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NORTH SULAWESI ELECTRICAL ENGINEERING TEACHERS COMPETENCE IN FACING ASEAN ECONOMIC COMMUNITY

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ABSTRACT

The purpose of this research is to discover the competence of electrical engineering teachers in facing ASEAN economic community. This research used qualitative method equipped with the real situation. The result of this study showed that education is inevitably needed to improve the quality of human resources. Education plays a big role in increasing human resources. Hence, this research showed that the electrical engineering competence in North Sulawesi needs to be improved to face ASEAN economic community through this following way: In House Training (IHT) is an internal training conducted by Teacher Working Group/ Teacher Education Consensus Point in school or other places determined to administer training. It is held in a relevant institution/industry in order to improve teacher's professional competence. Training held by a school should cooperate with the government or private institution in particular expertise. Training through long distance learning and training program are arranged sequentially. Short course in Institute of Teachers' Education or other educational institutions is aimed to elevate teacher's competence. Besides, there is also an internal guiding. It is a professional guiding for teacher through continued education. Discussion is held periodically with topics related to the problem. The encompassing of teachers in seminar, workshop, competence improvement, and action research of taught material written by teacher can be in a form of textbook, learning media design and technology/art product.

Keyword: Teacher's Competence, ASEAN Economic Community

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1. INTRODUCTION

In this era, Indonesia faces ASEAN Economic community (AEC) despite of its readiness. It will affect to the entrance of ASEAN country communities to Indonesia. It gives positive impact, yet, on the other hand it also gives negative impact. In his research, Bagus Prasetyo (2015:1) states that Indonesia readiness is strongly needed in facing AEC if we don't want to be ASEAN market. There are four fundamental things in the administration of AEC in 2015, they are: "First, ASEAN is as a market and single production, second, collective economy development, third, economy

distribution, and fourth, competitiveness strength, including the importance of competent worker” (Dewi Wuryandari, 2014:14).

The main factor in facing AEC is preparing skillful human resources, otherwise we will be left behind and Indonesia will only be a host in its own place. As it is emphasized by Bagus that the existence of service and goods market will result to the labor competence which becomes more tight in terms of employment (Bagus Prasetyo, 2015:2). Moreover, Dewi mentioned that one of the issues raising related to the AEC implementation is the readiness of human resources (Dewi Wuryandani, 2014:13). It is in line with the idea of Setuju saying that “what is needed in facing AEC is competent human resources that is capable in competing with the other human resources of other AEC members itself” (Setuju, 2015:3). Therefore, it is necessary to prepare the AEC competency from all aspects, including electrical engineering teacher. Otherwise, it will lead to various negative things such as the high level of unemployment and poverty for its inability to compete with other human resources from ASEAN countries whose human resources is indubitable. Dewi, furthermore added that “Indonesian unemployment is the highest among other 10 ASEAN countries, comprising the unpreparedness of labors in facing AEC 2015 (Dewi Wuryandani, 2014:15). In order to empower human resources, the most crucial aspect to be considered is education. Indeed, education plays a big role in improving human resources. Thus, education in Indonesia must be prepared pretty well including the workers of electrical engineering. If Indonesia is well prepared, then it can compete against other countries joined in ASEAN. It is congruent with the argument of Setuju saying that in order to anticipate MEA, education is a fundamental element that must be prioritized first. As it is stated by Ki Hadjar Dewantara, that “Education is an effort to promote the development of attitude (character), mind (intellect), and body of a child, whereas those parts are inseparable so that we can foster the child’s life perfection” (Setuju, 2015:2). Setuju, also said that researches conducted in England, America and Canada show soft skills attribute which are dominant in work field. Those attributes are arranged based on the urgency priority in a work field, as it follows: 1) initiative, 2) ethics/integrity, 3)critical thinking, 4) will of learn, 5) commitment, 6) motivation, 7) passion, 8) reliability, 9) oral communication, 10) creativity, 11) analytical ability, 12) stress management, 13) self management, 14) problems solving, 15) summarizing ability, 16) cooperation, 16) flexibility, 18) team work, 19) self reliance, 20) listening, 21) toughness, 22) logical argumentation, 23) time management.

Furthermore, it is stated that ASEAN Economic Community focuses on 12 priorities covering these two major parts (Setuju,2015:8), those are: first is the 7(seven) goods sector: (1) Agriculture industry, (2) electronic devices, (3) automotive, (4) fishery, (5) rubber based industry, (6) wood based industry, (7) textile industry. The second major part is 5 (five) service sectors: (1) air transportation, (2) health service, (3) hospitality, (4) logistic, and (5) informatics and technology industry or e-ASEA” (Rendra Kresna, 2015:18).

As a matter of fact, those twelve sectors require electricity, or commonly is generated by electricity, thus, a preparation to settle human resources in electricity field is really needed. Otherwise, electricity experts from other countries are the one who will dominate it. Electricity worker, in general is prepared by an institution which produces labor in electricity field.

Electricity engineering program of Vocational School should be prepared well so the graduates of electricity program can be compete with electricity experts from other countries joined in AEC. In fact, up to this day, Indonesian electrician is really left behind compared to the electrician of other countries joined in AEC. It is congruent with the opinion of Eddy, that electrification ration of Power Plant in Indonesia in 2011 was only 72.95%, much left behind compared to electrification ration of Singapore which reaches up to 100%, Malaysia and Brunery with 80%. The high price of State Electricity Company bill is due to the use of fuel and coal whose price is always increasing (Eddy Kuntadi, 2015:11). In order to deal with the competition

of labors of AEC, a good strategy is needed to administer systematic and reliable competition. Furthermore, Rendra points out the strategy in administration of national competitiveness improvement and preparation of AEC 2015 administration, especially the improvement of labor through “The Improvement of Labor’s Competitiveness, Competence, and Productivity” (Rendra H. Kresna, 2015:24).

To accomplish that goal, vocational school teachers, particularly electrical engineering should master skill and competence that can produce qualified graduates. If the electrical engineering teachers are not qualified enough, it is nearly improbable to produce qualified graduates. In contrast, if a teacher has qualified skill, it is possible to have competent graduations of electrical engineering who are later can be able to compete with labor from other countries joined in ASEAN. If it happens, then there will be many positive effect of AEC, even it is possible that we can absorb numerous labors as it is said by Dewi, that “According to Asian Development Bank (ADB), AEC can create 14 million of extra job vacancies, or on the other words, it raises for 41% in 2015 as the mobile of qualified labor is free” (Dewi Wuryandani, 2014:14).

From the aforementioned explanation, a question appears is what kind of electrical engineering teacher’s competencies that are needed in North Sulawesi? Responding to this question, Constitution No. 14 of 2005 of chapter 1 article 1 regarding on teachers and lecturers, explained that teacher’s competence is a set of knowledge, skill and behavior that must be internalized and mastered by teachers in practicing their professional duties. Next, chapter IV article 10 highlights the four basic competences that must be mastered by a qualified teacher, namely pedagogical competence, personality competence, social competence and professional competence. In addition, Article 28 verse 3 of Government regulation No. 19 of 2005 concerning on education national standard said that there are four competences that should be possessed by a teacher as the learning agent. The four competences are pedagogical competence, personality competence, professional competence and social competence.

Furthermore Saud emphasized that these four competences do not stand alone yet connect and affect each other and they have hierarchy connection, which means it founds on each other-one competence founds on another competence” (Saud, 2009:49).

From that explanation, we can sum up that electrical engineering teachers definitely need and must have those four competences which are connected each other.

2. RESEARCH METHOD

This study employed a qualitative approach because this study aims to reveal an existing problem. This research begins with an orientation to get an overview of the research objectives. Next, interviews and in-depth observations to obtain data were conducted. This study employed four instruments, namely instruments of pedagogic competence, professional competence, teacher's personal competence, and teacher's social competence. The source of this research data was an electrical engineering vocational teacher in Manado. The data found were analyzed qualitatively and concluded descriptively.

3. RESULT AND DISCUSSION

This result of this research shows that the competence of electrical engineering teachers in Manado and around it, covers of four competences, namely personality, professional, pedagogical, and social competence. These four competences are related each other. The result of this research is presented in this following table

Table 7 The Calculation Result of Basic Statistics of Pedagogical Competence (X1), Professional Competence (X2), Personality Competence (X3), and Social Competence (X3). Electrical Engineering Teachers in Manado and Around It

| No. | Statistical Test | X1 | X2 | X3 | X4 |
|-----|--------------------|-------|-------|------|-------|
| 1 | Highest Score | 796 | 632 | 347 | 372 |
| 2 | Lowest Score | 294 | 215 | 156 | 148 |
| 3 | Average | 520,5 | 420 | 251 | 256,8 |
| 4 | Standard Deviation | 160 | 119 | 58 | 63 |
| 5 | Variance | 25600 | 14161 | 3364 | 3969 |
| 6 | Modus | 626,7 | 490 | 170 | 320 |
| 7 | Median | 529 | 519 | 255 | 320 |

This table provides the research result of pedagogical, professional, personality and social competence of electrical engineering teachers in dealing with AEC. There were 46 electrical engineering teachers in Manado and around it as the research subject. Nevertheless, the competence of electrical engineering teachers in facing AEC is shown in this following table.

