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Management of Potential Data on Websites for Communicating Research in Education Issue

Khairil Anwar, Asmal May, Afrizal M, Andi Murniati, Rado Yendra,Ahmad Fudholi

Abstract: *This research is concentrated in the increasing of education issue studies using the management of potential data on Websites for Communicating Research in the field of Education. This research relates with several web sites, i.e: https://puspendik.kemdikbud.go.id/hasil-un/, and https://dapo.dikdasmen.kemdikbud.go.id/sekolah/ Furthermore, this research is also purposed in order to elucidate the potential and challenges of internet data for education to demonstrate a selection of relevant literature so that a wide spectrum of topics can be reached. A part of this data represents a large and increasing part of everyday life which sometimes could not be measured. The data used are a timely data which are potentially following a factual process, moreover they typically involve large numbers of observations, and they allow for flexible conceptual forms and experimental settings. In this paper, the data that are gained will be managed such that some academic articles are produced. Some data at the Internet had successfully been applied to a very wide range of detecting education issues (e.g. spatial analysis for relation a number of male and female students and score of mathematics and foreign languages test), we review the current literature attempts to incorporate the Internet data into the mainstream of scholarly empirical research in our research and guide the reader through this Special Issue. We provide some insights and a brief overview of the current state of research.*

I. INTRODUCTION

In the 1980s, at the first phase of Internet development, the majority of social researchers thought that they, with internet, could build and tackle many things easier than before, in an unprecedented speed and cost scale. In 10 years later, publics slowly started using internet such as E-mail and others in their daily activities. In the 2000s, an individual, with an effectively web method, used internet intensively and made many data piling up. In other hand, it is an unavoidable circumstance because the advanced sampling of ICT (Information and Communication Technology) becomes less. By linking an ever-larger part, we are able to eliminate several chosen biases caused by online populations which tend to be the same to the general population, so that it at least while there is full access allows us to have the real representative and random samples. Because of a progress in ICT, sampling is unnecessary at the time since we are able to handle almost unlimited data.

As time flies, many people realized the importance and the benefits of Internet, and they tried to leave their traditional way and to start using internet in many aspects of their life. In addition, many researches had been conducted by researchists in order to investigate the advantages of conducting research using Internet. Some of the advantages of web-based study are: reducing costs, convenience and speed of administration [1, 2]; the capability to supply high grades of anonymity [3] which rises self-esteem while reducing social restlessness and desire [4]; and an access to some larger and more diverse samples [5, 2]. Furthermore, this method enables targeting special minority populations which might otherwise be tough to be accessed [6, 3, 2]. There are plentiful the use of Internet data examples, such asSocial media: posts in social media, like Twitter or Facebook, can be used in order to support the production of traditional Official Statistics indexes like, e.g., the Consumer Confidence Index [7]. Web prices: Web scraping is already in use in order to collect prices related to goods and services for the construction of Consumer Prices Indexes [8], and internet queries: the use of Google Trends has been evaluated in order to produce now-casting estimates of unemployment indicators [9].

We, the first concern, are discussed on this paper is the type of the available data on the internet, especially the data have related to education issue. There are particular chances and challenges of this data that we need to explicate so that human resources questions can be answered. Moreover, the key literature in the subfields have to be identify on this step and it must be related to education. The final step is to manage the data obtained from education websites and to communicate it as an article published in the forum of International journals.

II. THE INTERNET DATA SOURCES OF EDUCATION ISSUES IN SOME POTENTIAL WEBSITE

Education issues is big association of data. Because of their characteristics, it causes a lot of interesting aspects that could be always studied.

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There are several websites on the internet providing this data, and in this paper we use data served on some websites, namely https://puspendik.kemdikbud.go.id/hasil-un/ and https://dapo.dikdasmen.kemdikbud.go.id/sekolah/. The websites contain the educational data, such as the data about the number of male and female pupil and the data of math and foreign languages scores, shown in Figure 1 and Figure 2 respectively.

