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Demographic sources as a local wisdom: Potency of Indonesian physics education researchers in conducting survey research

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Abstract. The trends of population and the dependency ratio from 2020 to 2030 (young and elderly to working age) give a benefit to Indonesia. These demographic sources are one of the local wisdom as well as culture, diversity, ethnicity, and natural resources. In this paper, therefore, survey research, especially in physics education was proposed in responding the potency of demographic factors. Generally, survey design is used to describe trends, to determine individual opinions about special topics or policy issues, and to provide useful information to evaluate programs in schools. The research method addressed the explanatory process of cross-sectional survey designs and longitudinal survey designs, which were conducted by the author previously. The discussion was started from the simple process of survey study and followed by some examples of survey research designs. For the cross-sectional survey, the AT-STEM (Attitudes towards STEM), Conception of Learning Physics (CLP), and Physics Learning Self-Efficacy (PLSE) were discussed. Meanwhile, for longitudinal survey designs, the Attitudes towards (Teaching) Science (ATS) were exemplified. Moreover, the research about Attitudes towards a New Physics Curriculum (ATNPC) was also demonstrated. Finally, some recommendations of physics education research were also proposed.

1. Introduction

Indonesia is the fourth-largest population in the world after Mainland China, India, and the USA [1]. This demographic source is one of the “Indonesian Capital for 2045 Program” [2]. The trend of the percentage of population and the dependency ratio from 2020 to 2030 (young and elderly to working age) give a benefit to the country. Demographic incentive/ bonus is defined when Indonesia as a country has a population of productive age with an abundance, which is about 2/3 of the total population. It can be seen with the parameter of the dependency ratio is quite low, reaching 44. This means that in every 100 productive age of populations (15-64 years) only bear about 44 unproductive population [3]. Therefore, this situation becomes a source of local wisdom.

In term of education, the huge number of population is one of the special concerns in addressing participants of research, especially for survey study. Taking for example, if our target of the participant is one-senior high school students (32-36 students each class on average), then for 10 classes we will get 320-360 participants. Indeed, if our target is two senior high school in the big cities, then our participants reach 1000 students. By doing so, at the university level, we will reach more than 1000 students for all levels (Freshmen, Sophomore, Junior, and Senior). This number is very enough



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for conducting survey research. In this paper, therefore, survey research, especially in physics and science domain is proposed in responding to the source of a demographic factor.

Survey designs are “procedures in quantitative research in which you administer a survey or questionnaire to a small group of people (called the sample) to identify trends in attitudes, opinions, behaviours, or characteristics of a large group of people (called the population)” [4]. In other words, survey research is aimed “to describe trends, to define individual opinions about policy issues, to map the relationships among variables or factors, and to provide useful information to evaluate programs in schools” [4]. Meanwhile, the types of survey designs, include (a) cross-sectional survey designs and (b) longitudinal survey designs. The first type is used to collect data about current opinions, attitudes, or beliefs. On the other hand, the longitudinal survey is addressed to study individuals over time. The following Table 1 describes the distinguishes between these two features.

Table 1. The main differences between cross-sectional designs and longitudinal designs [4].

Cross-Sectional Survey Designs	Longitudinal Survey Designs
The most popular in education	A few studies used longitudinal survey in education
Collects data at a single point in time	Collects data over time
The benefit of investigating current attitudes, beliefs, or practices	The participants may be different or the same population
Provides information in a short amount of time	Provides information for a long duration
5 types: ✓ examine current attitudes, beliefs, opinions, or practices ✓ compares two or more educational groups ✓ measure educational community needs ✓ evaluate an educational program ✓ statewide study or a national survey	3 types: ✓ Trend Studies: pinpointing a population and examining changes within that population over time (same population) ✓ Cohort Studies: identifying a subpopulation based on some specific characteristics over time (same subpopulation) ✓ Panel Studies: examines the same people over time (same sampling)

Regarding the key features of survey research, the researcher engages in the processes of “sampling from a population, collecting data through questionnaires or interviews, designing instruments for data collection, and obtaining a high response rate” [4]. The process of educational survey research is demonstrated in Figure 1. By starting with a selection of items (scale), then the process is followed by conducting qualitative treatment. The next step is collecting data. For quantitative data analysis uses EFA (Exploratory factor analysis) and/or CFA (Confirmatory factor analysis). The final step is checking the validity and reliability of the questionnaire and perform the explanation of the research question.