Table 8 The Data of Research Result on Electrical Engineering Teacher's Pedagogical Competence in Facing AEC (X1)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 280 | 0 | |
| 2 | 289 - 400 | 16 | 34,78 |
| 3 | 401 - 520 | 6 | 13,05 |
| 4 | 521 - 680 | 18 | 39,13 |
| 5 | 681 - 800 | 6 | 13,04 |
| 6 | 799 - | 0 | |
| Total | | 46 | 100 |

The criteria used in deciding whether the electrical engineering teacher's competence is bad or not in facing AEC is by looking at the pedagogy competence. If the pedagogy competence is higher than 681, it is categorized as good. If the pedagogy competence is 401-680, it belongs to fair. Whereas, the pedagogy competence is regarded as poor if the score gained is lower than 400. The data above shows that the competence of electrical engineering teachers in facing MEA is generally fair. In fact, there were 24 or 52.18% categorized as having fair competence. Meanwhile, the professional competence of electrical engineering teachers in dealing with AEC is presented in this table below.

Table 9 the Result of Professional Competence of Electrical Engineering Teachers in Facing MEA (X2)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 182 | 0 | 0,00 |
| 2 | 183 - 301 | 8 | 17,39 |
| 3 | 302 - 420 | 18 | 39,14 |
| 4 | 421 - 539 | 11 | 23,91 |
| 5 | 540 - 658 | 9 | 19,56 |
| 6 | 659 - | 0 | 0,00 |
| Total | | 46 | 100, |

In order to identify the quality of electrical engineering teachers in dealing with AEC, the researcher used these following criteria. Professional competence is said as good if the score is 540 above. Meanwhile if the score gained is 302-539, it is categorized as fair. Lastly, if the score gained is lower than 310, it is considered as poor professional competence. Nonetheless, that data identify that the professional competence of electrical engineering teacher in encountering AEC is generally fair. There were 29 or 63.06% subject categorized as having fair competence. Whereas, the personality competence of electrical engineering teachers in facing AEC is shown in this table as follows.

Table 10 the Result of Personality Competence of Electrical Engineering Teachers in Facing AEC (X3)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 135 | 0 | 0,00 |
| 2 | 136 - 193 | 10 | 21,74 |
| 3 | 194 - 251 | 12 | 26,09 |
| 4 | 152 - 309 | 15 | 32,61 |
| 5 | 310 - 367 | 9 | 19,56 |
| 6 | 368 - | 0 | 0 |
| Total | | 46 | 100 |

In deciding whether the electrical engineering teachers have qualified competence in facing AEC, the researcher used these criteria, namely: Personality competence is considered good if the score obtained is 310. Yet, if the score gained is between 194-309, it means that the competence is fair. On the other hand, the personality competence is said as poor if the score is lower than 193. The table above points out that the personality competence of electrical engineering teachers in facing AEA is actually fair. Furthermore, there were 27 people or 58.70% belonged to fair competence. In addition, the social competence of electrical engineering teachers in dealing with AEC is shown in the table below.

Table 11 the Result of Social Competence of Electrical Engineering Teachers in Facing AEC (X4)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 131 | 0 | 0,00 |
| 2 | 132 - 194 | 9 | 19,56 |
| 3 | 195 - 257 | 14 | 30,44 |
| 4 | 258 - 320 | 14 | 30,44 |
| 5 | 321 - 383 | 9 | 19,56 |
| 6 | 384 - | 0 | 0 |
| Total | | 46 | 100 |

The criteria used in determining the quality of electrical engineering teachers in facing AEA is by looking at the score gained. Social competence is regarded as good if the score obtained is 321 above. Meanwhile, the fair social competence is shown by the score of 195-320. On the other hand, score under 195 is regarded as poor social competence.

The table above shows that the social competence of electrical engineering teachers in facing AEC is basically fair. From that table, we can see that there were 28 people of 60.88% categorized as fair competence.

Next, discussing about the competence of electrical engineering teacher of AEC countries, the researcher took three top countries which are known for its electrical engineering ability, namely: Malaysia, Singapore and Philippine. Malaysia focuses on three competences of electrical engineering teacher; those are capability competence in enriching knowledge, skill competence and personality competence. Meanwhile, Singapore is known for its teacher's competence mapping. A headmaster has the data and proposes it to the department of education about trainings that should be conducted to elevate the competence of electrical engineering teachers. Generally, the trainings are carried out 100 hours per year with different topics. Besides, Philippine concerns more on language competency since good language proficiency will make the mastery of any knowledge around the world be easier.

After comparing the competence of electrical engineering teachers in Manado and around it, as well as the competence of electrical engineering teachers of AEA, it is revealed that electrical engineering teachers need to be well prepared so they will not be left behind. It is not too late to prepare AEC. Working units in any fields have already prepared all things needed to face AEC. It is congruent with the statement said by Rendra that "the related working unit has taken the necessary actions in a good coordination and integration, specifically to elevate the region competence as well as prepare to face AEC, oriented on the strategy arranged by the government through Presidential Instruction Number 6 of 2014 concerning on The Improvement of National Competitiveness in order to Face ASEAN Economic Community" (Rendra H Kresna, 2015:29). The existence of AEC will impact to the flourish of foreign countries coming in Indonesia with their competences they have. Thus, it is needed a great preparation, one of which is communication. As a matter of fact, communication is inseparable from language. Therefore, teachers needs to be equipped with language proficiency since the beginning so they can communicate well, otherwise it will lead to a problem. This idea actually has been argued by Bagus, that "The actual problem of AEC is language for the language difference around the world" (Bagus Prasetyo, 2015:5).

From the aforementioned explanation, it is clear that one of competences that should be prepared by electrical engineering teachers is language competence. Although they are expert in their field, without good language proficiency, it can lead to a problem that may affect the performance of electrical engineering teachers in doing their work. Philippine has already equipped their labors with international language, which is English and also their mother tongue. It can make their communication run well including in adapting. Therefore, one of competences needed to be developed by Indonesia is language competence.

In addition thereto, electrical engineering teachers are demanded to have strong preparation to catch up the AEC challenge. Foreign countries coming to Indonesia are usually completed with professional skill. They commonly come to Indonesia with their tough and high skill. If the electrical engineering teachers do not prepare it well, they will be eliminated. Thus, the initial preparation is the professionalism of electrical engineering teachers. It is align with the opinion of Setuju saying that "the graduates of university are demanded to give great hard skill and soft skill (character). Hard skill is an ability in master technical and knowledge aspects that must be mastered based on the specialization. Soft skill is mastery" (Setuju, 2015:3).

Hence, electrical engineering teachers in Manado and around it must prepare themselves pretty well since the labor force is categorized as poor so far. Otherwise, they will be left behind and become the guest in their own country. Local labor force seeking a job in their country must compete with labor force from ASEAN countries. To anticipate this, one of the ways need to be undertaken by the government is preparing working competence system, further it is said as Indonesian Labor force.

1. The competence of labor force is still low
2. The labor force productivity is still low (under the ASEAN average)

3. The level of unemployment is high (7.4 million people)
4. The distribution of labor force is not spread equally

(Eddy Kuntadi, 2015:12)

In order to face AEC challenge, labor force, including electrical engineering teachers should participate in trainings to develop their knowledge and keep update to the newest knowledge in real life, either the old knowledge or new knowledge. Otherwise, the electrical engineering teachers will find difficulties to compete with electrical engineering teachers from other countries in AEC. It is in line with Haryanto's idea that "to face AEC 2015, Indonesian government is supposed to improve the quality of Human Resources (HR) by conducting trainings and so on (Dwi Haryanto, 2015:9)

4. CONCLUSION

According to the results and discussion above, it is concluded that the education and training for electrical engineering vocational teacher is urgently needed. In addition, it shows that the teachers' competences are not sufficient to be survived in AEC challenge. The training which can be taken are In House Training (IHT), an internal training conducted by Teacher Working Group/ Teacher Education Consensus Point in school or other places determined to administer training, training conducted by school in cooperation by government, long-distance learning and training, short course in higher education. Besides, internal training by school is needed such as seminar or workshop.

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NORTH SULAWESI ELECTRICAL ENGINEERING TEACHERS COMPETENCE IN FACING ASEAN ECONOMIC COMMUNITY

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ABSTRACT

The purpose of this research is to discover the competence of electrical engineering teachers in facing ASEAN economic community. This research used qualitative method equipped with the real situation. The result of this study showed that education is inevitably needed to improve the quality of human resources. Education plays a big role in increasing human resources. Hence, this research showed that the electrical engineering competence in North Sulawesi needs to be improved to face ASEAN economic community through this following way: In House Training (IHT) is an internal training conducted by Teacher Working Group/ Teacher Education Consensus Point in school or other places determined to administer training. It is held in a relevant institution/industry in order to improve teacher's professional competence. Training held by a school should cooperate with the government or private institution in particular expertise. Training through long distance learning and training program are arranged sequentially. Short course in Institute of Teachers' Education or other educational institutions is aimed to elevate teacher's competence. Besides, there is also an internal guiding. It is a professional guiding for teacher through continued education. Discussion is held periodically with topics related to the problem. The encompassing of teachers in seminar, workshop, competence improvement, and action research of taught material written by teacher can be in a form of textbook, learning media design and technology/art product.