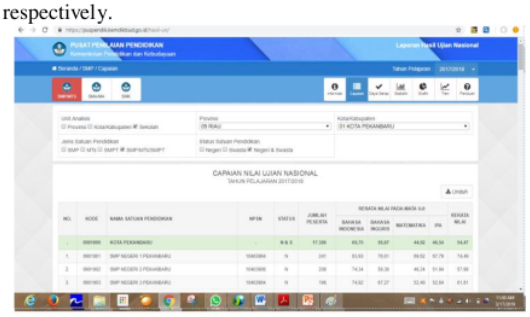


Fig 1. The website source of educational data (test score of mathematics and foreign languages subjects)

Fig 2. The website source of educational data (a number of male and female students, and latitude and longitude sample)

III. THE MANAGEMENT OF EDUCATIONAL DATA FOR PRODUCING A RESEARCH ARTICLE

Finding the correlations between the number of male and female students and the scores of math and foreign languages data are the interesting part of this research, especially in determining the type relationship of these data in the very wide area. The frequently used concept for this research is spatial analysis or more often termed as mapping. If we compare the maps of these data in a very wide area, it will ease us to conclude and to draw the correlation between them, especially in drawing conclusions about sex relations in mathematics and foreign languages understanding level in that region. Figure 1 is the website of student scores on math and foreign languages, while Figure 2 is the additional website source which is needed to determined gender relation in understanding some subjects. On the website, the number of male and female students can be obtained and the location of the latitude and longitude schools that were sampled in this study.

The management data obtained will be begun by transforming data in to a table. For example, Table 1 represents the data of some public school (junior high school) which will be manage in order to produce the research articles as a result of spatial analysis application in education field. The data are mathematics learning value data (M17), foreign languages (B17), the location of latitude (lat) and longitude (long) of some schools which is the main key in producing this research article. The geographical coordinates and some locations of the 40 selected junior high school are provided in Figure 3 respectively. In this paper, the term of SMP represents junior high school on Pekanbaru.

Spatial analysis is a method for analyzing data by knowing the coordinates so that the location or coordinates (latitude and longitude) can be discovered. Spatial analysis is also techniques for visualizing or mapping data, determining whether the data shows spatial autocorrelation or not, then modeling spatial relationships. Spatial analysis has a big impact for education field, for instance the maps of school achievement level gives many benefits for educational planners and managers. Understanding student ability in understanding some subjects base on gender also gives indirect impact, for example, number of male and female students are highly related to ability student to understand for some subjects on a particular school.

Table1. Educational data gained from Figs. 1 and 2

SMP	LAT	LONG	B17	BING17	M17	I17
SMP22	0.5018	101.4775	68.34	51.38	41.98	48.81
SMP35	0.455618	101.464	68.38	52.65	45.15	51.89
SMP33	0.5197	101.3915	62.72	41.46	39.04	43.65
SMP36	0.545451	101.4184	60.94	40.64	38.75	41.07
SMP13	0.51454	101.456	78.3	61.31	57.35	58.47
SMP12	0.5301	101.428	65.97	46.85	42.15	46.16
SMP18	0.5283	101.428	67.08	55.82	62.65	56.12

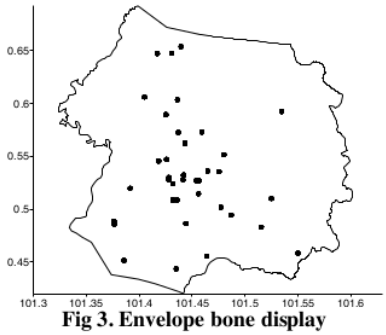


Fig 3. Envelope bone display

By using spatial analysis, some maps will be produced. Figure 3 shows that the lower mean of English score test is appeared in almost west and east regions of Pekanbaru. While in term of Mathematic, it seems that almost all west and east region of Pekanbaru experienced the same scores at between 36 and 44, as shown in Figure 4. From these results, it could be concluded that the junior high school students of Pekanbaru have the same level of English and Mathematic

understanding, especially in west and east region of Pekanbaru. Figure 6 and 7 represent that in west area, the spatial distribution of the number of male students is more than the number of female students. Base on these cases, our research has revealed that girl perform is better than boys in term of English test score, it means that the number of male and female has influenced the English test score. However, we can see that east region showed different result that there is no impact of the number of male and female on the understanding ability of English subject.

