Program Improvement Through Competency Tracking

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Abstract. The students will feel satisfied when their learning had fulfilled their needs. This study aims to obtain an overview of the profile of graduates and their competitiveness in the community and the employee response also. The study was conducted on teachers who graduated from chemistry education program and the employee of the graduated. The sample used was 36 graduates and 36 employee from a total population of graduates was 119. The questionnaire for the gradustes used a scale of 4 and the questionnaire for the employee used a scale of 5. The questoners were validated by distance education experts. The results showed that the highest competency requirements for graduates are in lesson plans (X=3.14), manage laboratories (X=3.13) and the ability to communicate/opinion (X=3.11). The high expectations for the components of making evaluations of learning outcomes (Y=3.73), lesson planning (Y=3.70) and ability in information technology (Y =3.70). The highest gap was shown in the components of general knowledge (GAP = 0.78) and English proficiency (GAP = 0.75. Furthermore, the results of the employee assessment show that the high competencies were in for Numeracy skill (M= 4.27) and ICT skill M=4.05. While the high expectations for Numeracy skill (M= 4.55) and ICT skill M=4.05. The high gaps were shown in the components of General knowledge (M=0.78) dan English communication (N=0.75). The quadrant analysis of the graduates demonstrates that there was no component got low performance and high expectation, but on the employee shown that general knowledge and English communication had high expectation and it's priority needs.

Keywords: graduates' performance, graduates' interest, employee interest

1. Introduction

One of the tools that educational institutions to know on the effectiveness and efficiency of the programmes, they traced their alumni. An empirical study that can produce valuable information in evaluating an educational program named is tracer study (Noko and Ngulube: 2015). While this information is an important for program improvement and fulfillment of skills for graduates in the workplace (H. Schomburg, 2003). According to H. Schomburg (2003), searching graduates can provide information for the benefit of evaluating the results of higher education and furthermore it can be used to improve the quality of higher education institutions concerned. The purpose of this study is to find and describe:, 1). The comparison graduates's performance and interest of the abilities on their study. 2) Employees' assessment and employees' interest of the Graduates

2. Method of Research

This research was an explorative study. The research was conducted at the Chemistry Education study program held through distance learning. The sample used was 36 graduates randomly from a total population of 119 graduates. The data obtained through questionnaires to graduates and employee. The questionnaire contained 16 items for graduates used a scale of 4 ranging from very important (4), important (3), less important (2) and not important (1). There were also a questionnaire contained 16 items for employee used a scale of 5 ranging from very important (5), important (4), rare (3) less important (2) and not important (1). The instruments were content validated by 2 distance education experts. The data obtained were analyzed by using a 'four quadrant' model of consciousness analysis by considering the tendency of answers for each items.

3. Analysis and Discussion

Graduates' performance (X) were described about how graduates assess themselves for the teaching and learning activities they obtained during their time as a student. Meanwhile, the interests of graduates (Y) were described as the needs of graduates when they teached in schools. The value of graduates' performance and graduates' interest on general knowledge of educational contexts on the statement point of :

A1. Graduates' performance and graduates' interest in their skill

Graduate was a chemistry teacher at school so it was suspected that the material he obtained during his studies supports his worked as a teacher and educator in his workplace. The majority of teachers as graduates were satisfied with the skills and knowledge they acquired. Graduates like to work in fields that are in accordance with the field of study (Aina and Moahi, 1999; Stilwell, 2004).

A person is considered competent if he is able to show intelligent actions that are full of responsibility in his field and gain the trust of the community. Smart actions or competencies can be demonstrated by their ability to know students in depth. mastering the field of study, both disciplines and teaching materials contained in the school curriculum, able to manage educational learning, and able to develop professionalism in a sustainable manner (BNSP, 2007).

Competencies assessed by graduates include the ability to express opinions in English orally and in writing, ability and creativity, ability to work in teams, and use information technology. Furthermore, the opinion of the graduate about his abilities and desires is shown in Table 1

Table 1. The graduates' performance and graduates' interest

No	Componen	X =	Y =	Δ
1	General knowledge	3.05	3.61	0.56
2	English ability	2.54	3.5	0.96
3	Learning method	3.08	3.64	0.56
4	Learning Plan	3.14	3.7	0.56
5	Learning evaluation	3.08	3.73	0.65
6	Information technology	3.02	3.7	0.68