Keyword: Teacher's Competence, ASEAN Economic Community

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1. INTRODUCTION

In this era, Indonesia faces ASEAN Economic community (AEC) despite of its readiness. It will affect to the entrance of ASEAN country communities to Indonesia. It gives positive impact, yet, on the other hand it also gives negative impact. In his research, Bagus Prasetyo (2015:1) states that Indonesia readiness is strongly needed in facing AEC if we don't want to be ASEAN market. There are four fundamental things in the administration of AEC in 2015, they are: "First, ASEAN is as a market and single production, second, collective economy development, third, economy

distribution, and fourth, competitiveness strength, including the importance of competent worker” (Dewi Wuryandari, 2014:14).

The main factor in facing AEC is preparing skillful human resources, otherwise we will be left behind and Indonesia will only be a host in its own place. As it is emphasized by Bagus that the existence of service and goods market will result to the labor competence which becomes more tight in terms of employment (Bagus Prasetyo, 2015:2). Moreover, Dewi mentioned that one of the issues raising related to the AEC implementation is the readiness of human resources (Dewi Wuryandani, 2014:13). It is in line with the idea of Setuju saying that “what is needed in facing AEC is competent human resources that is capable in competing with the other human resources of other AEC members itself” (Setuju, 2015:3). Therefore, it is necessary to prepare the AEC competency from all aspects, including electrical engineering teacher. Otherwise, it will lead to various negative things such as the high level of unemployment and poverty for its inability to compete with other human resources from ASEAN countries whose human resources is indubitable. Dewi, furthermore added that “Indonesian unemployment is the highest among other 10 ASEAN countries, comprising the unpreparedness of labors in facing AEC 2015 (Dewi Wuryandani, 2014:15). In order to empower human resources, the most crucial aspect to be considered is education. Indeed, education plays a big role in improving human resources. Thus, education in Indonesia must be prepared pretty well including the workers of electrical engineering. If Indonesia is well prepared, then it can compete against other countries joined in ASEAN. It is congruent with the argument of Setuju saying that in order to anticipate MEA, education is a fundamental element that must be prioritized first. As it is stated by Ki Hadjar Dewantara, that “Education is an effort to promote the development of attitude (character), mind (intellect), and body of a child, whereas those parts are inseparable so that we can foster the child’s life perfection” (Setuju, 2015:2). Setuju, also said that researches conducted in England, America and Canada show soft skills attribute which are dominant in work field. Those attributes are arranged based on the urgency priority in a work field, as it follows: 1) initiative, 2) ethics/integrity, 3)critical thinking, 4) will of learn, 5) commitment, 6) motivation, 7) passion, 8) reliability, 9) oral communication, 10) creativity, 11) analytical ability, 12) stress management, 13) self management, 14) problems solving, 15) summarizing ability, 16) cooperation, 16) flexibility, 18) team work, 19) self reliance, 20) listening, 21) toughness, 22) logical argumentation, 23) time management.

Furthermore, it is stated that ASEAN Economic Community focuses on 12 priorities covering these two major parts (Setuju,2015:8), those are: first is the 7(seven) goods sector: (1) Agriculture industry, (2) electronic devices, (3) automotive, (4) fishery, (5) rubber based industry, (6) wood based industry, (7) textile industry. The second major part is 5 (five) service sectors: (1) air transportation, (2) health service, (3) hospitality, (4) logistic, and (5) informatics and technology industry or e-ASEA” (Rendra Kresna, 2015:18).

As a matter of fact, those twelve sectors require electricity, or commonly is generated by electricity, thus, a preparation to settle human resources in electricity field is really needed. Otherwise, electricity experts from other countries are the one who will dominate it. Electricity worker, in general is prepared by an institution which produces labor in electricity field.

Electricity engineering program of Vocational School should be prepared well so the graduates of electricity program can be compete with electricity experts from other countries joined in AEC. In fact, up to this day, Indonesian electrician is really left behind compared to the electrician of other countries joined in AEC. It is congruent with the opinion of Eddy, that electrification ration of Power Plant in Indonesia in 2011 was only 72.95%, much left behind compared to electrification ration of Singapore which reaches up to 100%, Malaysia and Brunery with 80%. The high price of State Electricity Company bill is due to the use of fuel and coal whose price is always increasing (Eddy Kuntadi, 2015:11). In order to deal with the competition

of labors of AEC, a good strategy is needed to administer systematic and reliable competition. Furthermore, Rendra points out the strategy in administration of national competitiveness improvement and preparation of AEC 2015 administration, especially the improvement of labor through “The Improvement of Labor’s Competitiveness, Competence, and Productivity” (Rendra H. Kresna, 2015:24).

To accomplish that goal, vocational school teachers, particularly electrical engineering should master skill and competence that can produce qualified graduates. If the electrical engineering teachers are not qualified enough, it is nearly improbable to produce qualified graduates. In contrast, if a teacher has qualified skill, it is possible to have competent graduations of electrical engineering who are later can be able to compete with labor from other countries joined in ASEAN. If it happens, then there will be many positive effect of AEC, even it is possible that we can absorb numerous labors as it is said by Dewi, that “According to Asian Development Bank (ADB), AEC can create 14 million of extra job vacancies, or on the other words, it raises for 41% in 2015 as the mobile of qualified labor is free” (Dewi Wuryandani, 2014:14).

From the aforementioned explanation, a question appears is what kind of electrical engineering teacher’s competencies that are needed in North Sulawesi? Responding to this question, Constitution No. 14 of 2005 of chapter 1 article 1 regarding on teachers and lecturers, explained that teacher’s competence is a set of knowledge, skill and behavior that must be internalized and mastered by teachers in practicing their professional duties. Next, chapter IV article 10 highlights the four basic competences that must be mastered by a qualified teacher, namely pedagogical competence, personality competence, social competence and professional competence. In addition, Article 28 verse 3 of Government regulation No. 19 of 2005 concerning on education national standard said that there are four competences that should be possessed by a teacher as the learning agent. The four competences are pedagogical competence, personality competence, professional competence and social competence.

Furthermore Saud emphasized that these four competences do not stand alone yet connect and affect each other and they have hierarchy connection, which means it founds on each other-one competence founds on another competence” (Saud, 2009:49).

From that explanation, we can sum up that electrical engineering teachers definitely need and must have those four competences which are connected each other.

2. RESEARCH METHOD

This study employed a qualitative approach because this study aims to reveal an existing problem. This research begins with an orientation to get an overview of the research objectives. Next, interviews and in-depth observations to obtain data were conducted. This study employed four instruments, namely instruments of pedagogic competence, professional competence, teacher's personal competence, and teacher's social competence. The source of this research data was an electrical engineering vocational teacher in Manado. The data found were analyzed qualitatively and concluded descriptively.

3. RESULT AND DISCUSSION

This result of this research shows that the competence of electrical engineering teachers in Manado and around it, covers of four competences, namely personality, professional, pedagogical, and social competence. These four competences are related each other. The result of this research is presented in this following table

Table 7 The Calculation Result of Basic Statistics of Pedagogical Competence (X1), Professional Competence (X2), Personality Competence (X3), and Social Competence (X3). Electrical Engineering Teachers in Manado and Around It

| No. | Statistical Test | X1 | X2 | X3 | X4 |
|-----|--------------------|-------|-------|------|-------|
| 1 | Highest Score | 796 | 632 | 347 | 372 |
| 2 | Lowest Score | 294 | 215 | 156 | 148 |
| 3 | Average | 520,5 | 420 | 251 | 256,8 |
| 4 | Standard Deviation | 160 | 119 | 58 | 63 |
| 5 | Variance | 25600 | 14161 | 3364 | 3969 |
| 6 | Modus | 626,7 | 490 | 170 | 320 |
| 7 | Median | 529 | 519 | 255 | 320 |

This table provides the research result of pedagogical, professional, personality and social competence of electrical engineering teachers in dealing with AEC. There were 46 electrical engineering teachers in Manado and around it as the research subject. Nevertheless, the competence of electrical engineering teachers in facing AEC is shown in this following table.