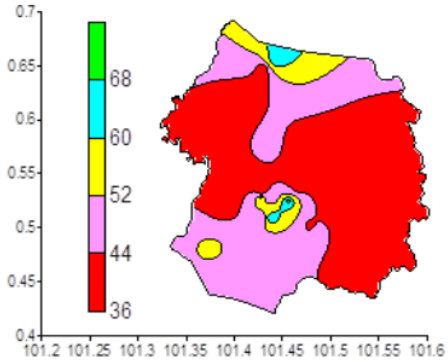


Fig 4. Map of (Mathematics) score test of Junior High Schools in Pekanbaru region

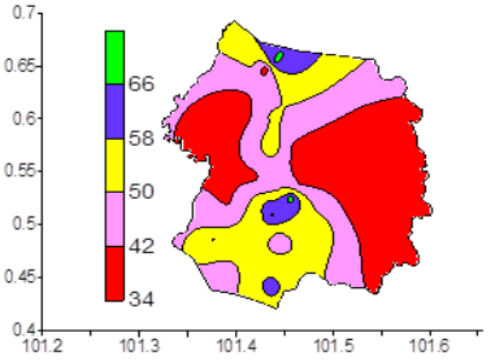


Fig 5. Map of foreign language score test of Junior High Schools in Pekanbaru region

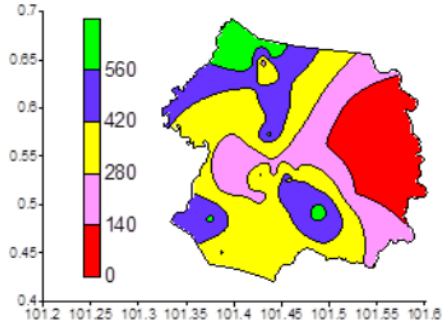


Fig 6. Map of number of male students of Junior High Schools in Pekanbaru region

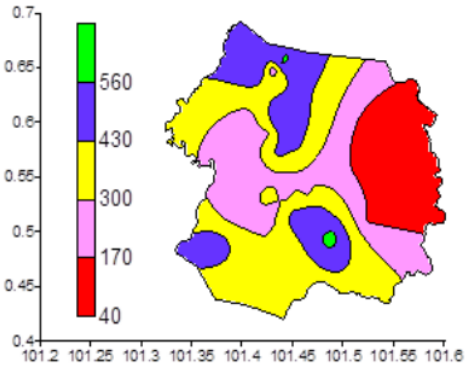
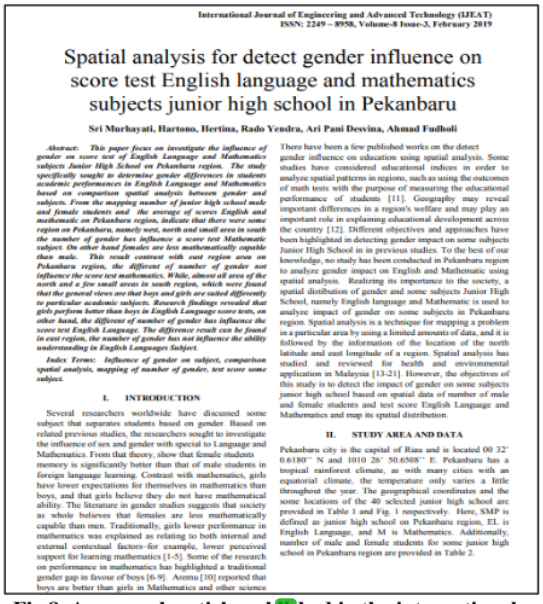


Fig 7. Map of number of female students of Junior High Schools in Pekanbaru region

Furthermore, an interesting article will be arranged in such way by using all obtained information which is presented on the table forms and so on, as well as the displayed data as map using spatial analysis, as shown in Figure 8. This research artic has been published in an international journal, namely the International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 - 8958, Volume-8 Issue-3, February 2019. This research article has studied about how gender could influence students' ability on understanding mathematics and foreign language [11]. The data used on this research were gathered from several educational website available on the Internet.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Spatial analysis for detect gender influence on score test English language and mathematics subjects junior high school in Pekanbaru

