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Comparative analysis of strengthening of skills of the 21st century teaching candidates in Indonesia and Malaysia

Un análisis del fortalecimiento de los docentes de pre-servicio de Indonesia y Malasia en el siglo XXI

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Abstract
This research was conducted to find out the 21st Century Teacher Candidate Skills in Indonesia and Malaysia from the Sultan Syarif Kasim State Islamic University Campus (UIN Suska Riau), Ar Raniry State Islamic University in Banda Aceh (UIN Ar Ranifry) and Sultan Idris Malaysia University of Education (UPSI). This study involved 250 prospective teacher students consisting of 175 Indonesian students and 75 student from Malaysia. Data were analyzed descriptively and quantitatively. This study aims to determine the strengthening of 21st Century Teacher Candidate Skills and the relationship between the two countries or campus areas that have different locations and were based on teacher education aspects. The results showed that the strengthening of the 21st Century Candidate Skills of prospective teachers in Indonesia was still low when compared to Malaysia, but the results of relations between the two regions had the same relationship.
keywords : 21st century skills, preservice teachers, region, strengthening in education.

Resumen
Esta investigación se realizó para descubrir las Habilidades de Candidatos a Maestros del Siglo XXI en Indonesia y Malasia del Sultan Syarif Kasim State Islamic University Campus (UIN Suska Riau), Ar Raniry State Islamic University en Banda Aceh (UIN Ar Ranifry) y Sultan Idris Malaysia University de Educación (UPSI). Este estudio involucró a 250 futuros estudiantes docentes que constan de 175 estudiantes indonesios y 75 estudiantes de Malasia. Los datos se analizaron de forma descriptiva y cuantitativa. Este estudio tiene como objetivo determinar el fortalecimiento de las Habilidades de Candidatos Docentes del siglo XXI y la relación entre los dos países o áreas del campus que tienen diferentes ubicaciones se basaron en aspectos de educación docente. Los resultados mostraron que el fortalecimiento de las habilidades de candidatos del siglo XXI de los futuros maestros en Indonesia todavía era bajo en comparación con Malasia, pero los resultados de las relaciones entre las dos regiones tenían la misma relación
Palabras clave: habilidades del siglo XXI, maestros en formación, región, fortalecimiento de la educación.

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1. Introduction

Skills for strengthening The 21st Century Skills are important in improving quality Human Resources (HR) and creating good associations between Association of Southeast Asian Nations (ASEAN countries). Higher Education Institutions must be able to produce projects and science products in the era of the industrial revolution 4.0 with mutual recognition of scientific knowledge, attitudes and skills to realize personality both as moral individuals and ethics in their scientific fields (Hamzah, et. al., 2018).

Improving the quality of human resources and the quality of education required various efforts such as the creation of self- accountability, authority and recognition from various groups so that motivation in the realization of the 21st Century Skills can be applied in various regions. However, carrying out the strengthening of The 21st Century Skills is not an easy matter as reported by Techdirections (2016), preparing for The 21st Century Skills is a complicated matter and requires collaborative efforts between schools, colleges to make policy, leadership and industry. In fact, McGrath & Fischetti (2019) explain the results of counter factual thinking and future review strategies that scholars and practitioners have weak signals with the intention of trusting in high institutions are still low.

Parker & Lazaros (2010) statement reported about the skills of The 21st Century Skills are more important than basic and technical skills. The results of the study reported by John (2014) indicate that The 21st Century Skills are prioritized in science, problem solving, innovation and communication classes, but some educators expressed the difficulty of assessment in The 21st Century Skills. Besides the use of technology by teachers in the Technological Pedagogical Content Knowledge (TPACK) component is still moderate (Mtebe & Raphael, 2018). Teachers do not use technology in learning (Chineze, Leesi, & Chiemezie, 2016) and are not consistent in using technology (Margolin, 2019) and reports from Kaeophanuek , Jaitip, & Nilsook (2018) suggest that 400 students in Thailand have digital transformation skills at the secondary level.

Digital usage in learning also does not have to be dominated in improving The 21st Century Skills (Margolin, 2019). This is because digital involvement in the learning process must look to the desires of student interest in the learning process (Hamzah, et. al., 2019; Ambiyar, et.al., 2019). The study delivered by Ganayem & Zidan (2018) that students from eight different teachers from universities consisting of Saudi Arabia, Judaism and Secular Religion expressed a high level of skill in the use of Information and communications technology (ICT), and the style of communication they liked best was face to face. Indonesia and Malaysia will face challenges that come from the economics of the Asia Pacific Free Trade Area (FTA-AP) in 2020 (Rahmah, 2015) so that the important to current review looks at how to strengthen The 21st Century Skills teacher candidates in Indonesia and Malaysia.

2. Methodology

The study was conducted to determine the strengthening of The 21st Century Skills of teacher candidates in Indonesia and Malaysia with a total of 250 people consisting of 175 Indonesian teacher candidates and 75 Malaysian teacher candidates. The analysis and data collection was made from questionnaires. The questionnaires used likert scala, designed to examine how strongly subject agree or disagree with statement on a 5 point scala with anchors. The questionnaires were analyzed descriptively and quantitatively. The category of mean with 5 categories, included: Strongly disagree (0-1), Disagree (1-2), (neither agree (2-3), agree (3-4) and Strongly agree (4-5). The testing was aided by **Statistical Package for the Social Sciences** (SPSS) version 20.

3. Result and discussion

3.1. Digital age literacy

Proficiency in digital era literacy is obtained to find out the strengthening of The 21st Century Skills of prospective teachers by Region or Country by paying attention to: (B1) understanding of English language concepts, (B2) understanding of English language science articles, (B3) review of scientific information, (B4) writing essays, (B5) creating ideas, (B6) collaborative scholarship, (B7) products, (B8) product process, (B9) internet use, (B10) use of social technology, (B11) issues of global warming and its links, and (B12) concern for the natural environment, that can be seen in the following Table 1.