Table 8 The Data of Research Result on Electrical Engineering Teacher's Pedagogical Competence in Facing AEC (X1)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 280 | 0 | |
| 2 | 289 - 400 | 16 | 34,78 |
| 3 | 401 - 520 | 6 | 13,05 |
| 4 | 521 - 680 | 18 | 39,13 |
| 5 | 681 - 800 | 6 | 13,04 |
| 6 | 799 - | 0 | |
| Total | | 46 | 100 |

The criteria used in deciding whether the electrical engineering teacher's competence is bad or not in facing AEC is by looking at the pedagogy competence. If the pedagogy competence is higher than 681, it is categorized as good. If the pedagogy competence is 401-680, it belongs to fair. Whereas, the pedagogy competence is regarded as poor if the score gained is lower than 400. The data above shows that the competence of electrical engineering teachers in facing MEA is generally fair. In fact, there were 24 or 52.18% categorized as having fair competence. Meanwhile, the professional competence of electrical engineering teachers in dealing with AEC is presented in this table below.

Table 9 the Result of Professional Competence of Electrical Engineering Teachers in Facing MEA (X2)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 182 | 0 | 0,00 |
| 2 | 183 - 301 | 8 | 17,39 |
| 3 | 302 - 420 | 18 | 39,14 |
| 4 | 421 - 539 | 11 | 23,91 |
| 5 | 540 - 658 | 9 | 19,56 |
| 6 | 659 - | 0 | 0,00 |
| Total | | 46 | 100, |

In order to identify the quality of electrical engineering teachers in dealing with AEC, the researcher used these following criteria. Professional competence is said as good if the score is 540 above. Meanwhile if the score gained is 302-539, it is categorized as fair. Lastly, if the score gained is lower than 310, it is considered as poor professional competence. Nonetheless, that data identify that the professional competence of electrical engineering teacher in encountering AEC is generally fair. There were 29 or 63.06% subject categorized as having fair competence. Whereas, the personality competence of electrical engineering teachers in facing AEC is shown in this table as follows.

Table 10 the Result of Personality Competence of Electrical Engineering Teachers in Facing AEC (X3)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 135 | 0 | 0,00 |
| 2 | 136 - 193 | 10 | 21,74 |
| 3 | 194 - 251 | 12 | 26,09 |
| 4 | 152 - 309 | 15 | 32,61 |
| 5 | 310 - 367 | 9 | 19,56 |
| 6 | 368 - | 0 | 0 |
| Total | | 46 | 100 |

In deciding whether the electrical engineering teachers have qualified competence in facing AEC, the researcher used these criteria, namely: Personality competence is considered good if the score obtained is 310. Yet, if the score gained is between 194-309, it means that the competence is fair. On the other hand, the personality competence is said as poor if the score is lower than 193. The table above points out that the personality competence of electrical engineering teachers in facing AEA is actually fair. Furthermore, there were 27 people or 58.70% belonged to fair competence. In addition, the social competence of electrical engineering teachers in dealing with AEC is shown in the table below.

Table 11 the Result of Social Competence of Electrical Engineering Teachers in Facing AEC (X4)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 131 | 0 | 0,00 |
| 2 | 132 - 194 | 9 | 19,56 |
| 3 | 195 - 257 | 14 | 30,44 |
| 4 | 258 - 320 | 14 | 30,44 |
| 5 | 321 - 383 | 9 | 19,56 |
| 6 | 384 - | 0 | 0 |
| Total | | 46 | 100 |

The criteria used in determining the quality of electrical engineering teachers in facing AEA is by looking at the score gained. Social competence is regarded as good if the score obtained is 321 above. Meanwhile, the fair social competence is shown by the score of 195-320. On the other hand, score under 195 is regarded as poor social competence.

The table above shows that the social competence of electrical engineering teachers in facing AEC is basically fair. From that table, we can see that there were 28 people of 60.88% categorized as fair competence.

Next, discussing about the competence of electrical engineering teacher of AEC countries, the researcher took three top countries which are known for its electrical engineering ability, namely: Malaysia, Singapore and Philippine. Malaysia focuses on three competences of electrical engineering teacher; those are capability competence in enriching knowledge, skill competence and personality competence. Meanwhile, Singapore is known for its teacher's competence mapping. A headmaster has the data and proposes it to the department of education about trainings that should be conducted to elevate the competence of electrical engineering teachers. Generally, the trainings are carried out 100 hours per year with different topics. Besides, Philippine concerns more on language competency since good language proficiency will make the mastery of any knowledge around the world be easier.

After comparing the competence of electrical engineering teachers in Manado and around it, as well as the competence of electrical engineering teachers of AEA, it is revealed that electrical engineering teachers need to be well prepared so they will not be left behind. It is not too late to prepare AEC. Working units in any fields have already prepared all things needed to face AEC. It is congruent with the statement said by Rendra that "the related working unit has taken the necessary actions in a good coordination and integration, specifically to elevate the region competence as well as prepare to face AEC, oriented on the strategy arranged by the government through Presidential Instruction Number 6 of 2014 concerning on The Improvement of National Competitiveness in order to Face ASEAN Economic Community" (Rendra H Kresna, 2015:29). The existence of AEC will impact to the flourish of foreign countries coming in Indonesia with their competences they have. Thus, it is needed a great preparation, one of which is communication. As a matter of fact, communication is inseparable from language. Therefore, teachers needs to be equipped with language proficiency since the beginning so they can communicate well, otherwise it will lead to a problem. This idea actually has been argued by Bagus, that "The actual problem of AEC is language for the language difference around the world" (Bagus Prasetyo, 2015:5).

From the aforementioned explanation, it is clear that one of competences that should be prepared by electrical engineering teachers is language competence. Although they are expert in their field, without good language proficiency, it can lead to a problem that may affect the performance of electrical engineering teachers in doing their work. Philippine has already equipped their labors with international language, which is English and also their mother tongue. It can make their communication run well including in adapting. Therefore, one of competences needed to be developed by Indonesia is language competence.

In addition thereto, electrical engineering teachers are demanded to have strong preparation to catch up the AEC challenge. Foreign countries coming to Indonesia are usually completed with professional skill. They commonly come to Indonesia with their tough and high skill. If the electrical engineering teachers do not prepare it well, they will be eliminated. Thus, the initial preparation is the professionalism of electrical engineering teachers. It is align with the opinion of Setuju saying that "the graduates of university are demanded to give great hard skill and soft skill (character). Hard skill is an ability in master technical and knowledge aspects that must be mastered based on the specialization. Soft skill is mastery" (Setuju, 2015:3).

Hence, electrical engineering teachers in Manado and around it must prepare themselves pretty well since the labor force is categorized as poor so far. Otherwise, they will be left behind and become the guest in their own country. Local labor force seeking a job in their country must compete with labor force from ASEAN countries. To anticipate this, one of the ways need to be undertaken by the government is preparing working competence system, further it is said as Indonesian Labor force.

1. The competence of labor force is still low
2. The labor force productivity is still low (under the ASEAN average)

3. The level of unemployment is high (7.4 million people)
4. The distribution of labor force is not spread equally

(Eddy Kuntadi, 2015:12)

In order to face AEC challenge, labor force, including electrical engineering teachers should participate in trainings to develop their knowledge and keep update to the newest knowledge in real life, either the old knowledge or new knowledge. Otherwise, the electrical engineering teachers will find difficulties to compete with electrical engineering teachers from other countries in AEC. It is in line with Haryanto's idea that "to face AEC 2015, Indonesian government is supposed to improve the quality of Human Resources (HR) by conducting trainings and so on (Dwi Haryanto, 2015:9)

4. CONCLUSION

According to the results and discussion above, it is concluded that the education and training for electrical engineering vocational teacher is urgently needed. In addition, it shows that the teachers' competences are not sufficient to be survived in AEC challenge. The training which can be taken are In House Training (IHT), an internal training conducted by Teacher Working Group/ Teacher Education Consensus Point in school or other places determined to administer training, training conducted by school in cooperation by government, long-distance learning and training, short course in higher education. Besides, internal training by school is needed such as seminar or workshop.

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ABSTRACT

The purpose of this research is to discover the competence of electrical engineering teachers in facing ASEAN economic community. This research used qualitative method equipped with the real situation. The result of this study showed that education is inevitably needed to improve the quality of human resources. Education plays a big role in increasing human resources. Hence, this research showed that the electrical engineering competence in North Sulawesi needs to be improved to face ASEAN economic community through this following way: In House Training (IHT) is an internal training conducted by Teacher Working Group/ Teacher Education Consensus Point in school or other places determined to administer training. It is held in a relevant institution/industry in order to improve teacher's professional competence. Training held by a school should cooperate with the government or private institution in particular expertise. Training through long distance learning and training program are arranged sequentially. Short course in Institute of Teachers' Education or other educational institutions is aimed to elevate teacher's competence. Besides, there is also an internal guiding. It is a professional guiding for teacher through continued education. Discussion is held periodically with topics related to the problem. The encompassing of teachers in seminar, workshop, competence improvement, and action research of taught material written by teacher can be in a form of textbook, learning media design and technology/art product.

Keyword: Teacher's Competence, ASEAN Economic Community

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1. INTRODUCTION

In this era, Indonesia faces ASEAN Economic community (AEC) despite of its readiness. It will affect to the entrance of ASEAN country communities to Indonesia. It gives positive impact, yet, on the other hand it also gives negative impact. In his research, Bagus Prasetyo (2015:1) states that Indonesia readiness is strongly needed in facing AEC if we don't want to be ASEAN market. There are four fundamental things in the administration of AEC in 2015, they are: "First, ASEAN is as a market and single production, second, collective economy development, third, economy

distribution, and fourth, competitiveness strength, including the importance of competent worker” (Dewi Wuryandari, 2014:14).