Sri Murhayati, Hartono, Hertina, Rado Yendra, Ari Pani Desvina, Ahmad Fudholi

Abstract: This paper focus on investigate the influence of gender on score test of English Language and Mathematics subjects Junior High School on Pekanbaru region. The study specifically sought to determine gender differences in students academic performances in English Language and Mathematics based on comparison spatial analysis between gender and subjects. From the mapping number of junior high school male and female students and the average of scores English and mathematic on Pekanbaru region, indicate that there were some region on Pekanbaru, namely west, north and small area in south the number of gender has influence a score test Mathematic subject. On other hand females are less mathematically capable than male. This result contrast with east region area on Pekanbaru region, the different of number of gender not influence the score test mathematics. While, almost all area of the north and a few small areas in south region, which were found that the general views are that boys and girls are suited differently to particular academic subjects. Research findings revealed that girls perform better than boys in English Language score tests, on other hand, the different of number of gender has influence the score test English Language. The difference result can be found in east region, the number of gender has not influence the ability understanding in English Languages Subject.

Index Terms: Influence of gender on subject, comparison spatial analysis, mapping of number of gender, test score some subject.

I. INTRODUCTION

Several researchers worldwide have discussed some subject that separates students based on gender. Based on related previous studies, the researchers sought to investigate the influence of sex and gender with special to Language and Mathematics. From that theory, show that female students memory is significantly better than that of male students in foreign language learning. Contrast with mathematics, girls have lower expectations for themselves in mathematics than boys, and that girls believe they do not have mathematical ability. The literature in gender studies suggests that society as whole believes that females are less mathematically capable than men. Traditionally, girls lower performance in mathematics was explained as relating to both internal and external contextual factors–for example, lower perceived support for learning mathematics [1-5]. Some of the research on performance in mathematics has highlighted a traditional gender gap in favour of boys [6-9]. Aremu [10] reported that boys are better than girls in Mathematics and other science

There have been a few published works on the detect gender influence on education using spatial analysis. Some studies have considered educational indices in order to analyze spatial patterns in regions, such as using the outcomes of math tests with the purpose of measuring the educational performance of students [11]. Geography may reveal important differences in a region's welfare and may play an important role in explaining educational development across the country [12]. Different objectives and approaches have been highlighted in detecting gender impact on some subjects Junior High School in in previous studies. To the best of our knowledge, no study has been conducted in Pekanbaru region to analyze gender impact on English and Mathematic using spatial analysis. Realizing its importance to the society, a spatial distibution of gender and some subjects Junior High School, namely English language and Mathematic is used to analyze impact of gender on some subjects in Pekanbaru region. Spatial analysis is a technique for mapping a problem in a particular area by using a limited amounts of data, and it is followed by the information of the location of the north latitude and east longitude of a region. Spatial analysis has studied and reviewed for health and environmental application in Malaysia [13-21]. However, the objectives of this study is to detect the impact of gender on some subjects junior high school based on spatial data of number of male and female students and test score English Language and Mathematics and map its spatial distribution.

II. STUDY AREA AND DATA

Pekanbaru city is the capital of Riau and is located 00 32' 0.6180'' N and 1010 26' 50.6508'' E. Pekanbaru has a tropical rainforest climate, as with many cities with an equatorial climate, the temperature only varies a little throughout the year. The geographical coordinates and the some locations of the 40 selected junior high school are provided in Table 1 and Fig. 1 respectively. Here, SMP is defined as junior high school on Pekanbaru region, EL is English Language, and M is Mathematics. Additionally, number of male and female students for some junior high school in Pekanbaru region are provided in Table 2.

Fig 8. A research article published in the international journal forum, namely the International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 - 8958, Volume-8 Issue-3, February 2019

IV. CONCLUSION

In this paper, we arrange the steps on producing research articles by using data which are available on potential websites, especially in the term of education and climate issues. Specifically, we exposure the strategies on detection of how the understanding level of English and Mathematics of SMP students in Pekanbaru could be influenced by gender by using spatial analysis. Data that has been managed using the correct statistical methods will be communicated through research articles published in several good international journals.

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