Table 1
Strengthening The 21st Century Skills Digital Age Literacy

Digital Age Literacy	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
B1	175	3.1	75	4.1
B2	175	3.1	75	4.0
B3	175	3.5	75	4.0
B4	175	3.3	75	3.9
B5	175	3.6	75	4.0
B6	175	3.7	75	4.0
B7	175	3.4	75	3.6
B8	175	3.4	75	3.9
B9	175	4.1	75	4.4
B10	175	3.9	75	4.0
B11	175	3.9	75	4.4
B12	175	4.3	75	4.6
Total Average		3,6		4,1
Category	Agree		Strongly Agree	

Based on table 1 shows that for the digital age literacy, the mean highest average teacher candidates in the B12 aspect (concern for the natural environment) is 4.3 with a total average of 3.6 "Agree" categories, whereas for Malaysia the highest average in B12 is 4.6 in the total average, of 4.1 " Strongly Agree" category.

Strengthening The 21st Century Skills teacher candidates in Indonesia feel that the issue of pollution of the natural environment needs attention. When viewed in the concern for the natural environment (B12 aspect) are issues that often occur in the world today such as global warming, burning of forests and land and other pollution are issues that are always discussed in the digital world so it is expected that the contributions of scholars to socialize the impact of natural pollution around. Prospective teachers are expected to be able to teach or integrate the impact of environmental problems with the scientific field to be taught so as to foster attitudes of students' concern for the natural environment.

Based on table 1 shows that the weakness of strengthening the 21st Century Skills teacher candidates in Indonesia is that they have not been able to understand concepts and science articles in English properly (B1 dan B2). Ulfa Lufiana and Trisno Martono (2018) explained that the lack of institutions in the implementation of various knowledge, productivity, and mastery of Foreign Languages is still low. It should be noted that the

integration of foreign languages is considered important to be used in the learning process in higher education so that the ability to understand and write articles for prospective teachers in Indonesia can be improved (Pratiwi 2018; Nilsson & Gro 2015).

Rahmah (2015) explained that the digital literacy gap in Indonesia requires literacy education delivered through several mechanisms in the transfer of knowledge. Digital literacy can help work in changing languages such as articles by using Google translate so that the weaknesses of the language for prospective teachers in Indonesia can be minimized. Lamb, Doecke, and Maire (2017) also mentioned that technology solves problem manual tasks so that special attention is needed to solve problems and think creatively.

Prospective teachers in Malaysia have strengthened The 21st Century Skills in the aspect of mastery in carrying out scientific studies or producing products that use scientific knowledge to gain financial benefits. This can make profit for prospective teachers in Malaysia to change the learning system towards usefulness in the implementation of a nation's economy. Bekhet & Latif (2018) explains the interaction between technological innovation and government development has a significant positive impact on the economy in Malaysia.

3.2. Inventive thinking

Assessment of the 21st Century Skills categories Inventive thinking of prospective teachers based on the region or country observed is: (C1) adjusting thinking, (C2) solving problems, (C3) design, (C4) interests, (C5) accepting assignments, (C6) thinking the **methods seen in Table 2 below.**

Table 2
Strengthening The 21st Century Skills Inventive Thinking

Inventive Thinking	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
C1	175	3.8	75	4.3
C2	175	4.0	75	4.1
C3	175	3.8	75	4.4
C4	175	4.0	75	4.3
C5	175	3.7	75	4.9
C6	175	3.7	75	4.2
Total Average		3,8		4,2
Category	Agree		Strongly Agree	

Table 2 shows that the strengthening of The 21st Century Skills teacher candidates in Indonesia for the skills of inventive thinking with the highest average in C2 and C4 is 4.0, while the lowest rating in C5 and C6 is 3.7. For the average total aspects of 3.8 the category "Agree". Prospective teachers in Malaysia have the highest average in C3 with a mean of 4.4, while the lowest rating in C5 is 3.9. The average total is 4.2 "strongly Agree" categories.

Indonesia and Malaysia to strengthen The 21st Century Skills inventive thinking skills have a difference in terms of the total average. From this research is a contribution extracted that Prospective teachers in Indonesia are predominantly capable of having the belief to solve given problems and fostering interests such as curiosity and self-confidence in learning science. And then, Prospective teachers in Malaysia have the ability to dominate by making plans to obtain information sources in solving problems in accordance with the allotted time. This ability can help in terms of creating a transdisciplinary attitude at work. The principles for this type of transdisciplinary work including preparation, shared understanding, flexibility, responsibility, mutual respect, humility and humorous (Thomas et al., 2018).

The weakness of the inventive thinking skills of The 21st Century Skills Indonesian and Malaysian teacher candidates lies in the inability to complete the assigned science assignments despite not having the confidence to complete them. A way is needed in order to minimize this inability with critical thinking activities as expressed by Muliadi, Verawati, Prayogi, & Mirawati (2019) that the application of cognitive conflict strategies in inquiry activities has an impact on the activities of critical thinking abilities of prospective teachers. In addition, Rusdianto Nurman, Yusminah Hala (2017) explained the integrated Problem Based Learning Reading Questioning and Answering strategy (PBLRQA) for to help improve metacognitive skills and scientific attitudes, so that it can help in the effort to increase students' inventive thinking.

3.3. Effective communication

Strengthening the 21st Century Skills in Effective Communication category in candidates for teachers by Region or Country include: (D1) collaboration, (D2) collaboration ideas, (D3) solutions, (D4) responsibilities, (D5) good communication, that can be seen in Table 3 (see below).