The main factor in facing AEC is preparing skillful human resources, otherwise we will be left behind and Indonesia will only be a host in its own place. As it is emphasized by Bagus that the existence of service and goods market will result to the labor competence which becomes more tight in terms of employment (Bagus Prasetyo, 2015:2). Moreover, Dewi mentioned that one of the issues raising related to the AEC implementation is the readiness of human resources (Dewi Wuryandani, 2014:13). It is in line with the idea of Setuju saying that “what is needed in facing AEC is competent human resources that is capable in competing with the other human resources of other AEC members itself” (Setuju, 2015:3). Therefore, it is necessary to prepare the AEC competency from all aspects, including electrical engineering teacher. Otherwise, it will lead to various negative things such as the high level of unemployment and poverty for its inability to compete with other human resources from ASEAN countries whose human resources is indubitable. Dewi, furthermore added that “Indonesian unemployment is the highest among other 10 ASEAN countries, comprising the unpreparedness of labors in facing AEC 2015 (Dewi Wuryandani, 2014:15). In order to empower human resources, the most crucial aspect to be considered is education. Indeed, education plays a big role in improving human resources. Thus, education in Indonesia must be prepared pretty well including the workers of electrical engineering. If Indonesia is well prepared, then it can compete against other countries joined in ASEAN. It is congruent with the argument of Setuju saying that in order to anticipate MEA, education is a fundamental element that must be prioritized first. As it is stated by Ki Hadjar Dewantara, that “Education is an effort to promote the development of attitude (character), mind (intellect), and body of a child, whereas those parts are inseparable so that we can foster the child’s life perfection” (Setuju, 2015:2). Setuju, also said that researches conducted in England, America and Canada show soft skills attribute which are dominant in work field. Those attributes are arranged based on the urgency priority in a work field, as it follows: 1) initiative, 2) ethics/integrity, 3)critical thinking, 4) will of learn, 5) commitment, 6) motivation, 7) passion, 8) reliability, 9) oral communication, 10) creativity, 11) analytical ability, 12) stress management, 13) self management, 14) problems solving, 15) summarizing ability, 16) cooperation, 16) flexibility, 18) team work, 19) self reliance, 20) listening, 21) toughness, 22) logical argumentation, 23) time management.

Furthermore, it is stated that ASEAN Economic Community focuses on 12 priorities covering these two major parts (Setuju,2015:8), those are: first is the 7(seven) goods sector: (1) Agriculture industry, (2) electronic devices, (3) automotive, (4) fishery, (5) rubber based industry, (6) wood based industry, (7) textile industry. The second major part is 5 (five) service sectors: (1) air transportation, (2) health service, (3) hospitality, (4) logistic, and (5) informatics and technology industry or e-ASEA” (Rendra Kresna, 2015:18).

As a matter of fact, those twelve sectors require electricity, or commonly is generated by electricity, thus, a preparation to settle human resources in electricity field is really needed. Otherwise, electricity experts from other countries are the one who will dominate it. Electricity worker, in general is prepared by an institution which produces labor in electricity field.

Electricity engineering program of Vocational School should be prepared well so the graduates of electricity program can be compete with electricity experts from other countries joined in AEC. In fact, up to this day, Indonesian electrician is really left behind compared to the electrician of other countries joined in AEC. It is congruent with the opinion of Eddy, that electrification ration of Power Plant in Indonesia in 2011 was only 72.95%, much left behind compared to electrification ration of Singapore which reaches up to 100%, Malaysia and Brunery with 80%. The high price of State Electricity Company bill is due to the use of fuel and coal whose price is always increasing (Eddy Kuntadi, 2015:11). In order to deal with the competition

of labors of AEC, a good strategy is needed to administer systematic and reliable competition. Furthermore, Rendra points out the strategy in administration of national competitiveness improvement and preparation of AEC 2015 administration, especially the improvement of labor through “The Improvement of Labor’s Competitiveness, Competence, and Productivity” (Rendra H. Kresna, 2015:24).

To accomplish that goal, vocational school teachers, particularly electrical engineering should master skill and competence that can produce qualified graduates. If the electrical engineering teachers are not qualified enough, it is nearly improbable to produce qualified graduates. In contrast, if a teacher has qualified skill, it is possible to have competent graduations of electrical engineering who are later can be able to compete with labor from other countries joined in ASEAN. If it happens, then there will be many positive effect of AEC, even it is possible that we can absorb numerous labors as it is said by Dewi, that “According to Asian Development Bank (ADB), AEC can create 14 million of extra job vacancies, or on the other words, it raises for 41% in 2015 as the mobile of qualified labor is free” (Dewi Wuryandani, 2014:14).

From the aforementioned explanation, a question appears is what kind of electrical engineering teacher’s competencies that are needed in North Sulawesi? Responding to this question, Constitution No. 14 of 2005 of chapter 1 article 1 regarding on teachers and lecturers, explained that teacher’s competence is a set of knowledge, skill and behavior that must be internalized and mastered by teachers in practicing their professional duties. Next, chapter IV article 10 highlights the four basic competences that must be mastered by a qualified teacher, namely pedagogical competence, personality competence, social competence and professional competence. In addition, Article 28 verse 3 of Government regulation No. 19 of 2005 concerning on education national standard said that there are four competences that should be possessed by a teacher as the learning agent. The four competences are pedagogical competence, personality competence, professional competence and social competence.

Furthermore Saud emphasized that these four competences do not stand alone yet connect and affect each other and they have hierarchy connection, which means it founds on each other-one competence founds on another competence” (Saud, 2009:49).

From that explanation, we can sum up that electrical engineering teachers definitely need and must have those four competences which are connected each other.

2. RESEARCH METHOD

This study employed a qualitative approach because this study aims to reveal an existing problem. This research begins with an orientation to get an overview of the research objectives. Next, interviews and in-depth observations to obtain data were conducted. This study employed four instruments, namely instruments of pedagogic competence, professional competence, teacher's personal competence, and teacher's social competence. The source of this research data was an electrical engineering vocational teacher in Manado. The data found were analyzed qualitatively and concluded descriptively.

3. RESULT AND DISCUSSION

This result of this research shows that the competence of electrical engineering teachers in Manado and around it, covers of four competences, namely personality, professional, pedagogical, and social competence. These four competences are related each other. The result of this research is presented in this following table

Table 7 The Calculation Result of Basic Statistics of Pedagogical Competence (X1), Professional Competence (X2), Personality Competence (X3), and Social Competence (X3). Electrical Engineering Teachers in Manado and Around It

| No. | Statistical Test | X1 | X2 | X3 | X4 |
|-----|--------------------|-------|-------|------|-------|
| 1 | Highest Score | 796 | 632 | 347 | 372 |
| 2 | Lowest Score | 294 | 215 | 156 | 148 |
| 3 | Average | 520,5 | 420 | 251 | 256,8 |
| 4 | Standard Deviation | 160 | 119 | 58 | 63 |
| 5 | Variance | 25600 | 14161 | 3364 | 3969 |
| 6 | Modus | 626,7 | 490 | 170 | 320 |
| 7 | Median | 529 | 519 | 255 | 320 |

This table provides the research result of pedagogical, professional, personality and social competence of electrical engineering teachers in dealing with AEC. There were 46 electrical engineering teachers in Manado and around it as the research subject. Nevertheless, the competence of electrical engineering teachers in facing AEC is shown in this following table.

Table 8 The Data of Research Result on Electrical Engineering Teacher's Pedagogical Competence in Facing AEC (X1)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 280 | 0 | |
| 2 | 289 - 400 | 16 | 34,78 |
| 3 | 401 - 520 | 6 | 13,05 |
| 4 | 521 - 680 | 18 | 39,13 |
| 5 | 681 - 800 | 6 | 13,04 |
| 6 | 799 - | 0 | |
| Total | | 46 | 100 |

The criteria used in deciding whether the electrical engineering teacher's competence is bad or not in facing AEC is by looking at the pedagogy competence. If the pedagogy competence is higher than 681, it is categorized as good. If the pedagogy competence is 401-680, it belongs to fair. Whereas, the pedagogy competence is regarded as poor if the score gained is lower than 400. The data above shows that the competence of electrical engineering teachers in facing MEA is generally fair. In fact, there were 24 or 52.18% categorized as having fair competence. Meanwhile, the professional competence of electrical engineering teachers in dealing with AEC is presented in this table below.

