

# **SKILL PROFILE FOR EMPLOYABILITY : CASE OF AGRICULTURAL HIGHER EDUCATION**

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## **Abstract**

The central issues faced by the Indonesian higher education system at this moment are, among others, quality and relevance. Due to the low quality and relevance on the one hand, and economic crisis on the other hand, unemployment of university graduates becomes a major problem. It is estimated that about 20,000 graduates are still unemployed or under-employed.

To overcome the problem, a study on skill profile for employability of graduates from several fields of study has been conducted by Directorate General of Higher Education, Ministry of National Education (DGHE-MNE, 2002). The study was to identify the specification of graduates' basic competence that is required by the labor market and to develop a mechanism to link employers' skill requirements with the curriculum review process at the institutional level. It was involving respondents from university faculties/departments, final year students, human resources managers of employing companies, and graduates employed by companies. They were questioned with similar questionnaire to assess the need of acquiring a set of basic skills on entering the job market.

This paper will discuss part of the study results, especially regarding agricultural fields of study. Although to some certain extents there exists disagreement area (gap) between the four groups of respondents, a set of personal and social competencies as well as basic (generic) skills and competencies required by job market from the graduates of agricultural fields of study (undergraduate level) has been identified. This calls for some curriculum reviews and updates. Alternative model to link higher education institutions and job market in curriculum review and update process will be discussed.

Keywords : higher education, agriculture, relevance, skill profile, curriculum review

## **INTRODUCTION**

The new demand for skills and competencies in global world economy is on the increase. The need for economies to increase productivity and be more competitive is stimulating greater demands for skills. To establish a secure competitive base in the global market, Indonesia should improve the skills and knowledge of its labor force. This means that there must be a sufficient and appropriately trained pool of professionals, engineers and technicians. Such labor force can be supplied through new graduates as well as through re-training or upgrading of the existing workers via higher education system.

On the other hand, the Indonesian higher education system at this moment faces some crucial problems. The problems, among others, are problems on quality and relevance. Quality is an enigmatic concept. It is confusing to define, and even more difficult to measure (Sallis, 1993). But it is true that quality of graduate reflects the competitiveness of graduate in the labor market. Relevance represents the degree to which the graduate quality and quantity meet with the needs of an economy that is growing rapidly and changing structurally. Due to the low quality and relevance on the one hand, and economic crisis on the other hand, unemployment of university graduates

becomes a major problem in Indonesia. It is estimated that about 20,000 graduates are still unemployed or under-employed.

To improve relevance and quality of higher education system, the need to relate all higher education programs to the labor market needs has become stronger and more pressing. Therefore, a study on skill profile for employability of graduates from several fields of study has been conducted by Directorate General of Higher Education, Ministry of National Education in 2001-2002 through PPA Consultants (DGHE-MNE, 2002). The study was to identify the specification of graduates' basic competence that is required by the labor market and to develop a mechanism to link employers' skill requirements with the curriculum review process at the institutional level. This paper discusses part of the study results, especially regarding agricultural fields of study in undergraduate (S1) level.

## **METHODOLOGY**

To identify the skill profile of the graduate, a questionnaire has been developed and distributed to four different parties (groups of respondents), namely 1) the university faculty or departments who plan the curriculum – F1, 2) final year students who are about to enter the job market and beginning to build a notion on what skills might be needed – F2, 3) human resources managers of employing companies who set up the standard of skills as criteria for accepting applicants – F3, and 4) graduates employed by companies who are cognizant of the need to acquire particular skills through their day to day real experience on the job – F4. The questionnaire was to assess the need of acquiring a set of skills by the graduates on entering the job market, consists of personal and social competencies as well as basic (generic) skills. The faculties were asked to state the importance they put on certain skills as outcome when they plan and execute the curriculum. The final year students were asked on their perception on how important a certain skill might be should they have in entering the job market. The company human resource managers were asked on how important they put on the acquisition of certain skill as a means of either accepting or rejecting applicants, and the graduates, based on their experience, were asked to state whether a certain skill is real requirement and being used frequently or not in job performance. The list of basic skills and competencies were derived from the existing curriculum, and each skill is scored by the respondents according to its importance by using score ranging from 1 (not important, never used) to 4 (very important, frequently used). In-depth interview and Focus Discussion Group (FGD) were also conducted to get more accurate and comprehensive information from the respondents.