Table 3
Strengthening The 21st Century Skills of effective Communications

Effective Communication	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
D1	175	4.1	75	4.5
D2	175	3.9	75	4.5
D3	175	3.5	75	4.1
D4	175	4.0	75	4.4
D5	175	4.0	75	4.3
Total Average		3,9		4,4
Category	Agree		Strongly Agree	

Based on Table 3, the highest average in The 21st Century Skills was the impressive communication skills of prospective teachers in Indonesia, namely in the D1 aspect with a mean of 4.1, while the lowest mean in the D3 aspect was 3.5. For the average total aspect of effective communication prospective teachers in Indonesia is 3.9 "Agree". Teacher candidates in Malaysia had the highest average in the D1 and D2 aspects with a mean of 4.5, and the lowest rating in the D3 aspect was 4.1. The average total of Effective communication for Malaysian teacher candidates is 4.4 "strongly Agree".

In this data that namely realizing that the interests of working together in organizations and displaying a high level of leadership in a group. A good leadership attitude is expected to help solve all the problems that occur in an organization. Fitriati, Romdana, and Rosyidi (2014) explained that leadership techniques such as problem solving and underlying national values are good leadership styles. In addition to instilling leadership attitudes for students can use a curriculum-centered system as expressed by Nilsson and Gro (2015) and Jones (2015a), that the Center for Curriculum Redesign (CCR) can support the ideas of knowledge and skills that are developed together so that they can be a source of creativity, critical thinking, communication and collaboration.

The lowest ability of prospective teachers in Indonesia and Malaysia has in common is the inability to overcome conflicts that arise between experts or heads of organizations. This can be caused by leadership behavior that only focuses on small groups and rarely collaborates, communicating with other groups will tend to be idealistic towards the interests of their own groups, so that it can disrupt economic stability in the future. Ninlawan (2015) reported that the readiness of private school management to face the ASEAN economic community lies in the

low category in the aspect of community activities. This behavior can lead to an introverted attitude for students to outside groups with the intention of never doing social activities between students and surrounding groups.

To foster an attitude of effective communication requires encouragement from groups or social organizations as explained by Astuti (2018) that social forms consist of (a) forms of social interaction according to the number of actors, (b) interactions between individuals and individuals, (c) interactions between individuals with groups, (d) interaction between groups with groups.

3.4. High productivity

Assessments on The 21st Century Skills category of High Productivity prospective teachers by region or country include: (E1) schedules, (E2) reflections, (E3) technological literacy, and (E4) operational standards, obtained in Table 4 below.

Table 4
Strengthening The 21st Century Skills High Productivity

High productivity	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
E1	175	3.8	75	4.3
E2	175	3.7	75	4.1
E3	175	3.8	75	4.3
E4	175	3.9	75	4,1
Total Average		3,8		4,2
Category	Agree		Strongly Agree	

Table 4 shows that the strengthening of The 21st Century Skills for high productivity proficiency of prospective Indonesian teachers with the highest average in E4 aspects is 3.9 while the lowest average in E2 aspects is 3.7. For a total of all aspects of high productivity Indonesian teacher candidates amounted to 3.8 "Agree" categories. Prospective Malaysian teachers in strengthening the 21st Century Skills in high productivity skills for the highest average in E1 and E3 aspects are 4.3 while the lowest in E2 and E4 aspects is 4.1. The total average obtained was 4.3 with the category "Strongly Agree".

Strengthening The 21st Century Skills teacher candidates in Indonesia have been able to use the standards provided to test and assess the product or study results so that they are of good quality. Besides being able to design a schedule and use technology to process poultry or science projects carried out. Weaknesses have not yet maximized the ability to make reflections on the design process given. Something similar to prospective teachers in Malaysia has not yet dominated the ability to make reflections on all assignment preparation processes.

Ignorance of the reflection on all activities will affect the pattern or teaching techniques undertaken by future teachers when they become a teacher in the class, one of them students is also unable to evaluate and self-regulate to improve critical thinking as reported by Basri, Purwanto, As'ari, & Sisworo (2019) that students' critical thinking in the category of low on sub-evaluation, analysis, and self-regulation. In addition to increasing the ability to think, communication, collaboration and creativity in ways expressed by Cretu (2017) the ability to animate "4 C" (critical thinking, communication, collaboration, and creativity) and to guide students in developing these skills requires a lot pedagogical practices, reflection, and continuing professional development.

Prospective Malaysian teachers have more strengthening in the aspect of designing schedules to prepare the assignments given and use of technological tools in accordance with the science project that will be carried out. Boholano (2017) explains that prospective teachers have proficiency in using technology. Beriswill, Bracey, Sherman-Morris, Huang, & Lee (2016) also revealed that the most prominent pre to post increase in the highest TPACK dimension was the use of technology. If teachers have the ability to use technology, they can carry out good digital-based teaching processes as expressed by Howlett & Waemusa (2018), students have the ability to use mobile devices to enhance learning independently.

3.5. Norms and spiritual values

Strengthening observed in The 21st Century Skills aspects of Norms and Spiritual Values of prospective

teachers by Region or State includes: (F1) religious about science and technology, (F2) collaboration of science

and Islamic science, (F3) interaction of nature and humans can be seen in Table 5.

Table 5
Strengthening the 21st Century Skills Norms and Spiritual Values

Norms and Spiritual Values	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
E1	175	4.2	75	4.5
E2	175	4.2	75	4.4
E3	175	4.3	75	4.6
Total Average		4,2		4,5
Category	Strongly Agree		Strongly Agree	

Based on Table 5 shows the highest average in The 21st Century Skills the proficiency of norms and spiritual values of prospective teachers in Indonesia is in the F3 aspect with a value of 4.3, while the lowest assessment in the F1 and F2 aspects is 4.2. The total average norms and spiritual values of prospective teachers in Indonesia is 4.2 with the category "Strongly Agree". In strengthening the 21st Century Skills teacher candidates in Malaysia the highest average in the F3 aspect with a value of 4.6, for the lowest assessment in the F2 aspect is 4.4. The total strengthening of The 21st Century Skills of Malaysian teacher candidates in grades and spirituality is 4.5 categories "Strongly Agree".