Table 9 the Result of Professional Competence of Electrical Engineering Teachers in Facing MEA (X2)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 182 | 0 | 0,00 |
| 2 | 183 - 301 | 8 | 17,39 |
| 3 | 302 - 420 | 18 | 39,14 |
| 4 | 421 - 539 | 11 | 23,91 |
| 5 | 540 - 658 | 9 | 19,56 |
| 6 | 659 - | 0 | 0,00 |
| Total | | 46 | 100, |

In order to identify the quality of electrical engineering teachers in dealing with AEC, the researcher used these following criteria. Professional competence is said as good if the score is 540 above. Meanwhile if the score gained is 302-539, it is categorized as fair. Lastly, if the score gained is lower than 310, it is considered as poor professional competence. Nonetheless, that data identify that the professional competence of electrical engineering teacher in encountering AEC is generally fair. There were 29 or 63.06% subject categorized as having fair competence. Whereas, the personality competence of electrical engineering teachers in facing AEC is shown in this table as follows.

Table 10 the Result of Personality Competence of Electrical Engineering Teachers in Facing AEC (X3)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 135 | 0 | 0,00 |
| 2 | 136 - 193 | 10 | 21,74 |
| 3 | 194 - 251 | 12 | 26,09 |
| 4 | 152 - 309 | 15 | 32,61 |
| 5 | 310 - 367 | 9 | 19,56 |
| 6 | 368 - | 0 | 0 |
| Total | | 46 | 100 |

In deciding whether the electrical engineering teachers have qualified competence in facing AEC, the researcher used these criteria, namely: Personality competence is considered good if the score obtained is 310. Yet, if the score gained is between 194-309, it means that the competence is fair. On the other hand, the personality competence is said as poor if the score is lower than 193. The table above points out that the personality competence of electrical engineering teachers in facing AEA is actually fair. Furthermore, there were 27 people or 58.70% belonged to fair competence. In addition, the social competence of electrical engineering teachers in dealing with AEC is shown in the table below.

Table 11 the Result of Social Competence of Electrical Engineering Teachers in Facing AEC (X4)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 131 | 0 | 0,00 |
| 2 | 132 - 194 | 9 | 19,56 |
| 3 | 195 - 257 | 14 | 30,44 |
| 4 | 258 - 320 | 14 | 30,44 |
| 5 | 321 - 383 | 9 | 19,56 |
| 6 | 384 - | 0 | 0 |
| Total | | 46 | 100 |

The criteria used in determining the quality of electrical engineering teachers in facing AEA is by looking at the score gained. Social competence is regarded as good if the score obtained is 321 above. Meanwhile, the fair social competence is shown by the score of 195-320. On the other hand, score under 195 is regarded as poor social competence.

The table above shows that the social competence of electrical engineering teachers in facing AEC is basically fair. From that table, we can see that there were 28 people of 60.88% categorized as fair competence.

Next, discussing about the competence of electrical engineering teacher of AEC countries, the researcher took three top countries which are known for its electrical engineering ability, namely: Malaysia, Singapore and Philippine. Malaysia focuses on three competences of electrical engineering teacher; those are capability competence in enriching knowledge, skill competence and personality competence. Meanwhile, Singapore is known for its teacher's competence mapping. A headmaster has the data and proposes it to the department of education about trainings that should be conducted to elevate the competence of electrical engineering teachers. Generally, the trainings are carried out 100 hours per year with different topics. Besides, Philippine concerns more on language competency since good language proficiency will make the mastery of any knowledge around the world be easier.

After comparing the competence of electrical engineering teachers in Manado and around it, as well as the competence of electrical engineering teachers of AEA, it is revealed that electrical engineering teachers need to be well prepared so they will not be left behind. It is not too late to prepare AEC. Working units in any fields have already prepared all things needed to face AEC. It is congruent with the statement said by Rendra that "the related working unit has taken the necessary actions in a good coordination and integration, specifically to elevate the region competence as well as prepare to face AEC, oriented on the strategy arranged by the government through Presidential Instruction Number 6 of 2014 concerning on The Improvement of National Competitiveness in order to Face ASEAN Economic Community" (Rendra H Kresna, 2015:29). The existence of AEC will impact to the flourish of foreign countries coming in Indonesia with their competences they have. Thus, it is needed a great preparation, one of which is communication. As a matter of fact, communication is inseparable from language. Therefore, teachers needs to be equipped with language proficiency since the beginning so they can communicate well, otherwise it will lead to a problem. This idea actually has been argued by Bagus, that "The actual problem of AEC is language for the language difference around the world" (Bagus Prasetyo, 2015:5).

From the aforementioned explanation, it is clear that one of competences that should be prepared by electrical engineering teachers is language competence. Although they are expert in their field, without good language proficiency, it can lead to a problem that may affect the performance of electrical engineering teachers in doing their work. Philippine has already equipped their labors with international language, which is English and also their mother tongue. It can make their communication run well including in adapting. Therefore, one of competences needed to be developed by Indonesia is language competence.

In addition thereto, electrical engineering teachers are demanded to have strong preparation to catch up the AEC challenge. Foreign countries coming to Indonesia are usually completed with professional skill. They commonly come to Indonesia with their tough and high skill. If the electrical engineering teachers do not prepare it well, they will be eliminated. Thus, the initial preparation is the professionalism of electrical engineering teachers. It is align with the opinion of Setuju saying that "the graduates of university are demanded to give great hard skill and soft skill (character). Hard skill is an ability in master technical and knowledge aspects that must be mastered based on the specialization. Soft skill is mastery" (Setuju, 2015:3).

Hence, electrical engineering teachers in Manado and around it must prepare themselves pretty well since the labor force is categorized as poor so far. Otherwise, they will be left behind and become the guest in their own country. Local labor force seeking a job in their country must compete with labor force from ASEAN countries. To anticipate this, one of the ways need to be undertaken by the government is preparing working competence system, further it is said as Indonesian Labor force.

1. The competence of labor force is still low
2. The labor force productivity is still low (under the ASEAN average)

3. The level of unemployment is high (7.4 million people)
4. The distribution of labor force is not spread equally

(Eddy Kuntadi, 2015:12)

In order to face AEC challenge, labor force, including electrical engineering teachers should participate in trainings to develop their knowledge and keep update to the newest knowledge in real life, either the old knowledge or new knowledge. Otherwise, the electrical engineering teachers will find difficulties to compete with electrical engineering teachers from other countries in AEC. It is in line with Haryanto's idea that "to face AEC 2015, Indonesian government is supposed to improve the quality of Human Resources (HR) by conducting trainings and so on (Dwi Haryanto, 2015:9)

4. CONCLUSION

According to the results and discussion above, it is concluded that the education and training for electrical engineering vocational teacher is urgently needed. In addition, it shows that the teachers' competences are not sufficient to be survived in AEC challenge. The training which can be taken are In House Training (IHT), an internal training conducted by Teacher Working Group/ Teacher Education Consensus Point in school or other places determined to administer training, training conducted by school in cooperation by government, long-distance learning and training, short course in higher education. Besides, internal training by school is needed such as seminar or workshop.

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Review Report

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Title: NORTH SULAWESI ELECTRICAL ENGINEERING TEACHERS
COMPETENCE IN FACING ASEAN ECONOMIC COMMUNITY

Authors: F. J. Tasim

| Evaluation | Poor | Fair | Good | Very Good | Outstanding |
|--|-----------------|--------|-------------------|-----------|-----------------|
| Originality | | | | | √ |
| Innovation | | | | | √ |
| Technical merit | | | | | √ |
| Applicability | | | | | √ |
| Presentation and English | | | | √ | |
| Match to Journal Topic | | | | √ | |
| Recommendation to Chief Editors | | | | | |
| | Strongly Reject | Reject | Marginally Accept | Accept | Strongly Accept |
| Recommendation | | | | | √ |
| Review Comments The purpose of this research is to discover the competence of electrical engineering teachers in facing ASEAN economic community. According to the results and discussion, it is concluded that the education and training for electrical engineering vocational teacher is urgently needed. In addition, it shows that the teachers' competences are not sufficient to be survived in AEC challenge. Excellent analysis paper. Paper Accepted for publication in IJMET. | | | | | |



NORTH SULAWESI ELECTRICAL ENGINEERING TEACHERS COMPETENCE IN FACING ASEAN ECONOMIC COMMUNITY

Fid J. Tasiam

State University of Manado

ABSTRACT

The purpose of this research is to discover the competence of electrical engineering teachers in facing ASEAN economic community. This research used qualitative method equipped with the real situation. The result of this study showed that education is inevitably needed to improve the quality of human resources. Education plays a big role in increasing human resources. Hence, this research showed that the electrical engineering competence in North Sulawesi needs to be improved to face ASEAN economic community through this following way: In House Training (IHT) is an internal training conducted by Teacher Working Group/ Teacher Education Consensus Point in school or other places determined to administer training. It is held in a relevant institution/industry in order to improve teacher's professional competence. Training held by a school should cooperate with the government or private institution in particular expertise. Training through long distance learning and training program are arranged sequentially. Short course in Institute of Teachers' Education or other educational institutions is aimed to elevate teacher's competence. Besides, there is also an internal guiding. It is a professional guiding for teacher through continued education. Discussion is held periodically with topics related to the problem. The encompassing of teachers in seminar, workshop, competence improvement, and action research of taught material written by teacher can be in a form of textbook, learning media design and technology/art product.

