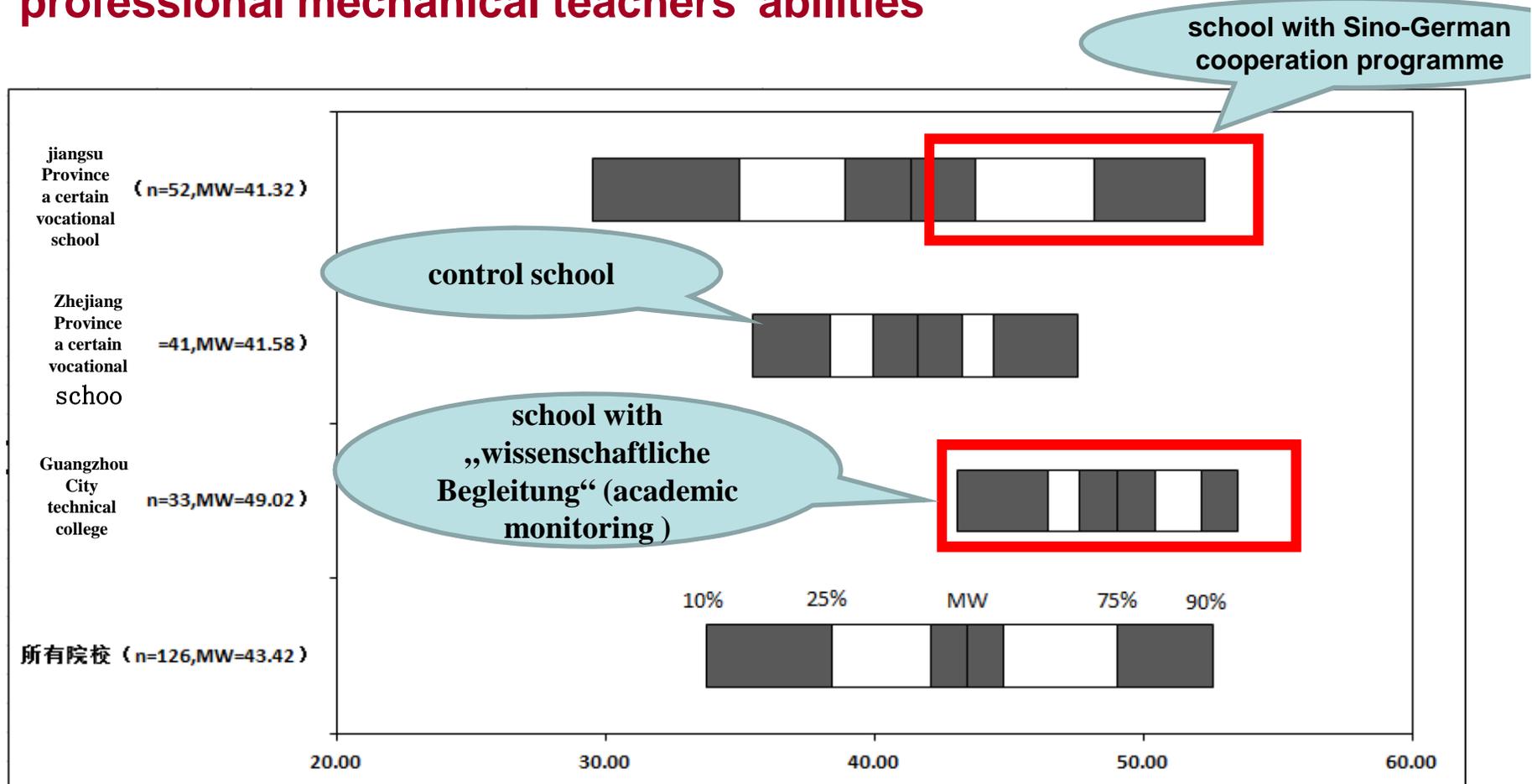
The comparison of vocational competence between China and Germany (electrical technology)



The results of evaluation of vocational competence of Chinese and German students (vehicle maintenance)



