



# Quality of Technical and Vocational Education and Training

- Views from Enterprises -

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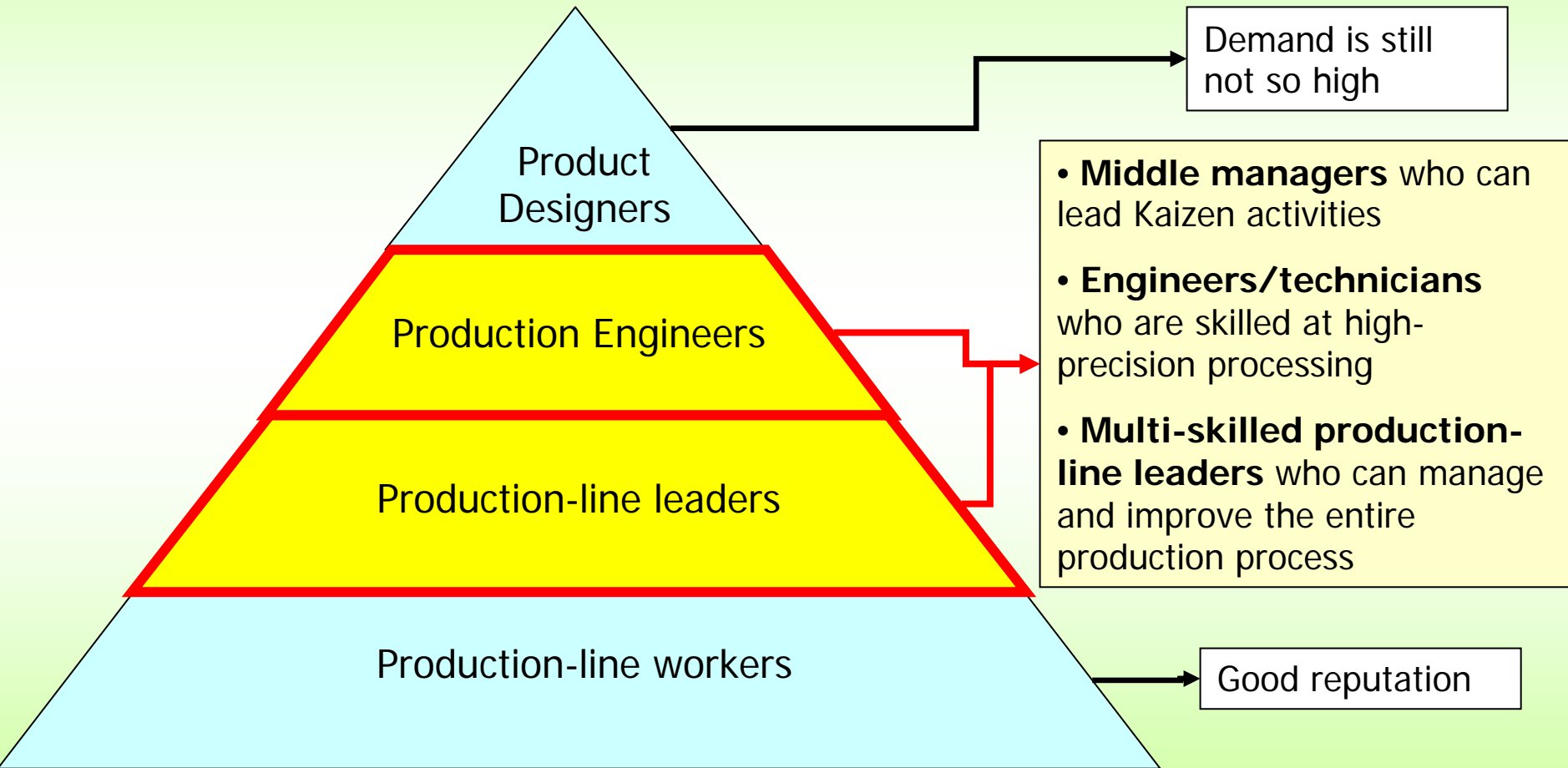
# Outline of Presentation

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- Industrial Human Resources and TVET
- Overviews of Survey
- Survey findings
- Summarizing findings

# Industrial Human Resource and Technical and Vocational Education and Training (TVET)

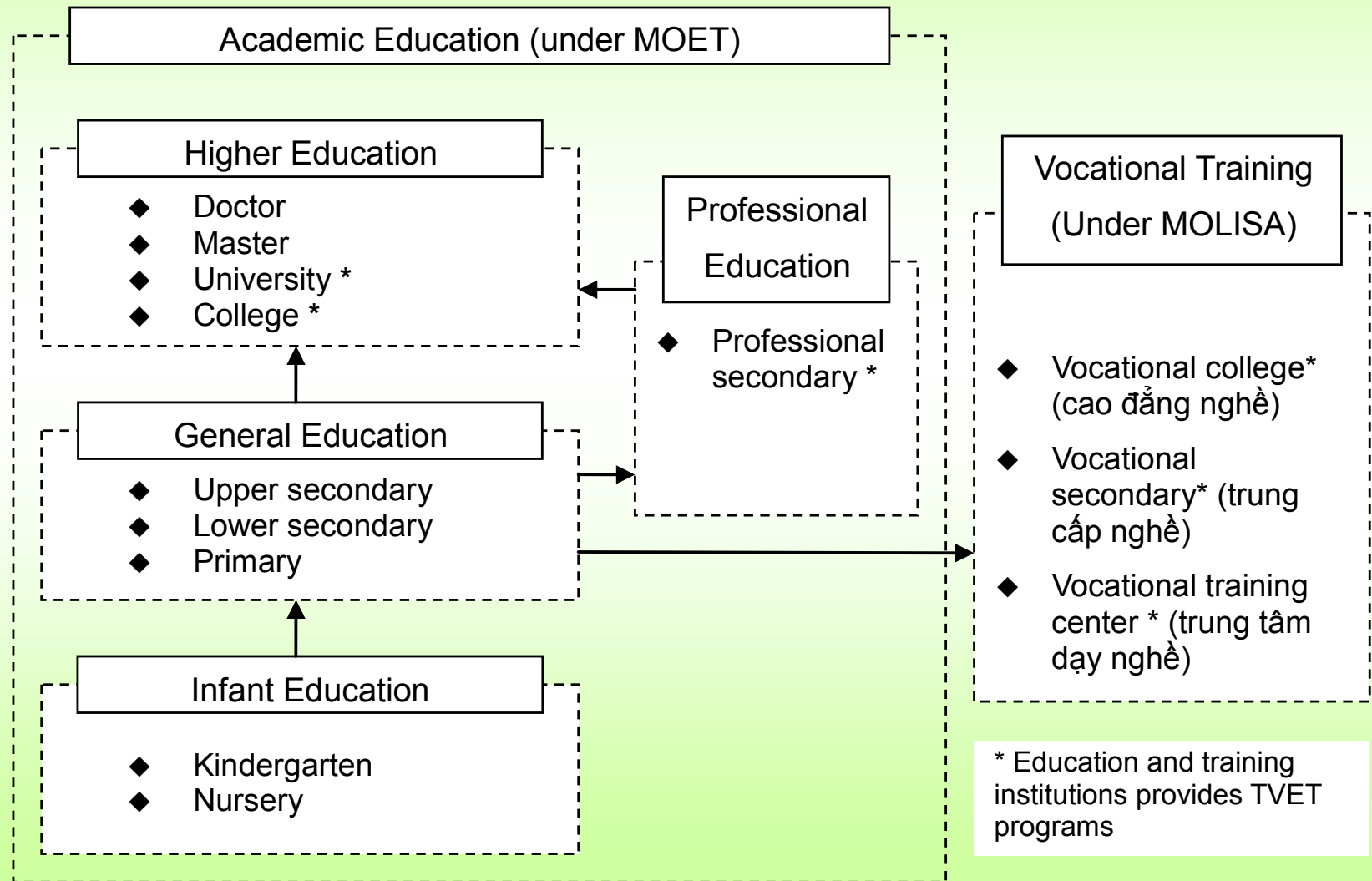
# Current Demand for Industrial Human Resources in Vietnam



# Industrial Human Resource Development and Link with Schools

Profession	Department	School
Product and Component Designers	R&D	University/Graduate Schools
Production Engineers	Production Engineering/Facility	TVET Institutions
Production-line leaders	Production Dept.	General Education
Production-line workers		

# TVET System after the Promulgation of Law on Vocational Training





# Overview of Survey



# Background of Research

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- Development of supporting industries (in machine industry) can not be achieved without high-level industrial human resources.
- Shortage of skilled labor such as production engineers is becoming serious as the economy has grown rapidly.
- Graduates from technical and vocational education and training (TVET) programs are not valued highly. Demand-oriented education and training is needed.
- The HIC-JICA Project had received fair reputation, but quality of graduates can be reviewed only after the project completion.
- The research was conducted by UNIDO and VDF/NEU, with strong support from JICA and HaUI as well as Hiroshima University.



# Research Questions

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- How are quality of TVET graduates perceived in enterprises?
  - Why is the quality not satisfactory?
  - What does “skilled labor” really mean in enterprises?
- How are VJC/HaUI graduates different from those from other schools?
  - Impact of the HIC-JICA project in 2000-2005.
- What are the training needs?
  - What kind of training should be provided by TVET schools and enterprises respectively?