Keyword: Teacher's Competence, ASEAN Economic Community

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1. INTRODUCTION

In this era, Indonesia faces ASEAN Economic community (AEC) despite of its readiness. It will affect to the entrance of ASEAN country communities to Indonesia. It gives positive impact, yet, on the other hand it also gives negative impact. In his research, Bagus Prasetyo (2015:1) states that Indonesia readiness is strongly needed in facing AEC if we don't want to be ASEAN market. There are four fundamental things in the administration of AEC in 2015, they are: "First, ASEAN is as a market and single production, second, collective economy development, third, economy

distribution, and fourth, competitiveness strength, including the importance of competent worker” (Dewi Wuryandari, 2014:14).

The main factor in facing AEC is preparing skillful human resources, otherwise we will be left behind and Indonesia will only be a host in its own place. As it is emphasized by Bagus that the existence of service and goods market will result to the labor competence which becomes more tight in terms of employment (Bagus Prasetyo, 2015:2). Moreover, Dewi mentioned that one of the issues raising related to the AEC implementation is the readiness of human resources (Dewi Wuryandani, 2014:13). It is in line with the idea of Setuju saying that “what is needed in facing AEC is competent human resources that is capable in competing with the other human resources of other AEC members itself” (Setuju, 2015:3). Therefore, it is necessary to prepare the AEC competency from all aspects, including electrical engineering teacher. Otherwise, it will lead to various negative things such as the high level of unemployment and poverty for its inability to compete with other human resources from ASEAN countries whose human resources is indubitable. Dewi, furthermore added that “Indonesian unemployment is the highest among other 10 ASEAN countries, comprising the unpreparedness of labors in facing AEC 2015 (Dewi Wuryandani, 2014:15). In order to empower human resources, the most crucial aspect to be considered is education. Indeed, education plays a big role in improving human resources. Thus, education in Indonesia must be prepared pretty well including the workers of electrical engineering. If Indonesia is well prepared, then it can compete against other countries joined in ASEAN. It is congruent with the argument of Setuju saying that in order to anticipate MEA, education is a fundamental element that must be prioritized first. As it is stated by Ki Hadjar Dewantara, that “Education is an effort to promote the development of attitude (character), mind (intellect), and body of a child, whereas those parts are inseparable so that we can foster the child’s life perfection” (Setuju, 2015:2). Setuju, also said that researches conducted in England, America and Canada show soft skills attribute which are dominant in work field. Those attributes are arranged based on the urgency priority in a work field, as it follows: 1) initiative, 2) ethics/integrity, 3)critical thinking, 4) will of learn, 5) commitment, 6) motivation, 7) passion, 8) reliability, 9) oral communication, 10) creativity, 11) analytical ability, 12) stress management, 13) self management, 14) problems solving, 15) summarizing ability, 16) cooperation, 16) flexibility, 18) team work, 19) self reliance, 20) listening, 21) toughness, 22) logical argumentation, 23) time management.

Furthermore, it is stated that ASEAN Economic Community focuses on 12 priorities covering these two major parts (Setuju,2015:8), those are: first is the 7(seven) goods sector: (1) Agriculture industry, (2) electronic devices, (3) automotive, (4) fishery, (5) rubber based industry, (6) wood based industry, (7) textile industry. The second major part is 5 (five) service sectors: (1) air transportation, (2) health service, (3) hospitality, (4) logistic, and (5) informatics and technology industry or e-ASEA” (Rendra Kresna, 2015:18).

As a matter of fact, those twelve sectors require electricity, or commonly is generated by electricity, thus, a preparation to settle human resources in electricity field is really needed. Otherwise, electricity experts from other countries are the one who will dominate it. Electricity worker, in general is prepared by an institution which produces labor in electricity field.

Electricity engineering program of Vocational School should be prepared well so the graduates of electricity program can be compete with electricity experts from other countries joined in AEC. In fact, up to this day, Indonesian electrician is really left behind compared to the electrician of other countries joined in AEC. It is congruent with the opinion of Eddy, that electrification ration of Power Plant in Indonesia in 2011 was only 72.95%, much left behind compared to electrification ration of Singapore which reaches up to 100%, Malaysia and Brunery with 80%. The high price of State Electricity Company bill is due to the use of fuel and coal whose price is always increasing (Eddy Kuntadi, 2015:11). In order to deal with the competition

of labors of AEC, a good strategy is needed to administer systematic and reliable competition. Furthermore, Rendra points out the strategy in administration of national competitiveness improvement and preparation of AEC 2015 administration, especially the improvement of labor through “The Improvement of Labor’s Competitiveness, Competence, and Productivity” (Rendra H. Kresna, 2015:24).

To accomplish that goal, vocational school teachers, particularly electrical engineering should master skill and competence that can produce qualified graduates. If the electrical engineering teachers are not qualified enough, it is nearly improbable to produce qualified graduates. In contrast, if a teacher has qualified skill, it is possible to have competent graduations of electrical engineering who are later can be able to compete with labor from other countries joined in ASEAN. If it happens, then there will be many positive effect of AEC, even it is possible that we can absorb numerous labors as it is said by Dewi, that “According to Asian Development Bank (ADB), AEC can create 14 million of extra job vacancies, or on the other words, it raises for 41% in 2015 as the mobile of qualified labor is free” (Dewi Wuryandani, 2014:14).

From the aforementioned explanation, a question appears is what kind of electrical engineering teacher’s competencies that are needed in North Sulawesi? Responding to this question, Constitution No. 14 of 2005 of chapter 1 article 1 regarding on teachers and lecturers, explained that teacher’s competence is a set of knowledge, skill and behavior that must be internalized and mastered by teachers in practicing their professional duties. Next, chapter IV article 10 highlights the four basic competences that must be mastered by a qualified teacher, namely pedagogical competence, personality competence, social competence and professional competence. In addition, Article 28 verse 3 of Government regulation No. 19 of 2005 concerning on education national standard said that there are four competences that should be possessed by a teacher as the learning agent. The four competences are pedagogical competence, personality competence, professional competence and social competence.

Furthermore Saud emphasized that these four competences do not stand alone yet connect and affect each other and they have hierarchy connection, which means it founds on each other-one competence founds on another competence” (Saud, 2009:49).

From that explanation, we can sum up that electrical engineering teachers definitely need and must have those four competences which are connected each other.

2. RESEARCH METHOD

This study employed a qualitative approach because this study aims to reveal an existing problem. This research begins with an orientation to get an overview of the research objectives. Next, interviews and in-depth observations to obtain data were conducted. This study employed four instruments, namely instruments of pedagogic competence, professional competence, teacher's personal competence, and teacher's social competence. The source of this research data was an electrical engineering vocational teacher in Manado. The data found were analyzed qualitatively and concluded descriptively.

3. RESULT AND DISCUSSION

This result of this research shows that the competence of electrical engineering teachers in Manado and around it, covers of four competences, namely personality, professional, pedagogical, and social competence. These four competences are related each other. The result of this research is presented in this following table

Table 7 The Calculation Result of Basic Statistics of Pedagogical Competence (X1), Professional Competence (X2), Personality Competence (X3), and Social Competence (X3). Electrical Engineering Teachers in Manado and Around It

| No. | Statistical Test | X1 | X2 | X3 | X4 |
|-----|--------------------|-------|-------|------|-------|
| 1 | Highest Score | 796 | 632 | 347 | 372 |
| 2 | Lowest Score | 294 | 215 | 156 | 148 |
| 3 | Average | 520,5 | 420 | 251 | 256,8 |
| 4 | Standard Deviation | 160 | 119 | 58 | 63 |
| 5 | Variance | 25600 | 14161 | 3364 | 3969 |
| 6 | Modus | 626,7 | 490 | 170 | 320 |
| 7 | Median | 529 | 519 | 255 | 320 |

This table provides the research result of pedagogical, professional, personality and social competence of electrical engineering teachers in dealing with AEC. There were 46 electrical engineering teachers in Manado and around it as the research subject. Nevertheless, the competence of electrical engineering teachers in facing AEC is shown in this following table.

Table 8 The Data of Research Result on Electrical Engineering Teacher's Pedagogical Competence in Facing AEC (X1)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 280 | 0 | |
| 2 | 289 - 400 | 16 | 34,78 |
| 3 | 401 - 520 | 6 | 13,05 |
| 4 | 521 - 680 | 18 | 39,13 |
| 5 | 681 - 800 | 6 | 13,04 |
| 6 | 799 - | 0 | |
| Total | | 46 | 100 |

The criteria used in deciding whether the electrical engineering teacher's competence is bad or not in facing AEC is by looking at the pedagogy competence. If the pedagogy competence is higher than 681, it is categorized as good. If the pedagogy competence is 401-680, it belongs to fair. Whereas, the pedagogy competence is regarded as poor if the score gained is lower than 400. The data above shows that the competence of electrical engineering teachers in facing MEA is generally fair. In fact, there were 24 or 52.18% categorized as having fair competence. Meanwhile, the professional competence of electrical engineering teachers in dealing with AEC is presented in this table below.