The strengthening of The 21st Century Skills for the norms and spiritual values of prospective teachers in Indonesia and Malaysia has in common the recognition that all human endeavors are to understand the interaction between the natural environment and fellow human beings. According to Yunus Kurniawan (2018) that concern or attention to environmental problems can affect attitudes or behavior. Attitude of care is needed to prevent misbehavior as expressed by Anggraeni (2018) the development and application of science and technology that is not wise to cause damage to the natural environment. Therefore, Kasi, Sumarmi, & Astina (2018) said that environmental care and actions are needed to prevent natural damage that has occurred or in the future. The majority of Islamic religious scholarship is more dominant in prospective teachers in Indonesia and Malaysia so that it is expected to be able to implement the Islamic principles expressed by Laeheem (2018), it is necessary to change behavior towards change by practicing Islamic perspectives, knowledge and understanding so as to produce better behavior.

Values and norms for teacher candidates in Indonesia and Malaysia are the same in terms of the lack of connecting scientific scholarship with Islamic religious scholarship. Whereas Zaelani (2015) revealed the

paradigm of the philosophy of science that in science with various methods can be adopted in all fields of science including Islamic religion.

The strengthening of The 21st Century Skills for literacy skills of the digital era, inventive thinking, Effective communication, high productivity and the value and spirituality of teacher candidates in Malaysia is higher when compared to in Indonesia. The results of this assessment as a reference that the difference of prospective teachers in Indonesia are category differences (Agree compare Strongly Agree) so that reflection on the 21st Century Skills strengthening training for indonesia is needed for chosing the effect of the 21st Century Skills training in each aspect so that regular analysis can be carried out. The concerns about the weakness of strengthening 21st Century Skills teacher candidates in Indonesia is because of the very large demands. Dickstein (2010) explained that some people disagreed that the full integration of The 21st Century Skills in all classes and curriculum was because of assignments that were too heavy. The following analysis tests the average of two samples between aspects of strengthening the 21st Century Skills of Indonesian and Malaysian teacher candidates can be seen in Table 6 below.

Table 6
Paired Samples Correlations

		N	Correlation	Significant (sig)	Sig (2-tailed)
Pair 1	Country & Digital Age Literacy	24	0.593	0.002	
Pair 2	Country & Inventive Thinking	12	0.784	0.003	
Pair 3	Country & Effective Communication	10	0.784	0.007	0.00
Pair 4	Country & High Productivity	8	0.918	0.001	
Pair 5	Country & Spiritual Norms and Values	6	0.447	0.374	

Table 6 shows the correlation between two countries (Indonesia and Malaysia) with each aspect of The 21st Century Skills teacher candidates have different correlation values. Whereas based on the significance of Pair 1 to Pair 4 has a significant value <0.05 so it (Digital age literacy, inventive thinking, effective communication and high productivity) shows a significant relationship the same, but in Pair 5 (Norms and Spiritual Values) both only have different relationships. These results are suggesting that Indonesia and Malaysia, with norms and spiritual values, didn't have significant relationship. But the sig 2-tailed result has a significance of 0.00 <0.05 so that it can be interpreted that teacher candidates in Indonesia and Malaysia have the same relationship. Santoso (2014), explains if the significance of 2t <0.05, indicates that there is a relationship between the two group values.

Prayitno (2016) explained that the preparation of human resources in Indonesia needs to be done consistently and continuously through increasing the gross enrollment rates of elementary and secondary schools, universities, performance, English language skills, and the holding of professional certification as an effort to recognize human resource competencies in Indonesia . For example in Malaysia the country has a high success value in Information and Communication Engineering as reported by Razak, Jalil, Krauss, & Ahmad (2018) there are 3 keys to ICT success in Malaysia, namely the use of types of tools, school rules that shape culture, and division of labor in the community.

Aldowah, Al-Samarraie, & Fauzy (2019) report that found Educational Data Meaning (EDM) and Learning Analiytics (LA) techniques can be useful in developing problem solving strategies. Osman, Mr. Soh, & Arsad (2010) revealed that there are three mechanisms for enhancing the skills of The 21st Century Skills: first The wider community must recognize the skills of the 21st Century Skills is important for students, second, schools must embrace new designs such as information processing, the use of technology and skills of the 21st Century Skills, and thirdly, policy making in the context of school accountability to measure academic achievement and skills of the 21st Century Skills. Thus the achievement of The 21st Century Skills for countries especially in Asean is able

to compete in achieving the success of the Asean economic community, one of which is creating high quality human resources (HR).

4. Conclusion

The strengthening of The 21st Century Skills for literacy skills of the digital era, inventive thinking, Effective communication, high productivity and the norm and spirituality of teacher candidates in Malaysia is higher when compared to in Indonesia. In the norms and spirituality value have same category (strongly agree) in both country. The results of this research suggest that there are only discreet differences in the prospects to Indonesian teachers regarding candidates to Malaysian teachers, specifically when it were considered skills, such are: literacy skills of the digital era, inventive thinking, Effective communication and high productivity. In fact, the differences between the strengthening of the 21st Century Skills of prospective teachers in Indonesia was still low when mean were compared to those of the Malaysian teachers. This, considering that the results of relations between the two regions had almost the same statistical relationship.