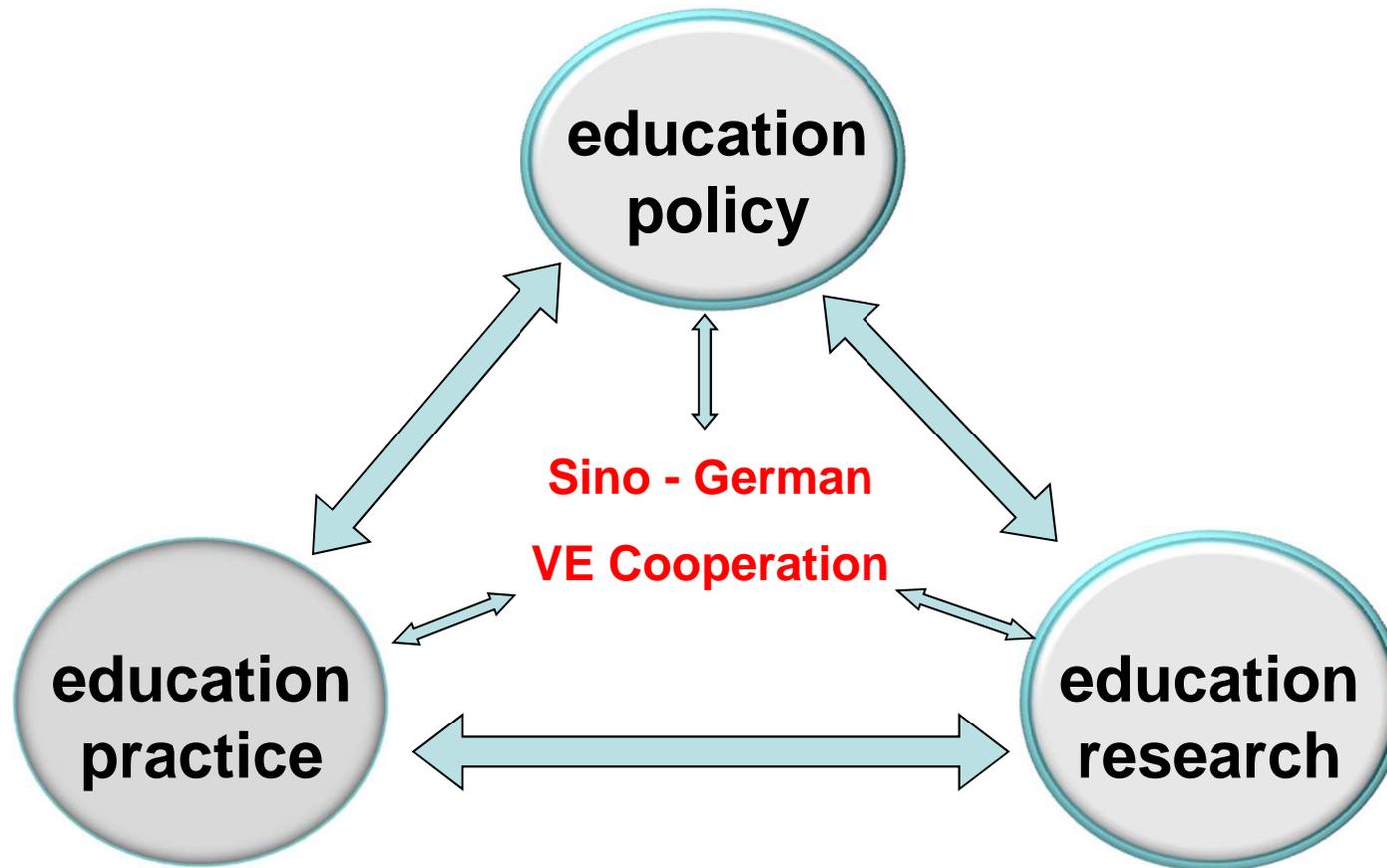
The results of sampling measurement on professional mechanical teachers' abilities



Overview of Status Quo

- **Sino-German VE cooperation conducted a large amount of activities, and Chinese stakeholders are very positive about the overall cooperation results**
- **Most results of cooperation stays at "output " level**
- **The influence of cooperation on China's VE sector are still limited at certain places. Deeper and more extensvie impact are needed**
- **The major reason for this phenomenon is academic ignorance (Ziefuss 1996), and the lack of influence from strategic methodological thinking, empirical researches and technological tools.**

Relations among VE management, research and practice



Recommendations: introducing the concept of total quality management(TQG) and optimise current quality system

TQG (such as ISO & EFQM)	Evaluation
from companies	from public sector and non-profit organisation
theoretical basis : economics	theoretical basis: sociology
clear objective, e.g. profit maximisation	comprehensive objectives
participation: bottom-up	participation: bottom-up and top-down
public competition	limited or no competition
evaluation criteria set in advance	changing evaluation criteria
responsible for values for shareholders	responsible for stakeholders
all staff involved	some staff not involved
continuous activity	periodical activity
internal activity (self assessment)	internal and (or) external activity

From Reinhard Stockmann. 非营利性机构的评估与质量改进 (中文版).
Beijing : China Social Sciences Press , 2008

感谢大家

Thank you for your attention!

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