# Structure of Questionnaires

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- I. Company overview
- II. Evaluation on Graduates of TVET schools/programs in General
- III. Evaluation of Graduate on VJC/HaUI
- IV. Situation of training after entering in enterprises.
- V. Capacity of TVET schools
- VI. Recruitment forecast
- VII. Training needs and demarcation between TVET programs and in-house training



# Overviews of Survey

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- Period
  - 3 months, Nov. 2008 ~ Feb. 2009
- Method: Questionnaire & Direct interview
- Recipients and Interviewees: 160 firms
  - 61 Japanese firms, 67 Vietnamese firms, 32 other firms
- Respondents: 76 firms (47.5%, 29 via post & 47 via direct interview)
  - 27 Japanese firms, 35 Vietnamese firms, and 14 other firms
- Number of valid answers: 76 (100%)



# Main Achievements and Limitation

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- Achievement
  - Got in-depth view from enterprises on quality of graduates from TVET system, especially via direct interviews
  - Received feed-back from Vietnamese, Japanese, and non-Japanese foreign companies by preparing questionnaire in 3 languages.
- Limitation
  - Small sample size (76 answers). Not say statistical significance from this survey but implication.
  - Subjective measures / Impression
  - Some questions might not clear from enterprises.



# Response from Enterprises

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- Challenges

- Survey period included New Year and Tet
- Survey time coincided with the busiest time of firms (end of fiscal year in both Vietnam and Japan) and the economic recession.

- Solutions

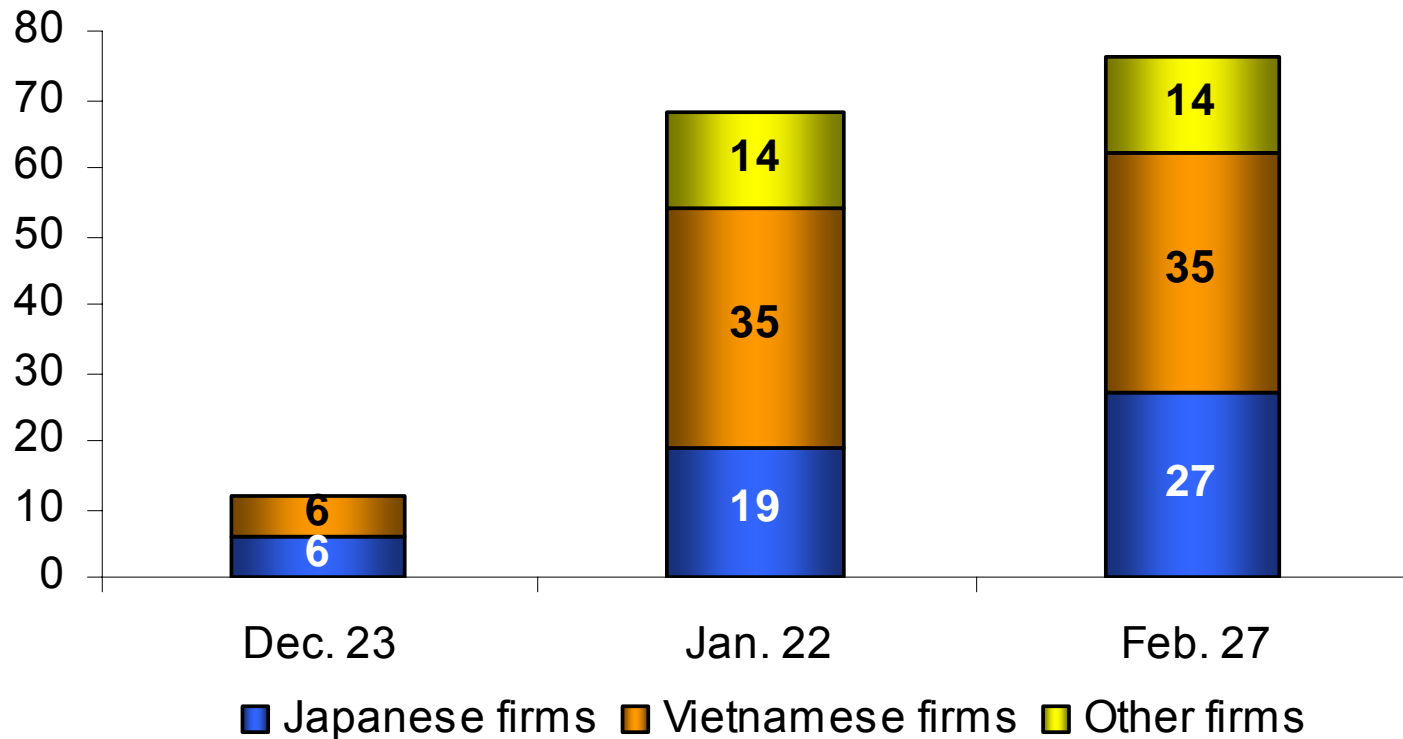
- Contact by phone to encourage firms to respond
- Visit firms to make direct interviews

→ Respondent rate increased:

**8.6%** (Dec. 23) → **42.8%** (Jan. 22, after the first round of interview) → **47.5%** (Feb. 27, after the second round of interview)

# History of Collecting Answers

Number of respondents



# Respondent structure (1)

## By Category of Products

	No. of Enterprises	%
1. Electric-electronics	24	31.6
2. Auto-Motor related mechanics	14	18.4
3. Other mechanics	36	47.4
4. Other	2	2.6
Total	76	100.0

## By Nationality

	No of Enterprises	%
1. Vietnamese	37	48.7
2. Japanese	24	31.6
3. Other (Taiwanese, Korean, Chinese ...)	15	19.7
Total	76	100.0

# Respondent structure (2)

## By Ownership

	No. of Enterprise	%
1. State-owned	3	3.9
2. Vietnamese private	8	10.5
3. FDI 100%	30	39.5
4. Joint-venture	11	14.5
5. Joint-stock	24	31.6
Total	76	100.0

## By Year of Operation

	No. of Enterprises	%
N.A.	2	2.6
a. 1-5	28	36.8
b. 6-10	17	22.4
c. 11-15	12	15.8
d. More than 15	17	22.4
Total	76	100.0

# Respondent structure (3)

## By Main Customer

	No. of Enterprises	%
N.A.	5	6.6
1. Export	8	10.5
2. FDI - export	15	19.7
3. FDI - local market	19	25.0
4. Vietnamese	29	38.2
Total	76	100.0

## By No. of Employees

	No. of Enterprises	%
N.A.	1	1.3
a. 1-100	20	26.3
b. 101-500	26	34.2
c. 501-1000	8	10.5
d. More than 1000	21	27.6
Total	76	100.0



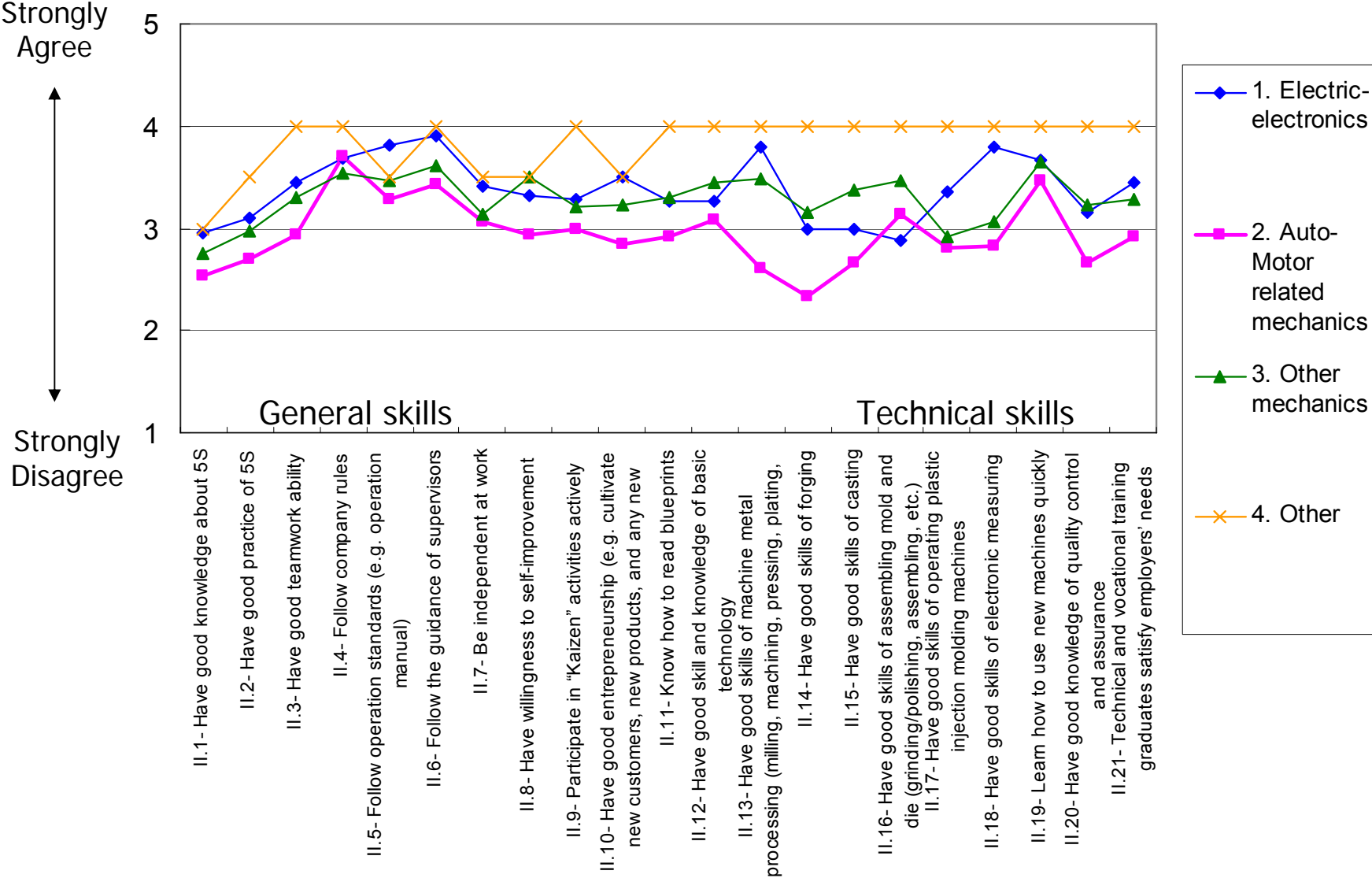
# Survey Findings

# Evaluation of TVET Graduates

- Do not know about 5S.
- Follow the rules, but passive and do not take leadership.
- In General, skills are not sufficient.
- Japanese companies gave lower evaluation.
- Enterprises in motorcycle and automobile industries
  - Sign of Development or Disappointment?