The respondents were taken to represent three regions in Indonesia, namely Region I (Sumatra, West and South Kalimantan), Region II (Java) and Region III (East Kalimantan, Sulawesi, Bali, Nusa Tenggara, Maluku and Papua) with total number of each party was 28 (6), 281 (81), 5, and 220 (48) respectively. Figures in the bracket indicate the number of respondents taken from that considered as "control" group i.e. respondents from Bogor Agricultural University and Gadjah Mada University (actually two other leading universities in Indonesia, i.e. University of Indonesia and Bandung Institute of Technology were also considered as "control" group, but these two university do not offer any agricultural study program). The inclusion of data obtained from the control group is intended to serve as benchmark for other institutions. The collected data then was analyzed, including analysis of inter-group agreement and disagreement by means of pair wise comparison.

## **SKILL PROFILE OF GRADUATES FROM AGRICULTURAL FIELDS OF STUDY**

With broad mean of agriculture, agricultural fields of study consist of more than 25 study programs. Each study program has a unique curriculum, one differs with another, so that they also prepare its graduates to have a unique set of skills and competencies. However, for

the purpose of this study, a set of basic (generic) skills applicable to all of agricultural fields of study was derived from the existing curricula, which meant that every graduate of agricultural fields of study has to master it. How the respondents perceive the importance of each skill and competency are indicated in Table 1 and Table 2.

Table 1. Average score (S) and ranking of score (R) for personal and social competency

No.	Competency	F1 Control		F1		F2		F3		F4	
		S	R	S	R	S	R	S	R	S	R
1	Discipline	3.17	5	3.62	1	3.78	1	3.83	1	3.49	2
2	Honesty	3.33	3	3.48	5	3.76	2	3.83	1	3.02	9
3	Responsibility and responsiveness	3.00	6	3.38	7	3.62	8	3.83	1	3.58	1
4	Cooperation, coordination and collaboration	3.17	5	3.29	9	3.58	9	3.72	2	3.31	7
5	Motivation and work spirit	3.33	3	3.57	2	3.51	10	3.68	3	2.90	10
6	Accuracy and carefulness	2.83	7	3.24	10	3.69	4	3.63	4	3.43	4
7	Commitment and loyalty	3.20	4	3.00	11	3.20	11	3.60	5	3.40	5
8	Diligence and hard working	3.50	2	3.52	3	3.63	7	3.58	6	3.47	3
9	Effective communication	3.33	3	3.43	6	3.64	6	3.58	6	3.38	6
10	Creativity and initiative	3.60	1	3.50	4	3.67	5	3.55	7	3.03	8
11	Self-confidence	3.60	1	3.35	8	3.73	3	3.48	8	3.31	7
Average score		3.28		3.40		3.62		3.66		3.30	

Source : DGHE – MNE, 2002 (reorganized)

As indicated in Table 1, all of respondents rated all 11 points of personal and social competencies above 3.0 in the average. These results indicate that all of respondents agree that personal and social competencies are important to be mastered by all of graduates. However, there are some differences on setting the priority (ranking) of the competencies. Taking priority given by human resource managers (F3) as the reference, discipline, honesty, and responsibility and responsiveness are set as the highest priority, followed by cooperation and motivation/work spirit. This set of priority only partially matches with those sets of priority given by other groups of respondents. On average each other group of respondents only have two of those competencies placed in their high/highest priority. Even respondents from control group give a very different set of priority compared that given by human resource managers. The respondents from control group put the creativity and initiative, self-confidence, diligence and hard working, effective communication and motivation/work spirit as the most important competencies that should be mastered by the graduates.