7	Instructional media	3.02	3.61	0.59
8	Research methodology	2.85	3.54	0.69
9	Teamwork	3.31	3.67	0.36
10	Oral communication skills	3.11	3.61	0.5
11	Written communication skills	3.08	3.52	0.44
12	The process of community empowerment	2.73	3.29	0.56
13	Theoretical knowledge of laboratory management	3.13	3.58	0.45
14	Specific practical knowledge in the laboratory	3.11	3.58	0.47
15	Organizational management	2.91	3.41	0.5
16	Leadership	2.97	3.44	0.47

The rating given by the graduates was in the range of numbers X = 2.54 – 3.31 out of a scale of 4. The highest score was the graduates' performance on working in a team. Besides, on their ability to prepare lesson plans (X=3.14), manage laboratories (X=3.13) and the ability to communicate/opinion (X=3.11). Meanwhile, the low ratings given by graduates to themselves were in the components of English language skills (X=2.54), and the process of community empowerment (X=2.73). The low self-assessment of graduates on these abilities was suspected that graduates were not accustomed to using English both in written and oral form, so that it also affects their ability to communicate and build community empowerment. Therefore, one's own efforts are needed to improve their competence in English in order to increase their self-confidence in the wider community.

However the language is an important communication tool for humans, because with language we can find out the information we need, besides that through language we can convey our ideas and ideas. Language is a medium for abstract human thinking where factual objects are transformed into abstract language symbols. With this transformation, humans can think about an object, even though the object is not sensed when the thought process is carried out by him (J.S. Suriasumantri, 1998). D. Efrizal (2012) described that speaking was useful for people to interact each other eventhough sometimes was a complex process. Everyone needs communication when they want to say something or convey information. Therefore the improvement in learning English became one component of the improvement of the study program curriculum so that students and graduates can compete with students and graduates from other educational institutions.

In addition, the low self-assessment of research methods (X=2.85) showed that graduates want to understand more about research methods, because through research they could provide new ideas

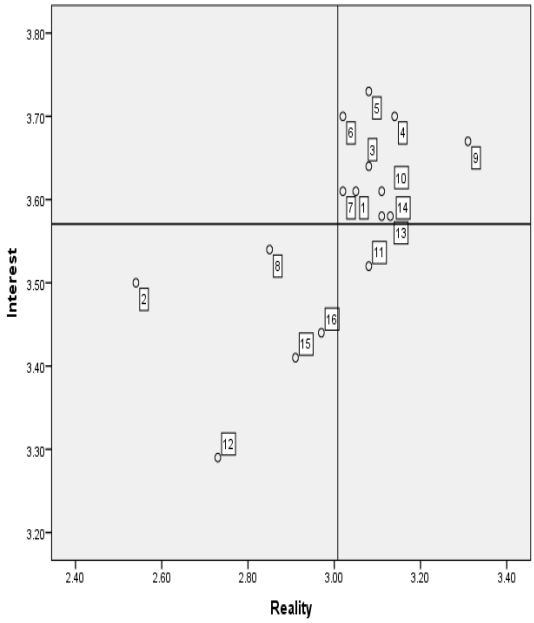
as material for consideration when carrying out work and conducting evaluations in order to obtain scientifically justifiable truths.

Meanwhile, graduates had high expectations for knowledge after finishing school in the components of making evaluations of learning outcomes (Y=3.73), lesson planning (Y=3.70) and ability in information technology (Y =3.70). These components were indispensable for graduates in their works as teachers Through this information, it showed that graduates still need learning subject material and even this material needs to be improved. In addition, with the development of various chemistry learning software applications, the ability to use ICT was very much needed by graduates. This suggests that graduates needed increased capacity of them to these components.

A2. The Comparison of Graduates' Performance and Interest

The difference comparisson between graduates' performance and graduates' interest is known as gab and as shown in Figure 1.

Figure 1. Plot of graduates' performance in quadrant analysis



Quadrant I (Priority). No Item number in quadrant I. This shows that there was no low performance of graduates with priority needs.

However, there were items number 1, 3, 4, 5, 6, 7, 9, 10, 13, and 1 in Quadrant II. This showed that graduates' performance and graduates' expectation were high

Quadrant III, the statement items declared in this quadrant belonged to the Low Priority. The items were considered less important by the graduates and in fact the performance was not too special. In this quadrant may be reconsidered as its effect on the expediencies perceived by the graduates was very small. The items classified in this quadrant were the items number 2, 8, 12, 15, and 16

Quadrant IV (Overload). This quadrant describes high graduates' performance but low expectation. This quadrant contains statement items that were considered less important by graduates and were deemed too excessive. The performance enhancements to the declaration items (statement items) in this quadrant will only lead to a waste of resources. Items belonged to quadrant IV were the item number 11.