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JURNAL REVISTA ESPACIOS

by Rian Vebrianto Dkk

Comparative analysis of strengthening of skills of the 21st century teaching candidates in Indonesia and Malaysia

Un análisis del fortalecimiento de los docentes de pre-servicio de Indonesia y Malasia en el siglo XXI

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Abstract

This research was conducted to find out the 21st Century Teacher Candidate Skills in Indonesia and Malaysia from the Sultan Syarif Kasim State Islamic University Campus (UIN Suska Riau), Ar Raniry State Islamic University in Banda Aceh (UIN Ar Ranifry) and Sultan Idris Malaysia University of Education (UPSI). This study involved 250 prospective teacher students consisting of 175 Indonesian students and 75 student from Malaysia. Data were analyzed descriptively and quantitatively. This study aims to determine the strengthening of 21st Century Teacher Candidate Skills and the relationship between the two countries or campus areas that have different locations and were based on teacher education aspects. The results showed that the strengthening of the 21st Century Candidate Skills of prospective teachers in Indonesia was still low when compared to Malaysia, but the results of relations between the two regions had the same relationship.
keywords : 21st century skills, preservice teachers, region, strengthening in education.

Resumen

Esta investigación se realizó para descubrir las Habilidades de Candidatos a Maestros del Siglo XXI en Indonesia y Malasia del Sultan Syarif Kasim State Islamic University Campus (UIN Suska Riau), Ar Raniry State Islamic University en Banda Aceh (UIN Ar Ranifry) y Sultan Idris Malaysia University de Educación (UPSI). Este estudio involucró a 250 futuros estudiantes docentes que constan de 175 estudiantes indonesios y 75 estudiantes de Malasia. Los datos se analizaron de forma descriptiva y cuantitativa. Este estudio tiene como objetivo determinar el fortalecimiento de las Habilidades de Candidatos Docentes del siglo XXI y la relación entre los dos países o áreas del campus que tienen diferentes ubicaciones se basaron en aspectos de educación docente. Los resultados mostraron que el fortalecimiento de las habilidades de candidatos del siglo XXI de los futuros maestros en Indonesia todavía era bajo en comparación con Malasia, pero los resultados de las relaciones entre las dos regiones tenían la misma relación
Palabras clave: habilidades del siglo XXI, maestros en formación, región, fortalecimiento de la educación.

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1. Introduction

Skills for strengthening The 21st Century Skills are important in improving quality Human Resources (HR) and creating good associations between Association of Southeast Asian Nations (ASEAN countries). Higher Education Institutions must be able to produce projects and science products in the era of the industrial revolution 4.0 with mutual recognition of scientific knowledge, attitudes and skills to realize personality both as moral individuals and ethics in their scientific fields (Hamzah, et. al., 2018).

Improving the quality of human resources and the quality of education required various efforts such as the creation of self- accountability, authority and recognition from various groups so that motivation in the realization of the 21st Century Skills can be applied in various regions. However, carrying out the strengthening of The 21st Century Skills is not an easy matter as reported by Techdirections (2016), preparing for The 21st Century Skills is a complicated matter and requires collaborative efforts between schools, colleges to make policy, leadership and industry. In fact, McGrath & Fischetti (2019) explain the results of counter factual thinking and future review strategies that scholars and practitioners have weak signals with the intention of trusting in high institutions are still low.

Parker & Lazaros (2010) statement reported about the skills of The 21st Century Skills are more important than basic and technical skills. The results of the study reported by John (2014) indicate that The 21st Century Skills are prioritized in science, problem solving, innovation and communication classes, but some educators expressed the difficulty of assessment in The 21st Century Skills. Besides the use of technology by teachers in the Technological Pedagogical Content Knowledge (TPACK) component is still moderate (Mtebe & Raphael, 2018). Teachers do not use technology in learning (Chineze, Leesi, & Chiemezie, 2016) and are not consistent in using technology (Margolin, 2019) and reports from Kaeophanuek , Jaitip, & Nilsook (2018) suggest that 400 students in Thailand have digital transformation skills at the secondary level.

Digital usage in learning also does not have to be dominated in improving The 21st Century Skills (Margolin, 2019). This is because digital involvement in the learning process must look to the desires of student interest in the learning process (Hamzah, et. al., 2019; Ambiyar, et.al., 2019). The study delivered by Ganayem & Zidan (2018) that students from eight different teachers from universities consisting of Saudi Arabia, Judaism and Secular Religion expressed a high level of skill in the use of Information and communications technology (ICT), and the style of communication they liked best was face to face. Indonesia and Malaysia will face challenges that come from the economics of the Asia Pacific Free Trade Area (FTA-AP) in 2020 (Rahmah, 2015) so that the important to current review looks at how to strengthen The 21st Century Skills teacher candidates in Indonesia and Malaysia.

2. Methodology

The study was conducted to determine the strengthening of The 21st Century Skills of teacher candidates in Indonesia and Malaysia with a total of 250 people consisting of 175 Indonesian teacher candidates and 75 Malaysian teacher candidates. The analysis and data collection was made from questionnaires. The questionnaires used likert scala, designed to examine how strongly subject agree or disagree with statement on a 5 point scala with anchors. The questionnaires were analyzed descriptively and quantitatively. The category of mean with 5 categories, included: Strongly disagree (0-1), Disagree (1-2), (neither agree (2-3), agree (3-4) and Strongly agree (4-5). The testing was aided by **Statistical Package for the Social Sciences** (SPSS) version 20.

3. Result and discussion

3.1. Digital age literacy

Proficiency in digital era literacy is obtained to find out the strengthening of The 21st Century Skills of prospective teachers by Region or Country by paying attention to: (B1) understanding of English language concepts, (B2) understanding of English language science articles, (B3) review of scientific information, (B4) writing essays, (B5) creating ideas, (B6) collaborative scholarship, (B7) products, (B8) product process, (B9) internet use, (B10) use of social technology, (B11) issues of global warming and its links, and (B12) concern for the natural environment, that can be seen in the following Table 1.