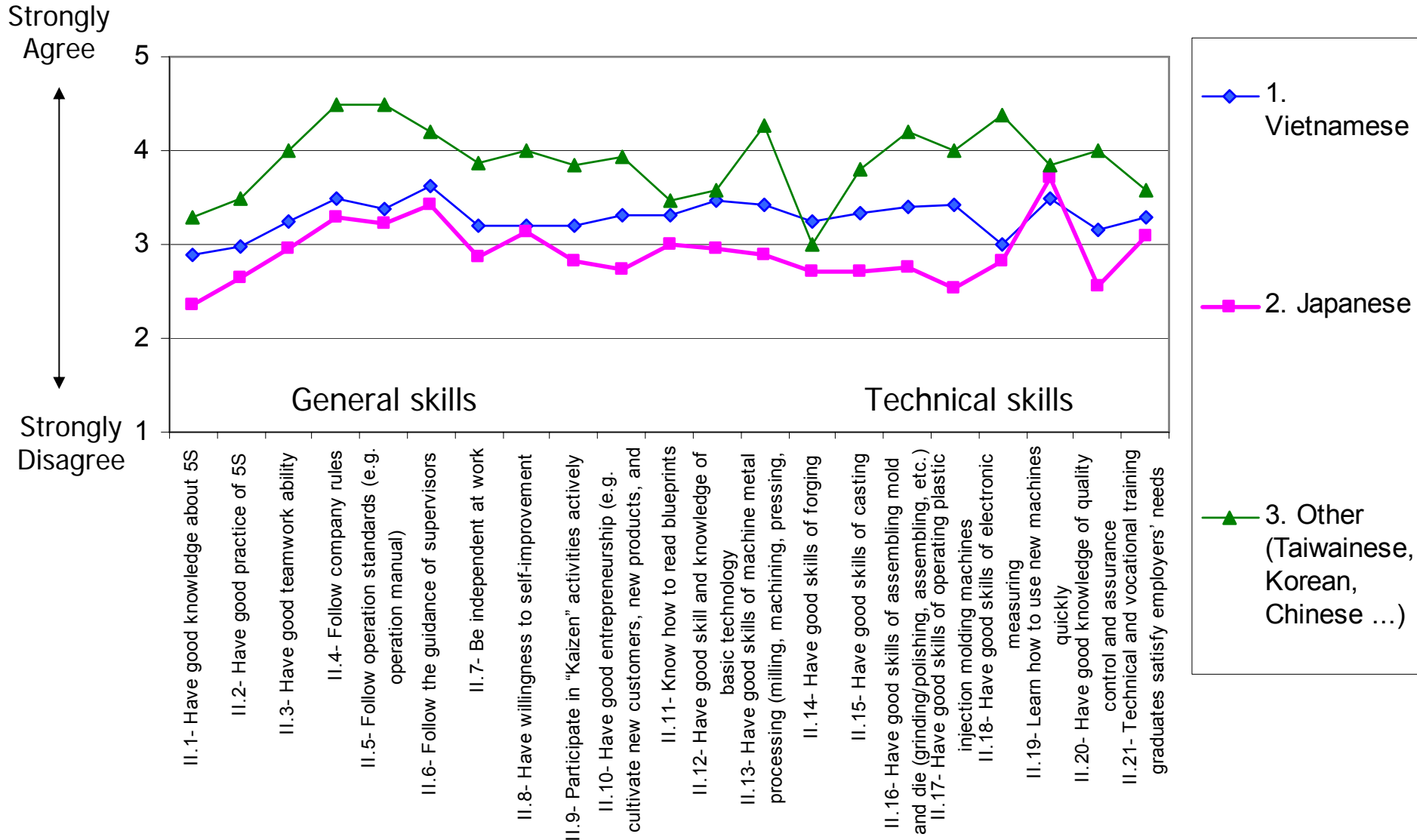
# Evaluation of TVET Graduates

## Overall tendency by sector



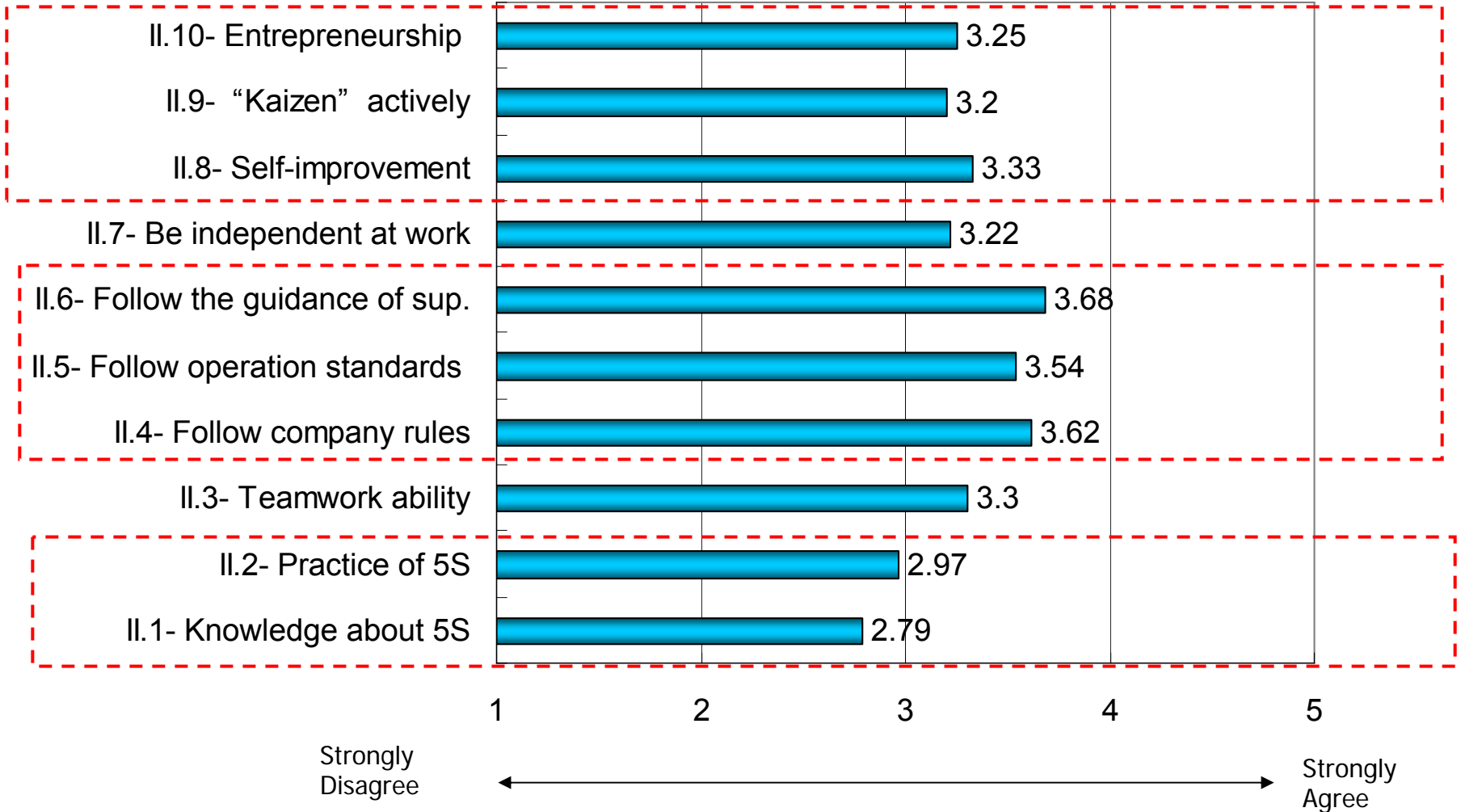
# Evaluation of TVET Graduates

## Overall tendency by investor's nationality



# Evaluation of TVET Graduates

## General: Quantitative





# Evaluation of TVET Graduates

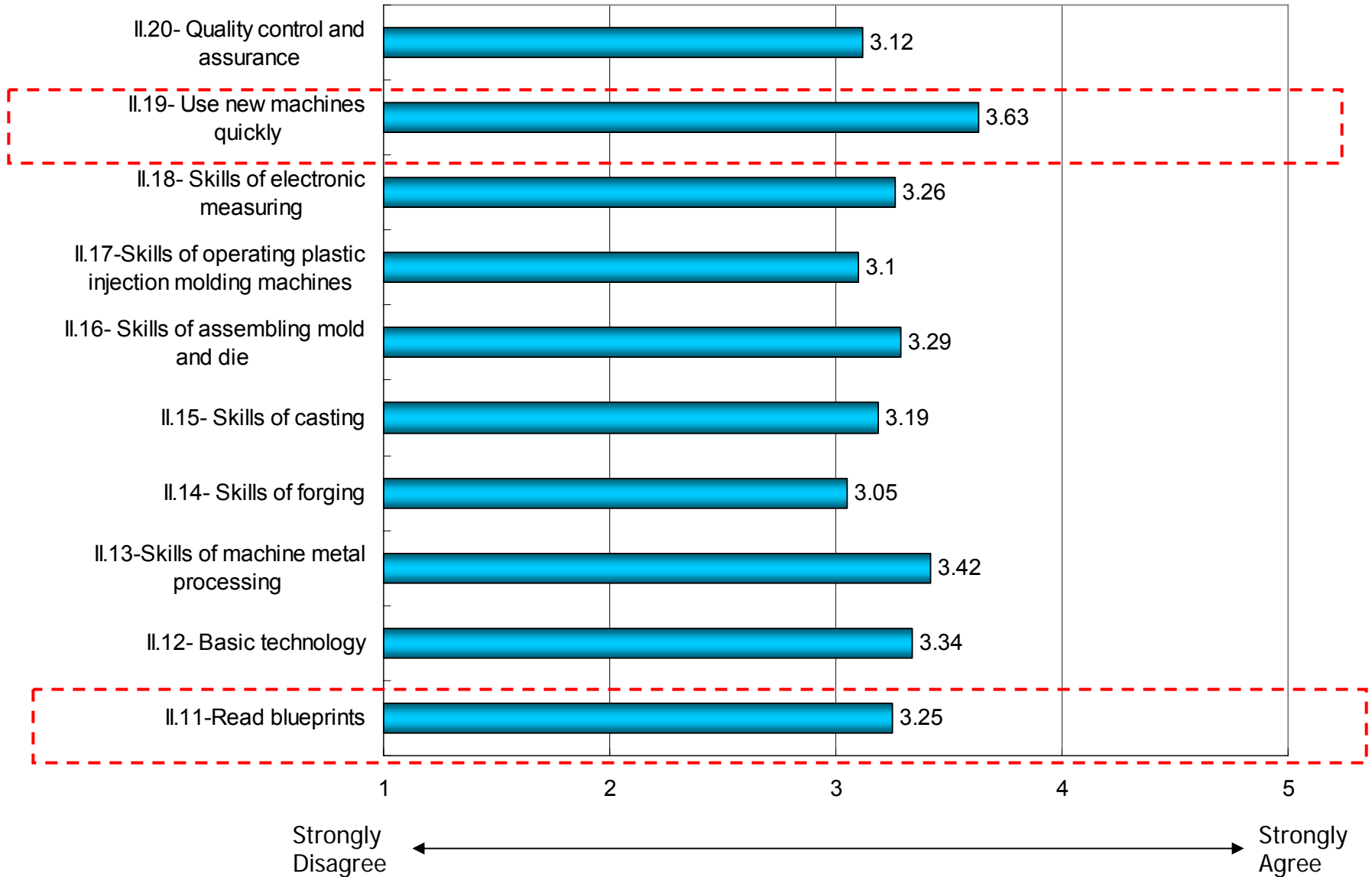
## General: From Qualitative Interviews

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- Follow the rules (because of penalty).
- Do not follow company rules and working attitude is poor. Not disciplined enough. (e.g. take a leave without a prior notice, etc.).
- University graduates do not like working in manufacturing sites.
- Cannot work as a team.
- Do not have sufficient knowledge about 5S.
- No report and consultation with supervisors.
- Not active for Kaizen activities.
- No entrepreneurship mind for new product development.

# Evaluation of TVET Graduates

## Technical: Quantitative





# Evaluation of TVET Graduates

## Technical: From Qualitative Interview

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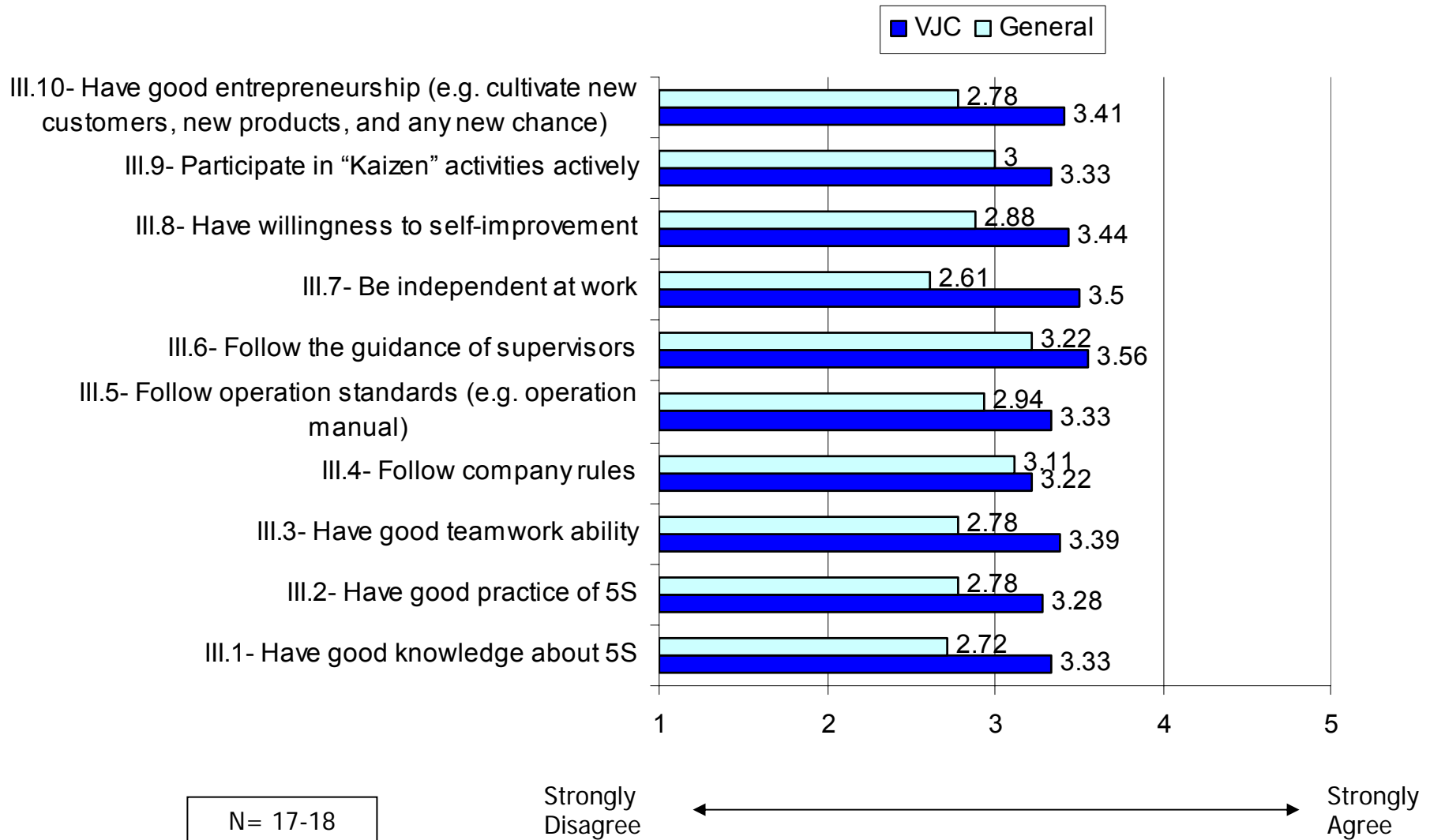
- Absorb new knowledge quickly (e.g. operation of new machines).
- Neither practical skills nor theoretical knowledge are satisfactory.
- Cannot read blue prints sufficiently.
- Have knowledge in very narrow fields and lack versatility.
- Do not understand the importance of quality control.

# Evaluation of VJC Graduates

- Evaluated slightly higher than others.
- But still not good enough.
- Not many enterprises monitor the staff performance by school graduated.