Unlike the score of personal and social competencies, the score given to the basic (generic) agricultural skills varied among groups of respondents. The scores were ranging from the lowest, 1.51 (given by graduates – means to be not too useful/rarely used), to the highest, 3.73 (given by final year students – means to be very important to be mastered, or it is expected to be very useful in the job market).

The curriculum planners, especially those in control group, put about five competencies in the category of very important, i.e. ability to implement agricultural basic knowledge in the work, ability to keep pace with agricultural science and technology improvement in the field of agriculture, ability to manage agriculture/animal production process, ability to be entrepreneur in agro-business, and ability to conduct experiment in the field of agriculture, interpret data and writing research report, but only two of them perceived correspondingly by human resource

managers as the user of graduates. Even ability to be entrepreneur in agro-business that is put in the third priority by curriculum planners of control group is considered as the lowest priority by human resource managers. On the contrary, ability to utilize computer that is not considered to be very important by curriculum planners actually is strongly required in the job market as it is perceived as the highest priority by human resource managers. Despite these discrepancies, in overall there are about seven competencies that have been put in the same range of priority by both curriculum planners and human resource managers (users of the graduates). These competencies can be considered as the core competencies (skill profiles) for employability of all graduates from agricultural fields of study. Figure 1 and Figure 2 show the plots of inter-group agreement and disagreement between curriculum planners and human resource managers where A indicates high priority agreement area, C indicates low priority agreement area, and B1 and B2 indicate priority disagreement areas.

Table 2. Average score (S) and ranking of score (R) for basic (generic) agricultural competency

No.	Competency	F1 Control		F1		F2		F3		F4	
		S	R	S	R	S	S	R	S	R	S
1	Ability to utilize computer including the basic software, and utilize computer for communication/internet	2.40	7	2.90	5	3.61	3	3.47	1	2.76	1
2	Ability to implement agricultural basic knowledge in the work	3.60	1	3.05	4	3.73	1	3.24	2	2.48	3
3	Ability to keep pace with agricultural science and technology improvement in the field of agriculture	3.40	2	3.38	1	3.73	1	3.06	3	2.54	2
4	Ability to identify, formulate, analyze and solve agricultural production problems	3.00	5	3.10	3	3.69	2	2.94	4	2.09	4
5	Ability to write report and to present the report	3.00	5	2.67	7	3.37	9	2.94	4	1.99	6
6	Ability to manage agriculture/animal production process	3.40	2	2.86	6	3.46	7	2.88	5	1.98	7
7	Ability to conduct experiment in the field of agriculture, interpret data and writing research report	3.20	4	3.24	2	3.52	6	2.88	5	1.89	8
8	Ability to use and operate agricultural equipment, machinery and measurement tools in field of agriculture	2.00	8	2.50	9	3.36	10	2.82	6	1.62	9
9	Ability to maintain agricultural machinery and equipment	1.60	9	2.25	12	3.39	8	2.82	6	1.51	11
10	Ability to conduct agricultural development planning	2.80	6	2.38	11	3.59	4	2.76	7	1.99	6
11	Ability to conduct agriculture/animal production planning	2.80	6	2.57	8	3.59	4	2.65	8	2.02	5
12	Ability to be entrepreneur in agro-business	3.30	3	2.48	10	3.57	5	2.24	9	1.66	10
Average score		2.88		2.78		3.55		2.89		2.04	

Source : DGHE – MNE, 2002 (reorganized)