Table 1
Strengthening The 21st Century Skills Digital Age Literacy

Digital Age Literacy	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
B1	175	3.1	75	4.1
B2	175	3.1	75	4.0
B3	175	3.5	75	4.0
B4	175	3.3	75	3.9
B5	175	3.6	75	4.0
B6	175	3.7	75	4.0
B7	175	3.4	75	3.6
B8	175	3.4	75	3.9
B9	175	4.1	75	4.4
B10	175	3.9	75	4.0
B11	175	3.9	75	4.4
B12	175	4.3	75	4.6
Total Average		3,6		4,1
Category	Agree		Strongly Agree	

Based on table 1 shows that for the digital age literacy, the mean highest average teacher candidates in the B12 aspect (concern for the natural environment) is 4.3 with a total average of 3.6 "Agree" categories, whereas for Malaysia the highest average in B12 is 4.6 in the total average, of 4.1 " Strongly Agree" category.

Strengthening The 21st Century Skills teacher candidates in Indonesia feel that the issue of pollution of the natural environment needs attention. When viewed in the concern for the natural environment (B12 aspect) are issues that often occur in the world today such as global warming, burning of forests and land and other pollution are issues that are always discussed in the digital world so it is expected that the contributions of scholars to socialize the impact of natural pollution around. Prospective teachers are expected to be able to teach or integrate the impact of environmental problems with the scientific field to be taught so as to foster attitudes of students' concern for the natural environment.

Based on table 1 shows that the weakness of strengthening the 21st Century Skills teacher candidates in Indonesia is that they have not been able to understand concepts and science articles in English properly (B1 dan B2). Ulfa Lufiana and Trisno Martono (2018) explained that the lack of institutions in the implementation of various knowledge, productivity, and mastery of Foreign Languages is still low. It should be noted that the

integration of foreign languages is considered important to be used in the learning process in higher education so that the ability to understand and write articles for prospective teachers in Indonesia can be improved (Pratiwi 2018; Nilsson & Gro 2015).

Rahmah (2015) explained that the digital literacy gap in Indonesia requires literacy education delivered through several mechanisms in the transfer of knowledge. Digital literacy can help work in changing languages such as articles by using Google translate so that the weaknesses of the language for prospective teachers in Indonesia can be minimized. Lamb, Doecke, and Maire (2017) also mentioned that technology solves problem manual tasks so that special attention is needed to solve problems and think creatively.

Prospective teachers in Malaysia have strengthened The 21st Century Skills in the aspect of mastery in carrying out scientific studies or producing products that use scientific knowledge to gain financial benefits. This can make profit for prospective teachers in Malaysia to change the learning system towards usefulness in the implementation of a nation's economy. Bekhet & Latif (2018) explains the interaction between technological innovation and government development has a significant positive impact on the economy in Malaysia.

3.2. Inventive thinking

Assessment of the 21st Century Skills categories Inventive thinking of prospective teachers based on the region or country observed is: (C1) adjusting thinking, (C2) solving problems, (C3) design, (C4) interests, (C5) accepting assignments, (C6) thinking the **methods seen in Table 2 below.**

Table 2
Strengthening The 21st Century Skills Inventive Thinking

Inventive Thinking	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
C1	175	3.8	75	4.3
C2	175	4.0	75	4.1
C3	175	3.8	75	4.4
C4	175	4.0	75	4.3
C5	175	3.7	75	4.9
C6	175	3.7	75	4.2
Total Average		3,8		4,2
Category	Agree		Strongly Agree	

Table 2 shows that the strengthening of The 21st Century Skills teacher candidates in Indonesia for the skills of inventive thinking with the highest average in C2 and C4 is 4.0, while the lowest rating in C5 and C6 is 3.7. For the average total aspects of 3.8 the category "Agree". Prospective teachers in Malaysia have the highest average in C3 with a mean of 4.4, while the lowest rating in C5 is 3.9. The average total is 4.2 "strongly Agree" categories.

Indonesia and Malaysia to strengthen The 21st Century Skills inventive thinking skills have a difference in terms of the total average. From this research is a contribution extracted that Prospective teachers in Indonesia are predominantly capable of having the belief to solve given problems and fostering interests such as curiosity and self-confidence in learning science. And then, Prospective teachers in Malaysia have the ability to dominate by making plans to obtain information sources in solving problems in accordance with the allotted time. This ability can help in terms of creating a transdisciplinary attitude at work. The principles for this type of transdisciplinary work including preparation, shared understanding, flexibility, responsibility, mutual respect, humility and humorous (Thomas et al., 2018).

The weakness of the inventive thinking skills of The 21st Century Skills Indonesian and Malaysian teacher candidates lies in the inability to complete the assigned science assignments despite not having the confidence to complete them. A way is needed in order to minimize this inability with critical thinking activities as expressed by Muliadi, Verawati, Prayogi, & Mirawati (2019) that the application of cognitive conflict strategies in inquiry activities has an impact on the activities of critical thinking abilities of prospective teachers. In addition, Rusdianto Nurman, Yusminah Hala (2017) explained the integrated Problem Based Learning Reading Questioning and Answering strategy (PBLRQA) for to help improve metacognitive skills and scientific attitudes, so that it can help in the effort to increase students' inventive thinking.

3.3. Effective communication

Strengthening the 21st Century Skills in Effective Communication category in candidates for teachers by Region or Country include: (D1) collaboration, (D2) collaboration ideas, (D3) solutions, (D4) responsibilities, (D5) good communication, that can be seen in Table 3 (see below).