  - Because of no skill difference or simply not interested in?
- Ambiguous position between university graduates and high school graduates.

# Evaluation of VJC Graduates

Quantitative: By firms which have VJC graduates



# Evaluation of VJC Graduates From Quantitative Interviews

## Positive

- Better theoretical knowledge and practical skills.
- Strict selection in enrollment is a reason why graduates are better.
- Relatively good training facilities.

## Negative

- Do not have sufficient theoretical knowledge and practical skills. Those from HUT and the Viet-Duc College are better.
- Graduates from industrial colleges, including VJC, tend to quit the job soon, saying that they want to go to universities.
- VJC has not been coming to visit enterprises, after foreign experts left and the project was closed.

# Training after Recruitment

- Work attitudes need to be improved.
- Good work attitudes are necessary for workplace safety, too.
- Practical skills are not sufficient, as enterprises expect.

# Training after the Recruitment

## Quantitative

	N	Mean	Std. Deviation
Retraining 5S, Kaizen (by week)	27	5.52	10.007
Retraining 5S, Kaizen (by hour/month)	18	4.11	3.950
Retraining attitude (by week)	35	6.40	24.141
Retraining attitude (by hour/month)	18	3.92	4.366
Retraining basic skill (by week)	37	11.92	24.493
Retraining basic skill (by hour/month)	15	4.40	4.852
Retraining new machine operation (by week)	33	4.44	4.914
Retraining new machine operation (by hour/month)	14	3.29	2.920
Retraining other 1 (by week)	7	5.17	8.434
Retraining other 1 (by hour/month)	3	4.17	5.107