Table 9 the Result of Professional Competence of Electrical Engineering Teachers in Facing MEA (X2)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 182 | 0 | 0,00 |
| 2 | 183 - 301 | 8 | 17,39 |
| 3 | 302 - 420 | 18 | 39,14 |
| 4 | 421 - 539 | 11 | 23,91 |
| 5 | 540 - 658 | 9 | 19,56 |
| 6 | 659 - | 0 | 0,00 |
| Total | | 46 | 100, |

In order to identify the quality of electrical engineering teachers in dealing with AEC, the researcher used these following criteria. Professional competence is said as good if the score is 540 above. Meanwhile if the score gained is 302-539, it is categorized as fair. Lastly, if the score gained is lower than 310, it is considered as poor professional competence. Nonetheless, that data identify that the professional competence of electrical engineering teacher in encountering AEC is generally fair. There were 29 or 63.06% subject categorized as having fair competence. Whereas, the personality competence of electrical engineering teachers in facing AEC is shown in this table as follows.

Table 10 the Result of Personality Competence of Electrical Engineering Teachers in Facing AEC (X3)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 135 | 0 | 0,00 |
| 2 | 136 - 193 | 10 | 21,74 |
| 3 | 194 - 251 | 12 | 26,09 |
| 4 | 152 - 309 | 15 | 32,61 |
| 5 | 310 - 367 | 9 | 19,56 |
| 6 | 368 - | 0 | 0 |
| Total | | 46 | 100 |

In deciding whether the electrical engineering teachers have qualified competence in facing AEC, the researcher used these criteria, namely: Personality competence is considered good if the score obtained is 310. Yet, if the score gained is between 194-309, it means that the competence is fair. On the other hand, the personality competence is said as poor if the score is lower than 193. The table above points out that the personality competence of electrical engineering teachers in facing AEA is actually fair. Furthermore, there were 27 people or 58.70% belonged to fair competence. In addition, the social competence of electrical engineering teachers in dealing with AEC is shown in the table below.

Table 11 the Result of Social Competence of Electrical Engineering Teachers in Facing AEC (X4)

| No | Class Interval | Absolute Frequency | Relative Frequency |
|-------|----------------|--------------------|--------------------|
| 1 | - 131 | 0 | 0,00 |
| 2 | 132 - 194 | 9 | 19,56 |
| 3 | 195 - 257 | 14 | 30,44 |
| 4 | 258 - 320 | 14 | 30,44 |
| 5 | 321 - 383 | 9 | 19,56 |
| 6 | 384 - | 0 | 0 |
| Total | | 46 | 100 |

The criteria used in determining the quality of electrical engineering teachers in facing AEA is by looking at the score gained. Social competence is regarded as good if the score obtained is 321 above. Meanwhile, the fair social competence is shown by the score of 195-320. On the other hand, score under 195 is regarded as poor social competence.

The table above shows that the social competence of electrical engineering teachers in facing AEC is basically fair. From that table, we can see that there were 28 people of 60.88% categorized as fair competence.

Next, discussing about the competence of electrical engineering teacher of AEC countries, the researcher took three top countries which are known for its electrical engineering ability, namely: Malaysia, Singapore and Philippine. Malaysia focuses on three competences of electrical engineering teacher; those are capability competence in enriching knowledge, skill competence and personality competence. Meanwhile, Singapore is known for its teacher's competence mapping. A headmaster has the data and proposes it to the department of education about trainings that should be conducted to elevate the competence of electrical engineering teachers. Generally, the trainings are carried out 100 hours per year with different topics. Besides, Philippine concerns more on language competency since good language proficiency will make the mastery of any knowledge around the world be easier.

After comparing the competence of electrical engineering teachers in Manado and around it, as well as the competence of electrical engineering teachers of AEA, it is revealed that electrical engineering teachers need to be well prepared so they will not be left behind. It is not too late to prepare AEC. Working units in any fields have already prepared all things needed to face AEC. It is congruent with the statement said by Rendra that "the related working unit has taken the necessary actions in a good coordination and integration, specifically to elevate the region competence as well as prepare to face AEC, oriented on the strategy arranged by the government through Presidential Instruction Number 6 of 2014 concerning on The Improvement of National Competitiveness in order to Face ASEAN Economic Community" (Rendra H Kresna, 2015:29). The existence of AEC will impact to the flourish of foreign countries coming in Indonesia with their competences they have. Thus, it is needed a great preparation, one of which is communication. As a matter of fact, communication is inseparable from language. Therefore, teachers needs to be equipped with language proficiency since the beginning so they can communicate well, otherwise it will lead to a problem. This idea actually has been argued by Bagus, that "The actual problem of AEC is language for the language difference around the world" (Bagus Prasetyo, 2015:5).

From the aforementioned explanation, it is clear that one of competences that should be prepared by electrical engineering teachers is language competence. Although they are expert in their field, without good language proficiency, it can lead to a problem that may affect the performance of electrical engineering teachers in doing their work. Philippine has already equipped their labors with international language, which is English and also their mother tongue. It can make their communication run well including in adapting. Therefore, one of competences needed to be developed by Indonesia is language competence.

In addition thereto, electrical engineering teachers are demanded to have strong preparation to catch up the AEC challenge. Foreign countries coming to Indonesia are usually completed with professional skill. They commonly come to Indonesia with their tough and high skill. If the electrical engineering teachers do not prepare it well, they will be eliminated. Thus, the initial preparation is the professionalism of electrical engineering teachers. It is align with the opinion of Setuju saying that "the graduates of university are demanded to give great hard skill and soft skill (character). Hard skill is an ability in master technical and knowledge aspects that must be mastered based on the specialization. Soft skill is mastery" (Setuju, 2015:3).

Hence, electrical engineering teachers in Manado and around it must prepare themselves pretty well since the labor force is categorized as poor so far. Otherwise, they will be left behind and become the guest in their own country. Local labor force seeking a job in their country must compete with labor force from ASEAN countries. To anticipate this, one of the ways need to be undertaken by the government is preparing working competence system, further it is said as Indonesian Labor force.

1. The competence of labor force is still low
2. The labor force productivity is still low (under the ASEAN average)

3. The level of unemployment is high (7.4 million people)
4. The distribution of labor force is not spread equally

(Eddy Kuntadi, 2015:12)

In order to face AEC challenge, labor force, including electrical engineering teachers should participate in trainings to develop their knowledge and keep update to the newest knowledge in real life, either the old knowledge or new knowledge. Otherwise, the electrical engineering teachers will find difficulties to compete with electrical engineering teachers from other countries in AEC. It is in line with Haryanto's idea that "to face AEC 2015, Indonesian government is supposed to improve the quality of Human Resources (HR) by conducting trainings and so on (Dwi Haryanto, 2015:9)

4. CONCLUSION

According to the results and discussion above, it is concluded that the education and training for electrical engineering vocational teacher is urgently needed. In addition, it shows that the teachers' competences are not sufficient to be survived in AEC challenge. The training which can be taken are In House Training (IHT), an internal training conducted by Teacher Working Group/ Teacher Education Consensus Point in school or other places determined to administer training, training conducted by school in cooperation by government, long-distance learning and training, short course in higher education. Besides, internal training by school is needed such as seminar or workshop.

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Dear F. J. Tasim

We would like to inform you that your paper titled **“NORTH SULAWESI ELECTRICAL ENGINEERING TEACHERS COMPETENCE IN FACING ASEAN ECONOMIC COMMUNITY”** has been accepted for publication in **International Journal of Mechanical Engineering and Technology (IJMET)**, Volume 9, Issue 10, (October 2018) issue of the journal based on the Recommendation of the Editorial Board without any major corrections in the content submitted by the researcher.

This letter is the official confirmation of acceptance of your research paper.

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Review Report

Date: 06-Oct-2018

Title: NORTH SULAWESI ELECTRICAL ENGINEERING TEACHERS
COMPETENCE IN FACING ASEAN ECONOMIC COMMUNITY

Authors: F. J. Tasim

| Evaluation | Poor | Fair | Good | Very Good | Outstanding |
|--|-----------------|--------|-------------------|-----------|-----------------|
| Originality | | | | | √ |
| Innovation | | | | | √ |
| Technical merit | | | | | √ |
| Applicability | | | | | √ |
| Presentation and English | | | | √ | |
| Match to Journal Topic | | | | √ | |
| Recommendation to Chief Editors | | | | | |
| | Strongly Reject | Reject | Marginally Accept | Accept | Strongly Accept |
| Recommendation | | | | | √ |
| Review Comments The purpose of this research is to discover the competence of electrical engineering teachers in facing ASEAN economic community. According to the results and discussion, it is concluded that the education and training for electrical engineering vocational teacher is urgently needed. In addition, it shows that the teachers' competences are not sufficient to be survived in AEC challenge. Excellent analysis paper. Paper Accepted for publication in IJMET. | | | | | |