Table 3

Strengthening The 21st Century Skills of effective Communications

Effective Communication	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
D1	175	4.1	75	4.5
D2	175	3.9	75	4.5
D3	175	3.5	75	4.1
D4	175	4.0	75	4.4
D5	175	4.0	75	4.3
Total Average		3,9		4,4
Category	Agree		Strongly Agree	

Based on Table 3, the highest average in The 21st Century Skills was the impressive communication skills of prospective teachers in Indonesia, namely in the D1 aspect with a mean of 4.1, while the lowest mean in the D3 aspect was 3.5. For the average total aspect of effective communication prospective teachers in Indonesia is 3.9 "Agree". Teacher candidates in Malaysia had the highest average in the D1 and D2 aspects with a mean of 4.5, and the lowest rating in the D3 aspect was 4.1. The average total of Effective communication for Malaysian teacher candidates is 4.4 "strongly Agree".

In this data that namely realizing that the interests of working together in organizations and displaying a high level of leadership in a group. A good leadership attitude is expected to help solve all the problems that occur in an organization. Fitriati, Romdana, and Rosyidi (2014) explained that leadership techniques such as problem solving and underlying national values are good leadership styles. In addition to instilling leadership attitudes for students can use a curriculum-centered system as expressed by Nilsson and Gro (2015) and Jones (2015a), that the Center for Curriculum Redesign (CCR) can support the ideas of knowledge and skills that are developed together so that they can be a source of creativity, critical thinking, communication and collaboration.

The lowest ability of prospective teachers in Indonesia and Malaysia has in common is the inability to overcome conflicts that arise between experts or heads of organizations. This can be caused by leadership behavior that only focuses on small groups and rarely collaborates, communicating with other groups will tend to be idealistic towards the interests of their own groups, so that it can disrupt economic stability in the future. Ninlawan (2015) reported that the readiness of private school management to face the ASEAN economic community lies in the

low category in the aspect of community activities. This behavior can lead to an introverted attitude for students to outside groups with the intention of never doing social activities between students and surrounding groups.

To foster an attitude of effective communication requires encouragement from groups or social organizations as explained by Astuti (2018) that social forms consist of (a) forms of social interaction according to the number of actors, (b) interactions between individuals and individuals, (c) interactions between individuals with groups, (d) interaction between groups with groups.

3.4. High productivity

Assessments on The 21st Century Skills category of High Productivity prospective teachers by region or country include: (E1) schedules, (E2) reflections, (E3) technological literacy, and (E4) operational standards, obtained in Table 4 below.

Table 4
Strengthening The 21st Century Skills High Productivity

High productivity	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
E1	175	3.8	75	4.3
E2	175	3.7	75	4.1
E3	175	3.8	75	4.3
E4	175	3.9	75	4,1
Total Average		3,8		4,2
Category	Agree		Strongly Agree	

Table 4 shows that the strengthening of The 21st Century Skills for high productivity proficiency of prospective Indonesian teachers with the highest average in E4 aspects is 3.9 while the lowest average in E2 aspects is 3.7. For a total of all aspects of high productivity Indonesian teacher candidates amounted to 3.8 "Agree" categories. Prospective Malaysian teachers in strengthening the 21st Century Skills in high productivity skills for the highest average in E1 and E3 aspects are 4.3 while the lowest in E2 and E4 aspects is 4.1. The total average obtained was 4.3 with the category "Strongly Agree".

Strengthening The 21st Century Skills teacher candidates in Indonesia have been able to use the standards provided to test and assess the product or study results so that they are of good quality. Besides being able to design a schedule and use technology to process poultry or science projects carried out. Weaknesses have not yet maximized the ability to make reflections on the design process given. Something similar to prospective teachers in Malaysia has not yet dominated the ability to make reflections on all assignment preparation processes.

Ignorance of the reflection on all activities will affect the pattern or teaching techniques undertaken by future teachers when they become a teacher in the class, one of them students is also unable to evaluate and self-regulate to improve critical thinking as reported by Basri, Purwanto, As'ari, & Sisworo (2019) that students' critical thinking in the category of low on sub-evaluation, analysis, and self-regulation. In addition to increasing the ability to think, communication, collaboration and creativity in ways expressed by Cretu (2017) the ability to animate "4 C" (critical thinking, communication, collaboration, and creativity) and to guide students in developing these skills requires a lot pedagogical practices, reflection, and continuing professional development.

Prospective Malaysian teachers have more strengthening in the aspect of designing schedules to prepare the assignments given and use of technological tools in accordance with the science project that will be carried out. Boholano (2017) explains that prospective teachers have proficiency in using technology. Beriswill, Bracey, Sherman-Morris, Huang, & Lee (2016) also revealed that the most prominent pre to post increase in the highest TPACK dimension was the use of technology. If teachers have the ability to use technology, they can carry out good digital-based teaching processes as expressed by Howlett & Waemusa (2018), students have the ability to use mobile devices to enhance learning independently.

3.5. Norms and spiritual values

Strengthening observed in The 21st Century Skills aspects of Norms and Spiritual Values of prospective teachers by Region or State includes: (F1) religious about science and technology, (F2) collaboration of science and Islamic science, (F3) interaction of nature and humans can be seen in Table 5.

Table 5
Strengthening the 21st Century Skills Norms and Spiritual Values

Norms and Spiritual Values	Indonesia		Malaysia	
Aspect	N (Total Participant)	Mean	N (Total Participant)	Mean
E1	175	4.2	75	4.5
E2	175	4.2	75	4.4
E3	175	4.3	75	4.6
Total Average		4,2		4,5
Category	Strongly Agree		Strongly Agree	

Based on Table 5 shows the highest average in The 21st Century Skills the proficiency of norms and spiritual values of prospective teachers in Indonesia is in the F3 aspect with a value of 4.3, while the lowest assessment in the F1 and F2 aspects is 4.2. The total average norms and spiritual values of prospective teachers in Indonesia is 4.2 with the category "Strongly Agree". In strengthening the 21st Century Skills teacher candidates in Malaysia the highest average in the F3 aspect with a value of 4.6, for the lowest assessment in the F2 aspect is 4.4. The total strengthening of The 21st Century Skills of Malaysian teacher candidates in grades and spirituality is 4.5 categories "Strongly Agree".