# Training after the Recruitment

## From Qualitative Interviews

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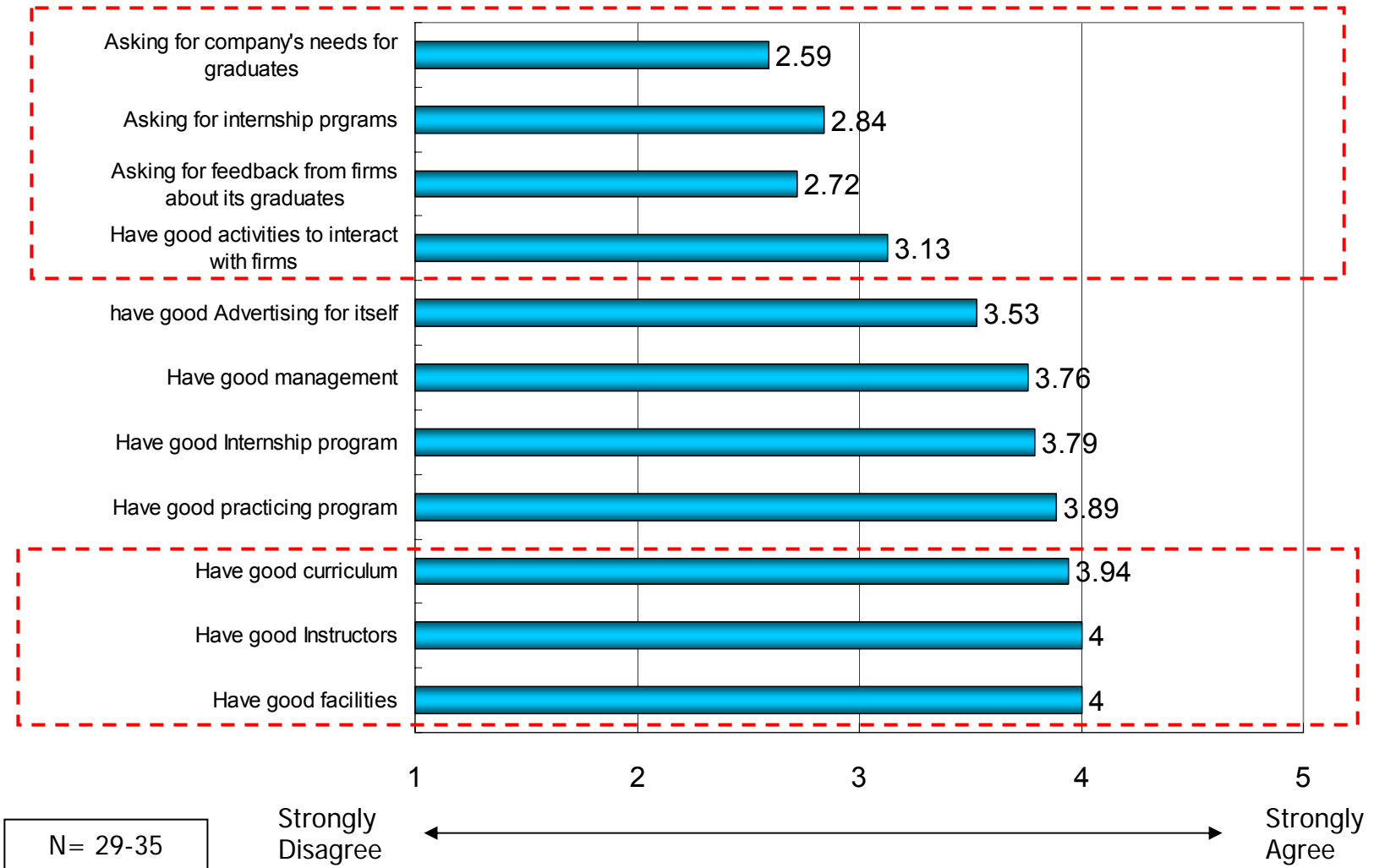
- Many Japanese companies conduct initial training which varies from one week to one month, and provide on-the-job training.
- The initial training program will teach company rules, workplace safety, basic operation skills, etc.
- Local SMEs who do not afford basic training want graduates with more practical skills (but fresh graduates cannot be so professional).

# Capacity of TVET Institutions

- The quantitative result show better than the comments received through interviews.
  - Probably enterprises evaluated the schools which they visited because of good reputation.
- Local enterprises evaluated more highly than foreign-invested did.
- Communication with enterprises are not sufficient. In particular, local companies stressed this.

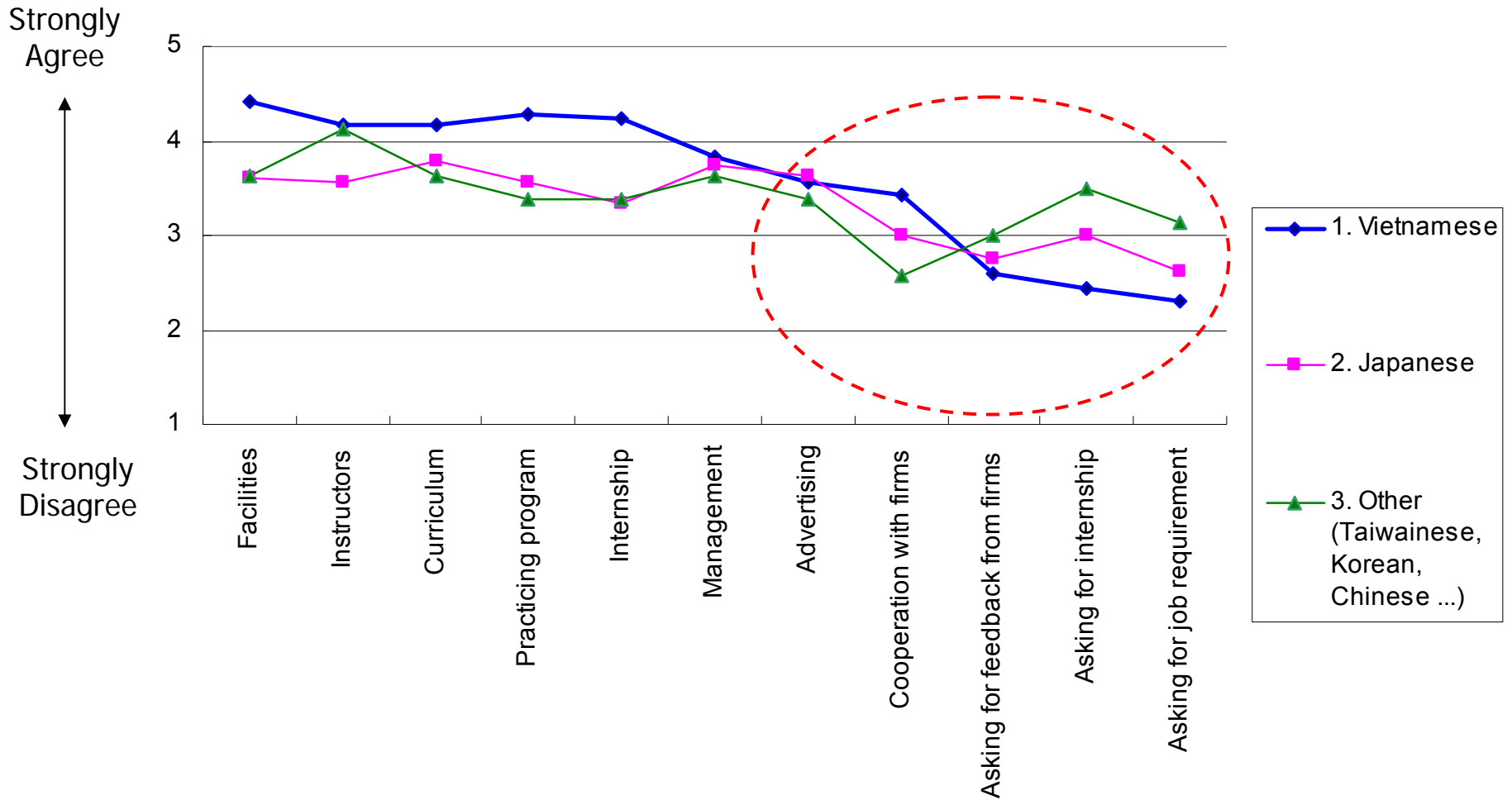
# Capacity of TVET Institutions

## Quantitative



# Capacity of TVET Institutions

## Quantitative: By investor's nationality





# Capacity of TVET Institutions

## From Qualitative Interviews

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- Curricula are not based on skill needs from enterprises.
- Training facilities are outdated.
- Teachers lack practical and up-to-date skills. They seldom visit enterprises.
- Contents of textbooks are outdated.

# Recruitment Forecast

- Difficult to see the picture
  - Many enterprises do not recruit fresh graduates regularly but fill in vacancy.
  - Depends on economic situation.
- Machine processing, Quality Control and Production Control might be in higher demand?
- Difficult for enterprises to specify skill needs
  - They want people who have potential to work in several sectors

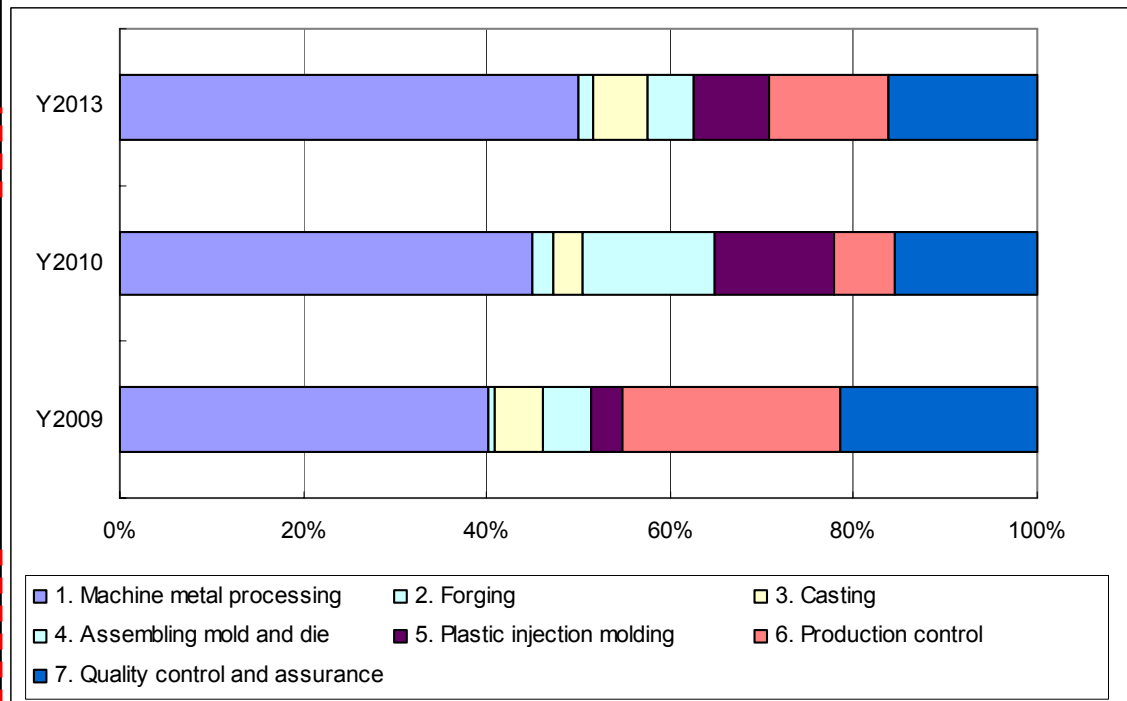
# Recruitment Forecast

## University/College Graduates

	2009		2010		2013	
	N	Sum	N	Sum	N	Sum
1. Machine metal processing	29	522	17	259	15	316
2. Forging	3	9	2	13	2	10
3. Casting	4	68	3	19	2	37
4. Assembling mold and die	7	68	4	82	4	32
5. Plastic injection molding	3	45	5	76	4	51
6. Production control	16	308	10	38	11	82
7. Quality control and assurance	15	277	10	89	9	103