B1. Employees' assessment and employes' **interest of the Graduates**

Employees' assessment (M) were described about how employee assess the graduates' performance as a teacher. Meanwhile, the interests of employee (N) were described as the expectation of employee when the graduates teach in schools. The value of employees' performance and employees' interest on general knowledge of educational contexts on the statement point of :

Table 2. Employees' response to graduates' performance and employees' interest

	EMPLOYEES	M	N	Δ GAP
1	General knowledge	3.38	4.16	0.78
2	English communicative skills	3.38	3.91	0.53
3	English writing skills	3.36	3.77	0.41
4	English communication	3.38	4.13	0.75
5	Numeracy skill	4.27	4.55	0.28
6	ICT skill	4.05	4.5	0.45
7	Information literacy skills	3.91	4.47	0.56
8	Research skills	3.75	4	0.25
9	Organizing and planning	3.88	4.27	0.39
10	Time management	4	4.47	0.47
11	Productivity	3.88	4.27	0.39
12	Leadership	3.61	4.08	0.47
13	Decision making skills	3.75	4.3	0.55
14	Entrepreneurial skills	3.63	4.05	0.42
15	The ability to apply knowledge and skills in the work	3.94	4.36	0.42
16	Knowledge relating to regulations and policies in the institutions	3.83	4.16	0.33

The rating given by users to graduates was in the range of numbers M = 3.36 – 4.27 out of a scale of 5. Assessment of graduate performance was highly rated on the components of their ability to calculate (M=4.27), using ICT (M=4.05) and manage time (M=4.0).

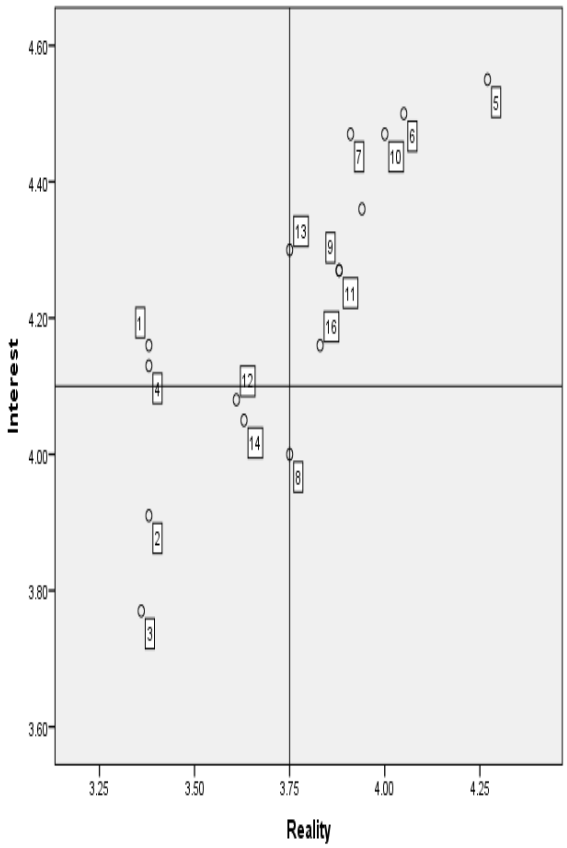
Furthermore, the assessment of graduate performance expected by users was in the range of numbers N = 3.7 – 4.55 from a scale of 5. The interesting thing was that the highest expectations of users were in relatively the same component, namely the ability of graduates to calculate (N=4.55), using ICT (N=4.50), ability to manage time (N=4.47), and ability to read literacy (N=4.47).

Meanwhile, the difference or gap between the results of the graduate performance assessment and the expectations desired by the user has a number that varies from GAP = 0.28 – 0.78. The highest gap was shown in the components of general knowledge (GAP = 0.78) and English proficiency (GAP = 0.75). Furthermore, the lowest was the ability to conduct research (GAP=0.25) and knowledge relating to regulations and policies in the institutions (GAP=0.33)

Through these data, it could be explained that communication skills and mastery of language were components that still need to be improved by graduates and were a consideration for educational program providers