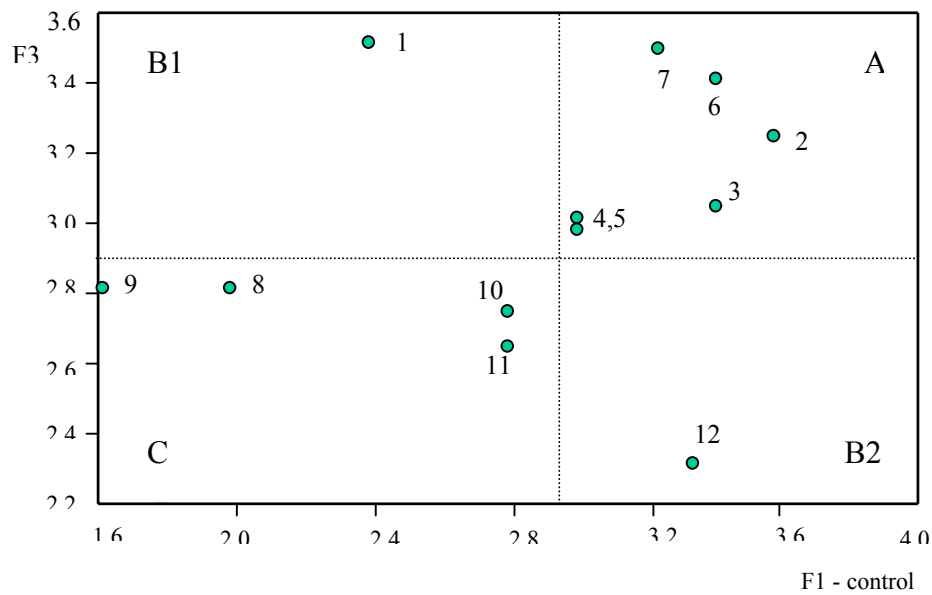


Figure 1. Plots of priority agreement and disagreement between F1-control and F3

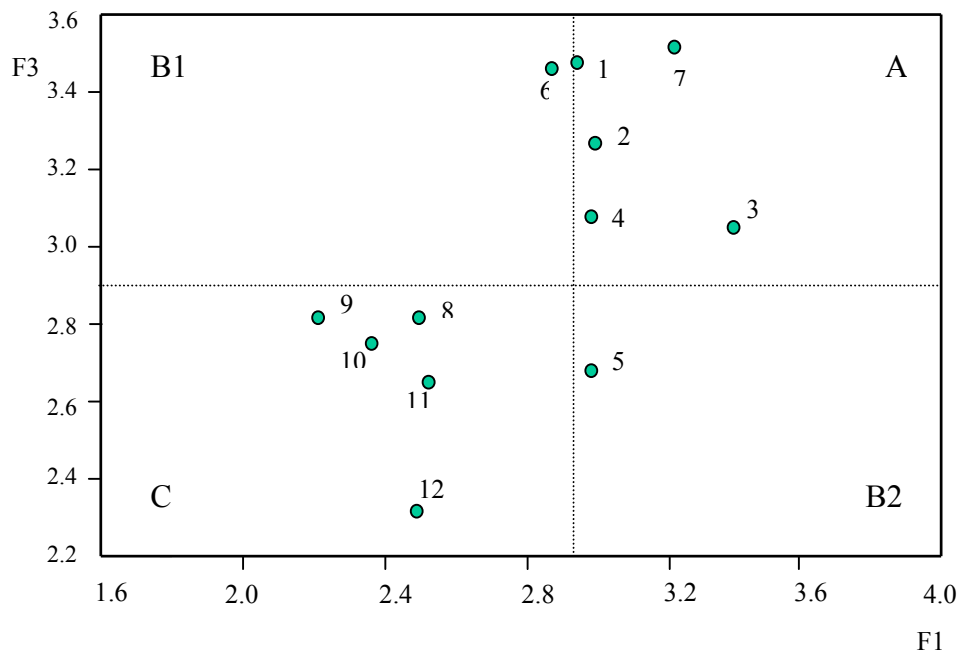


Figure 1. Plots of priority agreement and disagreement between F1 and F3

The respondents of final year student regard all competencies are important to be mastered as they prepare themselves to enter the job market. However, the respondents of graduates employed by the companies experienced oppositely. According to the score the graduates give to each competency, most of them are not frequently used in job performance except ability to utilize computer. The case experienced by the graduates will be naturally understandable if there are some indications that the graduates are not working in the area of their field of study. This calls for the need of further study, i.e. tracer study of the graduates. A tracer study carried out by Bogor Agricultural University in 1998 (IPB, 1998) indicated that only about 40% of the graduates work in the areas that directly related with agriculture.