# Recruitment Forecast University/College Graduates

	Y2009	Y2010	Y2013
1. Machine metal processing	40%	45%	50%
2. Forging	1%	2%	2%
3. Casting	5%	3%	6%
4. Assembling mold and die	5%	14%	5%
5. Plastic injection molding	3%	13%	8%
6. Production control	24%	7%	13%
7. Quality control and assurance	21%	15%	16%



# Recruitment Forecast

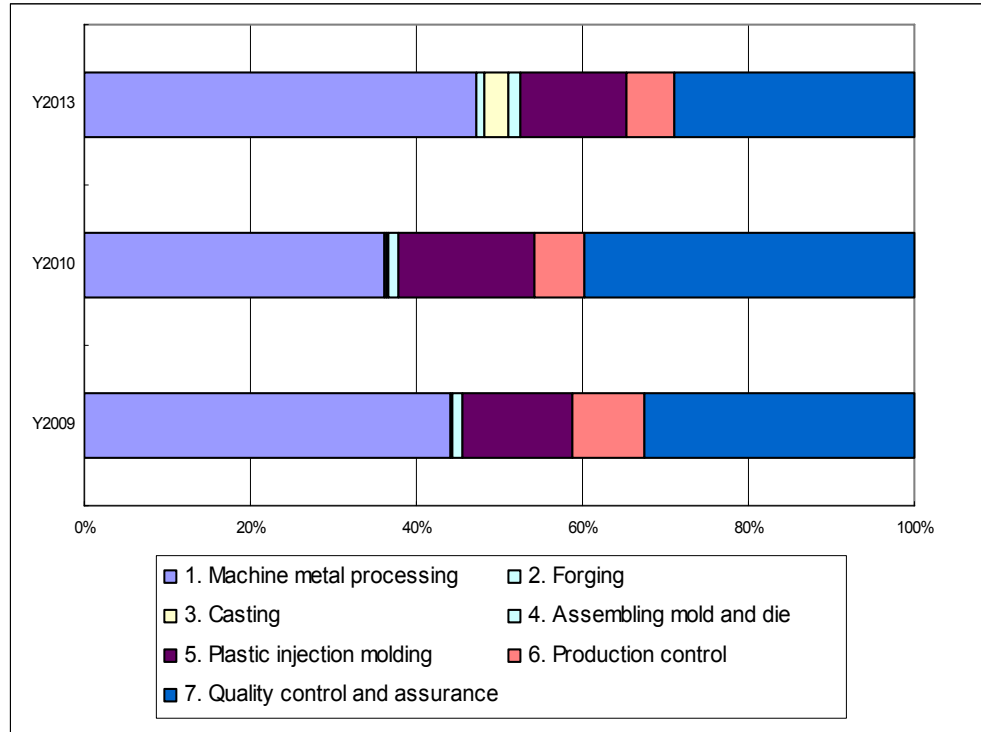
## Secondary School and Others Graduates

	2009		2010		2013	
	N	Sum	N	Sum	N	Sum
1. Machine metal processing	21	684	14	485	16	865
2. Forging	1	2	1	3	3	18
3. Casting	1	2	2	5	2	55
4. Assembling mold and die	4	18	3	14	6	25
5. Plastic injection molding	4	208	3	221	4	233
6. Production control	8	134	6	83	4	109
7. Quality control and assurance	3	506	5	533	5	528

# Recruitment Forecast

## Secondary School and Other Graduates

	Y2009	Y2010	Y2013
1. Machine metal processing	44%	36%	47%
2. Forging	0%	0%	1%
3. Casting	0%	0%	3%
4. Assembling mold and die	1%	1%	1%
5. Plastic injection molding	13%	16%	13%
6. Production control	9%	6%	6%
7. Quality control and assurance	33%	40%	29%

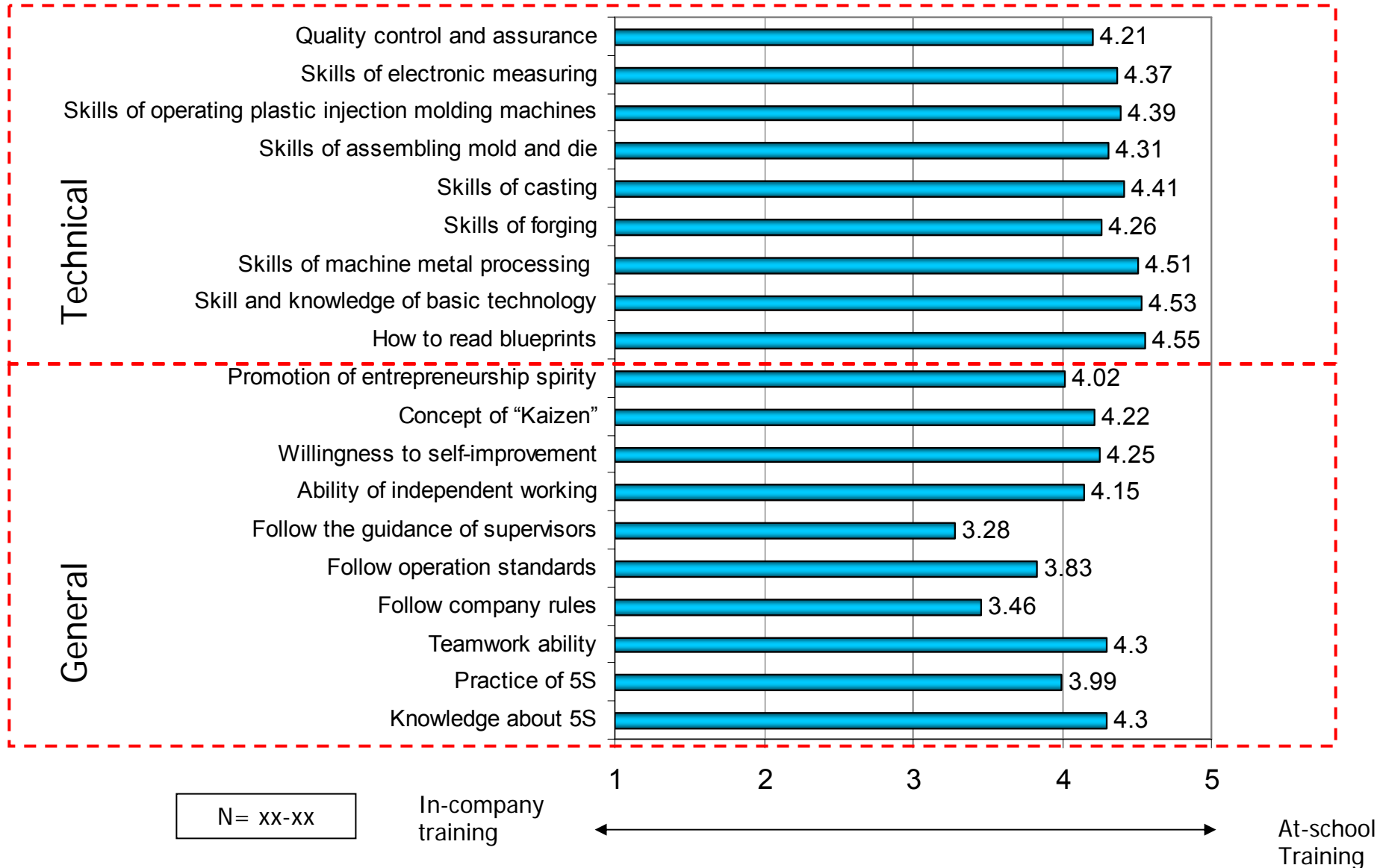


# Training Needed in TVET Institutions

- Needs differ by enterprises and sectors, so difficult to generalize.
- Japanese enterprises ask more training on general issues than Vietnamese enterprises, while Local enterprises put more stress on technical skills
  - Because of lack of in-house training capacity? (although it should be difficult).
- 5S is important, but how to teach in the schools? Is this the issue of society and culture?