The strengthening of The 21st Century Skills for the norms and spiritual values of prospective teachers in Indonesia and Malaysia has in common the recognition that all human endeavors are to understand the interaction between the natural environment and fellow human beings. According to Yunus Kurniawan (2018) that concern or attention to environmental problems can affect attitudes or behavior. Attitude of care is needed to prevent misbehavior as expressed by Anggraeni (2018) the development and application of science and technology that is not wise to cause damage to the natural environment. Therefore, Kasi, Sumarmi, & Astina (2018) said that environmental care and actions are needed to prevent natural damage that has occurred or in the future. The majority of Islamic religious scholarship is more dominant in prospective teachers in Indonesia and Malaysia so that it is expected to be able to implement the Islamic principles expressed by Laeheem (2018), it is necessary to change behavior towards change by practicing Islamic perspectives, knowledge and understanding so as to produce better behavior.

Values and norms for teacher candidates in Indonesia and Malaysia are the same in terms of the lack of connecting scientific scholarship with Islamic religious scholarship. Whereas Zaelani (2015) revealed the

paradigm of the philosophy of science that in science with various methods can be adopted in all fields of science including Islamic religion.

The strengthening of The 21st Century Skills for literacy skills of the digital era, inventive thinking, Effective communication, high productivity and the value and spirituality of teacher candidates in Malaysia is higher when compared to in Indonesia. The results of this assessment as a reference that the difference of prospective teachers in Indonesia are category differences (Agree compare Strongly Agree) so that reflection on the 21st Century Skills strengthening training for indonesia is needed for chosing the effect of the 21st Century Skills training in each aspect so that regular analysis can be carried out. The concerns about the weakness of strengthening 21st Century Skills teacher candidates in Indonesia is because of the very large demands. Dickstein (2010) explained that some people disagreed that the full integration of The 21st Century Skills in all classes and curriculum was because of assignments that were too heavy. The following analysis tests the average of two samples between aspects of strengthening the 21st Century Skills of Indonesian and Malaysian teacher candidates can be seen in Table 6 below.

Table 6
Paired Samples Correlations

		N	Correlation	Significant (sig)	Sig (2-tailed)
Pair 1	Country & Digital Age Literacy	24	0.593	0.002	
Pair 2	Country & Inventive Thinking	12	0.784	0.003	
Pair 3	Country & Effective Communication	10	0.784	0.007	0.00
Pair 4	Country & High Productivity	8	0.918	0.001	
Pair 5	Country & Spiritual Norms and Values	6	0.447	0.374	

Table 6 shows the correlation between two countries (Indonesia and Malaysia) with each aspect of The 21st Century Skills teacher candidates have different correlation values. Whereas based on the significance of Pair 1 to Pair 4 has a significant value <0.05 so it (Digital age literacy, inventive thinking, effective communication and high productivity) shows a significant relationship the same, but in Pair 5 (Norms and Spiritual Values) both only have different relationships. These results are suggesting that Indonesia and Malaysia, with norms and spiritual values, didn't have significant relationship. But the sig 2-tailed result has a significance of 0.00 <0.05 so that it can be interpreted that teacher candidates in Indonesia and Malaysia have the same relationship. Santoso (2014), explains if the significance of 2t <0.05, indicates that there is a relationship between the two group values.

Prayitno (2016) explained that the preparation of human resources in Indonesia needs to be done consistently and continuously through increasing the gross enrollment rates of elementary and secondary schools, universities, performance, English language skills, and the holding of professional certification as an effort to recognize human resource competencies in Indonesia . For example in Malaysia the country has a high success value in Information and Communication Engineering as reported by Razak, Jalil, Krauss, & Ahmad (2018) there are 3 keys to ICT success in Malaysia, namely the use of types of tools, school rules that shape culture, and division of labor in the community.

Aldowah, Al-Samarraie, & Fauzy (2019) report that found Educational Data Meaning (EDM) and Learning Analiytics (LA) techniques can be useful in developing problem solving strategies. Osman, Mr. Soh, & Arsad (2010) revealed that there are three mechanisms for enhancing the skills of The 21st Century Skills: first The wider community must recognize the skills of the 21st Century Skills is important for students, second, schools must embrace new designs such as information processing, the use of technology and skills of the 21st Century Skills, and thirdly, policy making in the context of school accountability to measure academic achievement and skills of the 21st Century Skills. Thus the achievement of The 21st Century Skills for countries especially in Asean is able

to compete in achieving the success of the Asean economic community, one of which is creating high quality human resources (HR).

4. Conclusion

The strengthening of The 21st Century Skills for literacy skills of the digital era, inventive thinking, Effective communication, high productivity and the norm and spirituality of teacher candidates in Malaysia is higher when compared to in Indonesia. In the norms and spirituality value have same category (strongly agree) in both country. The results of this research suggest that there are only discreet differences in the prospects to Indonesian teachers regarding candidates to Malaysian teachers, specifically when it were considered skills, such are: literacy skills of the digital era, inventive thinking, Effective communication and high productivity. In fact, the differences between the strengthening of the 21st Century Skills of prospective teachers in Indonesia was still low when mean were compared to those of the Malaysian teachers. This, considering that the results of relations between the two regions had almost the same statistical relationship.

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