## CURRICULUM REVIEW AND UPDATE

From the study results can be addressed that there is a gap between graduates' skills and competencies that the higher education system currently designed and produced against those are required by the job market. Therefore the curricula might need some adjustments to cater to some skills or competencies that were not given proper attention by the curriculum developers but are actually needed by the job market. To do so, firstly studies on skill profiles of individual study program need to be carried out to identify some more specific skill profile required by job market. The next, close cooperation between higher education system and the stakeholders is strongly needed, especially for sharing information and experiences on skill requirement and curriculum development. For this purpose, the higher education system needs to facilitate a periodical forum, such as "curriculum review forum". Figure 3 shows an alternative model for curriculum review and update.

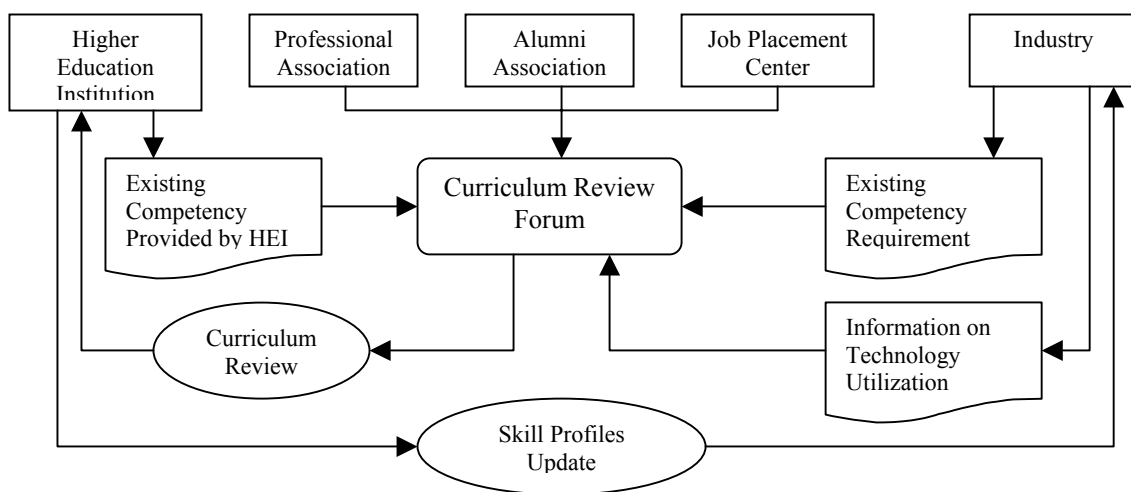


Figure 3. Alternative model for curriculum review and update (DGHE-MNE, 2002 with revision)

## CONCLUSION

Skill profile for employability of the graduates from agricultural fields of study has been identified. It includes seven basic (generic) agricultural competencies as the core competencies and eleven personal and social competencies. There are some perception discrepancies between curriculum planners, users of the graduates and also with graduates employed by companies. Therefore an effective mechanism to review and update the curriculum is of necessity.

## REFERENCES

- IPB. 1998. "IPB Memanggil". Report on Tracer Study.
- DGHE – MNE. 2002. Skill Profiles for Employability. Final Report of Research Study under TPSDP (ADB Loan : 1792 – INO)
- Sallis, E. 1993. Total Quality Management in Education. Kogan Page Educational Management Series. Kogan Page. London.