B2. The Comparison of Emplyoyees' value of graduates and Interest

Figure 2. Plot of employees' **Emplyoyees' value of graduates and Interest**



Quadrant I (Priority). There were two number in quadrant I, items number 1 (General knowledge) and number 4 (English communication) had low performance of graduates based on employees' assessment and it's priority needs.
However, there were items number 5, 6, 7, 9, 10, 11, 13, and 16 in the Quadrant II. This showed that employees' assessment and employees' expectation were high
Quadrant III, the statement items declared in this quadrant belonged to the Low Priority. The items were considered less important and in fact the performance was not too special. In this quadrant might be reconsidered as its effect on the expediencies perceived by the graduates was very small. The items classified in this quadrant were the items number 2, 3, 8, 12, and 14
Quadrant IV (Overload). This quadrant describes high employees' assessment but low expectation. This quadrant contains statement items that were considered less important by employee and were deemed too excessive. The performance enhancements to the declaration items (statement items) in this quadrant will only lead to a waste of resources. However no item in this quadrant.

Based on the results of the analysis, it showed that there were similarities between the expectations of graduates and users in assessing the need for components of communication skills in English and the ability to use ICT. Language is the main medium of communication. In everyday life, language has a very important role in all aspects of life. With language, a person is able to convey the intent and purpose so that the information and messages conveyed to other people or the community are conveyed properly and the meaning can be understood by the recipient easily.
In the era of globalization, reliable resources are needed, especially in the field of communication. The role of English is needed both in mastering communication technology and in interacting directly, both orally and in writing.
Furthermore, the ability in ICT, although the performance of graduates was highly rated by the users (M=4.05), the user's expectations showed an even higher score, namely (M=4.50) from a scale of 5
Graduates were those who have taken online learning, although in online learning the students and the teacher keep communication and interact with each other through the internet-based learning technology. However, graduates have not yet fully demonstrated the ability to utilize ICT. Meanwhile, the use of information/communication technology has become so sophisticated, and can support the success of graduates in developing new learning strategies and techniques. In the 21st century, ICT becomes highly essential in education. The role of ICT is to transform teaching and learning; thus, it is significant for us to explore how ICT will impact on the way programs are offered and delivered in the future universities and colleges. The development of science and technology requires educational institutions to adapt it as stated in the curriculum.

4. Conclusion

The existence of input from graduates and users regarding the readiness of graduates in their field of work can be used to improve the curriculum. The low rating of graduates can be used as input for institutions to review the curriculum they have developed. Schomburg, H. (2003) described that the main purpose of tracer study activities is to know/the quality of graduates in the world of work, while The specific objectives of the tracer study are: (1) Identifying competency profiles and graduate skills; (2) Knowing the relevance of implementation curriculum that has been implemented in universities with the needs of labor market and professional development in competence major; (3) To evaluate the relationship of curriculum and study in majors as scientific development; (4) As a contribution indepartment accreditation process

The curriculum applicable in higher education refers to a certain set of competencies according to the vision and mission of the study program. In line with the times and educational needs, it is necessary to update the

curriculum. Curriculum updating is carried out if the conditions require that there are community needs that must be served by universities for the quality of graduates, (A. Gufron, 2005), for example the need for mastery of English as a communication tool and mastery of ICT to help run learning programs.

The renewal of the learning approach, which involves the essence, materials and learning methods as well as the use of information/communication technology, will be able to support the success of updating learning strategies and techniques to improve learning. Accordingly, teachers need to have innovative and creative skills in teaching, building critical thinking and problem-solving skills, analysis skills and conceptual skills. Besides that, they are able to work with a team and be able to do research and teachers should provide instructions, guide the students to learn the materials, help to analysis and synthesize the course material, organize students collaboration and interaction (Krasnova, T. And M. Demeshko: 2015)
Through these data, it can be explained that institutions need to train and equip prospective graduates with the latest knowledge and changes in applicable policies. Institution could review and revise also the curricula such as an academic programmes that in line with the graduates needs (Noko and Ngulube, 2015), such as the development of languages, science and technology courses that were adapted as stated in the curriculum.

The limitations of the study

1. The number of respondents, which was only 39 graduates and 39 employee, from the 119 graduates population, was of course still insufficient to describe the actual situation.
2. The object of research was only focused on the graduate and employee value of the contex
3. In the process of collecting data, the information provided by the respondent through the questionnaire sometimes had not show the respondent's true opinion, this happens because sometimes the thoughts, assumptions and understandings were different for each respondent, as well as the honesty factor in filling out the respondent's opinion in the questionnaire.
Therefore, caution was needed in generalizing the results of this study.

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