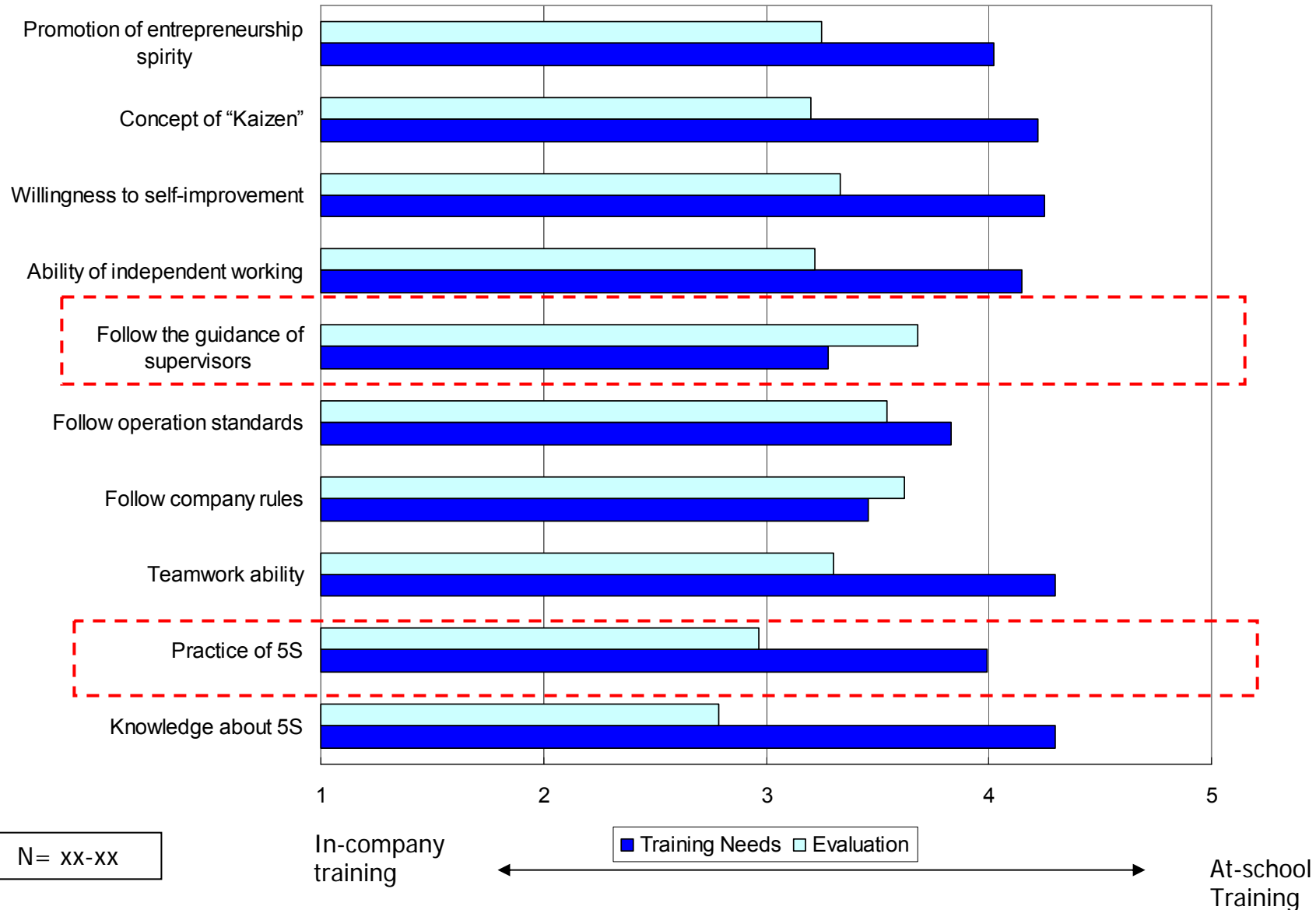
# Training Needed in TVET Institutions

## Overall: Quantitative



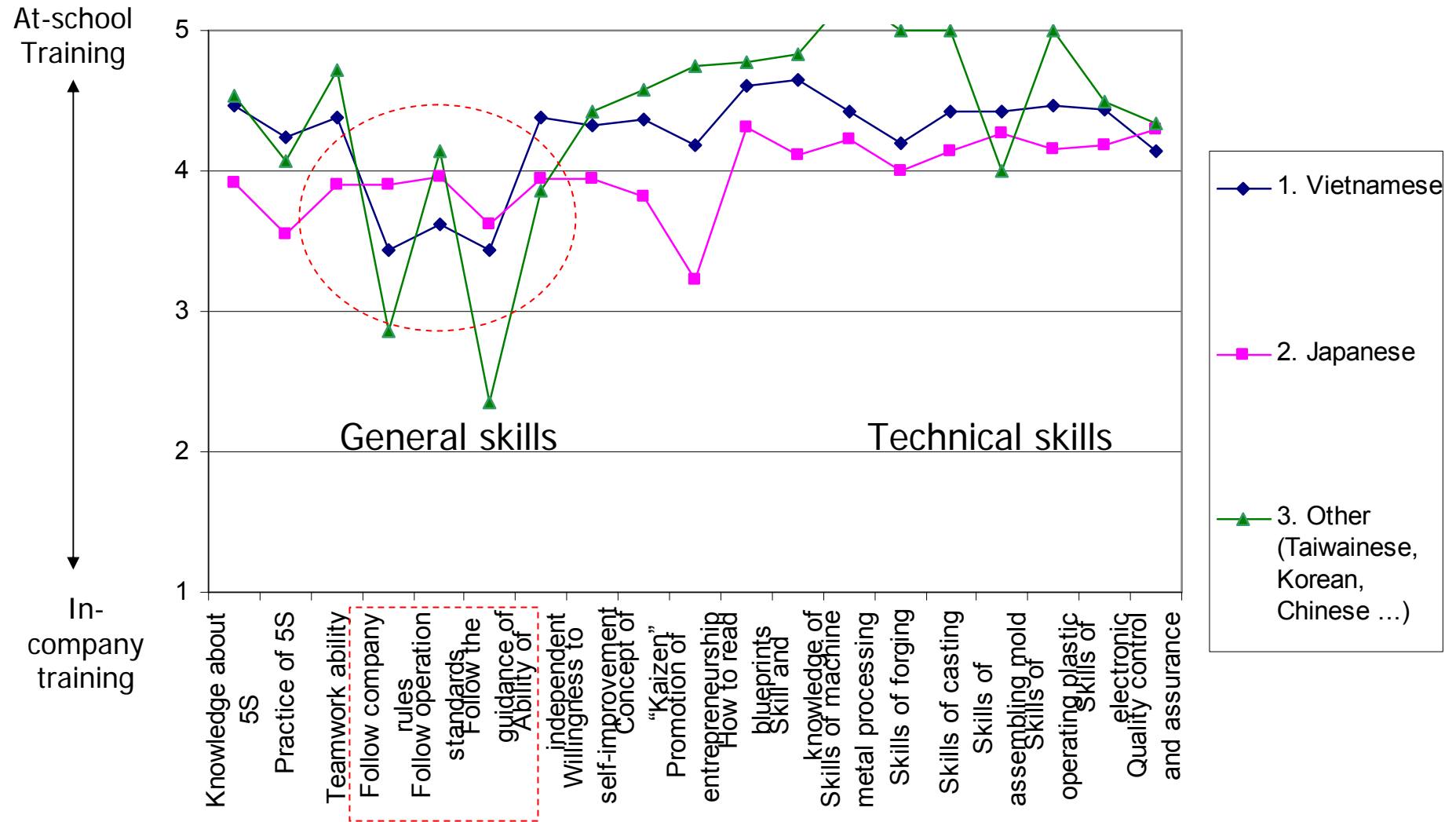
# Training Needed in TVET Institutions

## General: Training Needs vs. Evaluation



# Training Needed in TVET Institutions

## General: Quantitative, by nationality





# Training Needed in TVET Institutions

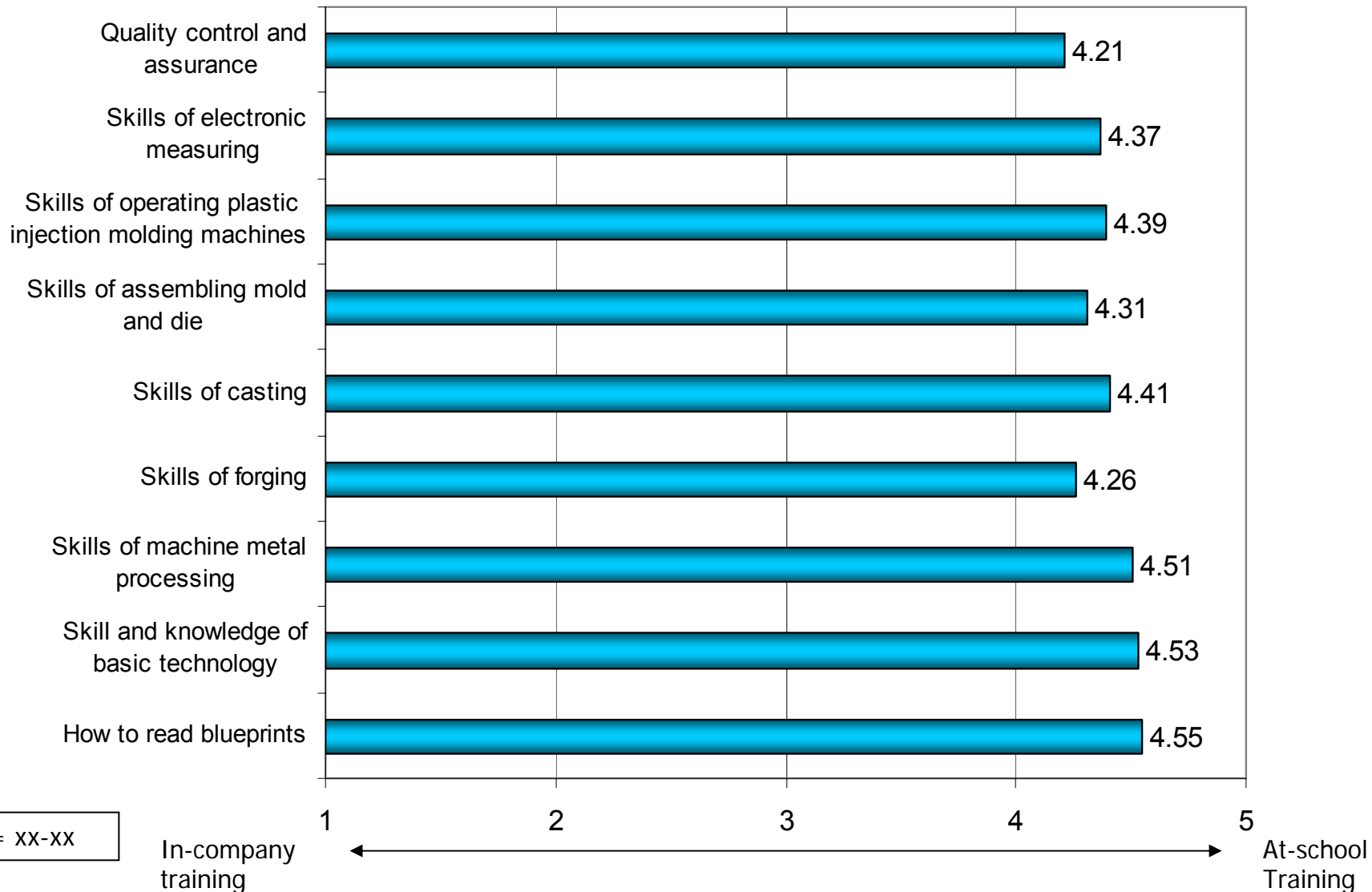
## General: From Qualitative Interviews

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- Better and more professional working attitude and business manners.
- Leadership for Kaizen and other activities.
- Basic knowledge of 5S
  - Clean the class room
  - Return tools appropriately after use, etc..
- Basic knowledge of Kaizen
  - Importance of shortening lead time, etc.
- Mathematics
  - Some do not even understand common fraction.
- Foreign language
- PC Skills
  - Deal with automation technology

# Training Needed in TVET Institutions

## Technical: Quantitative





# Training Needed in TVET Institutions

## Technical: From Qualitative Interviews

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- Blueprint reading and drafting
  - Third-angle Orthographic projection
- Quality control and assurance
- Maintenance of facility and equipment
- Workplace safety
- Mold & die manufacturing
- Electrostatic painting
- Film covering
- Metal heat treatment
- Sequential control



# Other Proposals from Enterprises to TVET Institutions

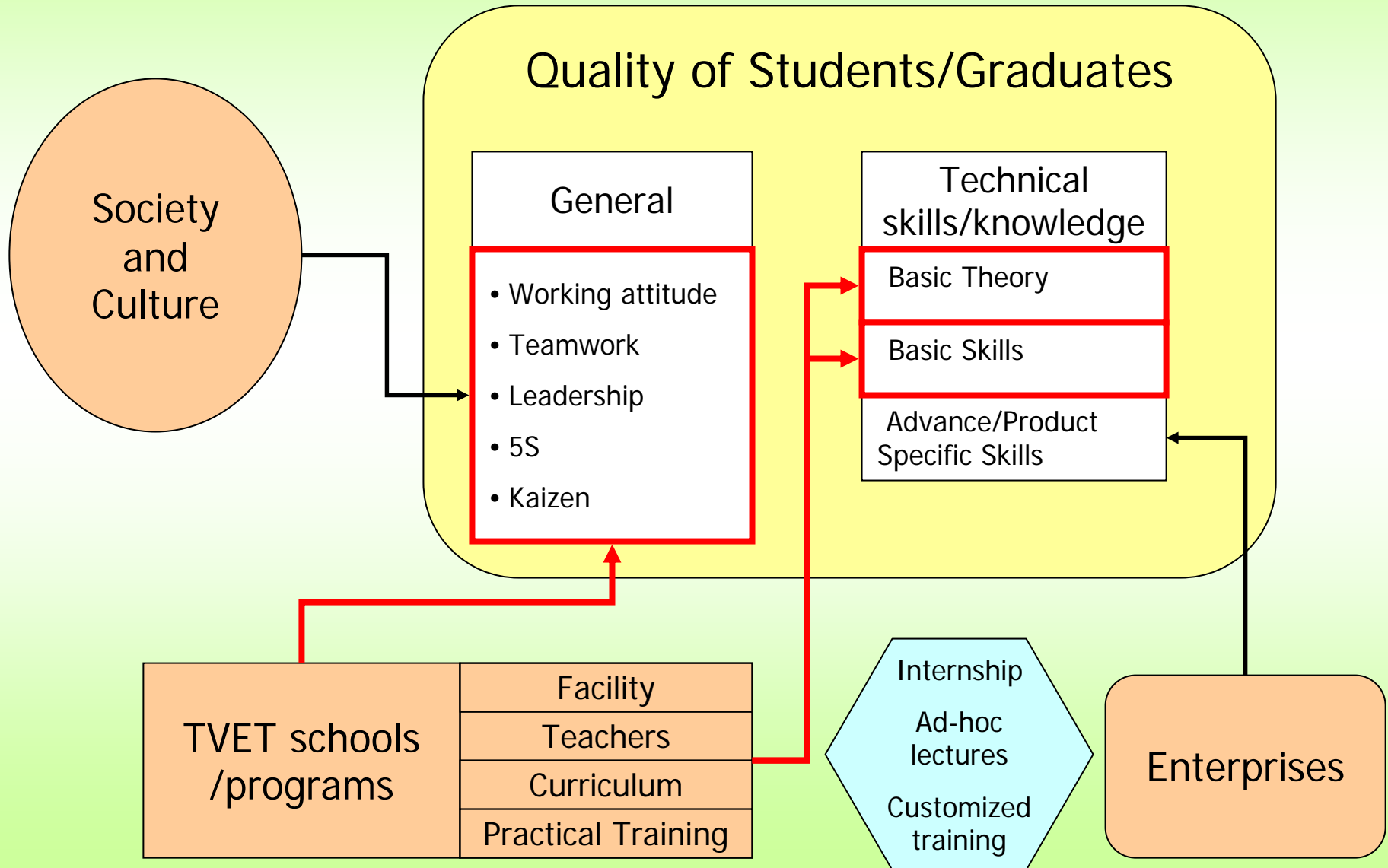
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- Promote Internship
  - Internship in enterprises should be promoted more.
  - Teachers should monitor the internship closely.
  - The government should provide some financial support for internship.
- Promote Teachers' Visit to Enterprises
  - Teachers should visit enterprises and learn up-to-date skill needs.
- Improve Job fairs
  - Job fair should be organized in a better way.

# Summarizing Survey Findings



# Main Factors for Industrial Human Resource Development





# Roles of TVET Institutions

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- Many Japanese companies said that TVET schools should focus on strengthening basic knowledge and skills, not focusing on too narrow fields.
- Some local companies stressed that TVET institutions should teach practical skills in specific fields, but is it possible?
- Graduates need to be trained after entering companies. Most practical skills can be taught only through on-the-job training.

TVET institutions should basically focus on how to generate human resources who have **solid basic knowledge and skills** and can absorb applied skills.



# Roles of College Course

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- College-level education is very important to competent production engineers and technicians. However, the social status is not very high and the retention rate is relatively low?

College-level graduates should be a core in the manufacturing site. It may be good to learn how Japan promoted this class? (“Kousen”).



# Feasibility of “Demand-based” Training

- Difficult to catch detailed training needs for very specific skills
  - Detailed skill needs tend to differ by company.
  - Enterprises do not really count on the advanced training provided by TVET institutions.
  - Possible in case that TVET institutions provide customized training courses based on enterprise’s request, but this may be usually for company employees. However, enterprises may not want to assure recruitment.

In general, more realistic to focus on providing solid basic knowledge and skills on selected fields, considering **versatilities**.



# Strengthen the Link with Enterprises

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- Promotion of internship
  - Many enterprises seem positive about internship.
  - Difficulty in matching requests in both sides (timing, skills, etc.)
- Provide customized training for company employees.
  - This may upgrade the facility and teacher's capacity.
  - However, there might be capacity constraints, considering class-hours for regular students.
- Increase opportunity to talk with enterprises
  - Company visits, alumni meetings, etc.
  - Invite lecturers from enterprises

To strengthen basic skills and knowledge **need interaction with enterprises!**

# Strengthen the Link with Enterprises

## Examples of Measures

Name of TVET schools	Country	Support of foreign experts	Regular meeting with Alumni	Short-term courses	Receiving orders from enterprises	Internship	Curriculum Review Meeting with Enterprises	Skill Demand survey	Enterprises' involvement in management
PSDC	Malaysia	-	?	○	-	?	○	?	○
TNI	Thailand	○	○	○	-	○	○	?	△
VSTTC/Vietnam-Singapore Vocational College	Vietnam	○	?	○	-	○	△	△	-
HIC-JICA/VJC	Vietnam	○	?	△	○	○	-	-	-
Vietnam-Germany Training Center	Vietnam	○	○	○	-	?	△	-	-
Cao Thang Technical College	Vietnam	-	○	○	-	○	△	-	-

### Note

- : Used as a regular or main means or fully implemented
- △ : Used as a temporary means or partially implemented
- : Not or seldom used
- ?: Unknown



# How to Prove “Skilled”

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- The definition in Vietnam is those who has received diploma or training certificates. However, many enterprises do not really count on the certificates.
  - “25% of TVET graduates did not satisfy the skill and knowledge requirements in FDI enterprises” (VIR, 2007)
- Need reliable and up-to-date national skill certificate or standards
  - But they must be at international level, otherwise nobody will use them again.



# How to get the information from enterprises – From Our Trial

- Not easy to collect the demand information from enterprises
  - Always busy, many similar surveys, not easy to understand a questionnaire, etc.
  - Labor-intensive work by calling and visiting.
  - HR managers sometime do not know how skills of graduates are evaluated in their work places.
- Difficult to analyze the demand in objective indicators

Customized survey **in selected areas in terms of geography and sector**, in cooperation with TVET institutions and public bodies, may be feasible and useful.

# Thank you for your listening!



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