Based on the aforementioned rationale, the main research questions (RQs) deducted in this study were:

- To what extent do the potency of Indonesian physics education researchers in conducting survey research?
- How researchers do in performing a simple process of analysis in physics education survey research?

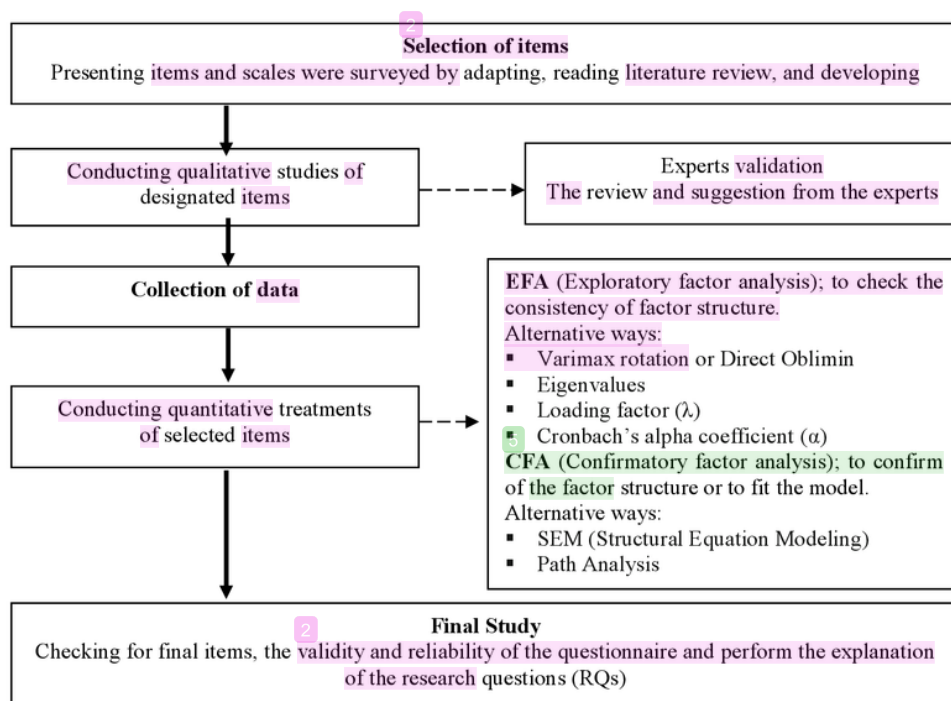


Figure 1. The simple process of educational survey research (modified from [5]).

2. Method

Generally, survey design is used “to describe trends, to determine individual opinions about pedagogical issues, to grasp the relationships among variables or factors, and to provide useful information to evaluate educational programs” [4]. Meanwhile, the types of this design, includes (a) cross-sectional survey designs (C-SSD) and (b) longitudinal survey design (LSD). The research method addressed the explanatory process of both of these types, which were conducted by the author previously [6-7]. Survey design could be utilised in both the non-test method [5,8-9,13] and test method [14], however, this study concentrated only non-test method. Therefore, this study focused only on the ordinal data. Table 2 lists four instruments, which surveyed at different levels in Indonesia.

Table 2. Survey research in physics education and science education in Indonesia.

Name of instrument or scale	Type of survey	Participants	Number of dimensions/ factors	Number of items	
				Initial	Final
AT-STEM (Attitudes towards STEM) [5]	C-SSD	260 junior high school students	4	27	25
Conception of Learning Physics (CLP) and Physics Learning Self-Efficacy (PLSE) [8]	C-SSD	279 Pre-service physics teachers	CLP = 3 PLSE = 6	20 32	20 30
Attitudes towards (Teaching) Science (ATS) [9]	LSD	379 Pre-service teachers	7	28	28
Attitudes towards a New Physics Curriculum (ATNPC)	C-SSD	304 Pre-service physics teachers	7	35	31

3. Result and Discussion

RQ 1: To what extent do the potency of Indonesian physics education researchers in conducting survey research?

For addressing the RQ 1, the next section will explain the example of instruments that have been succeeded and implemented in some area of Indonesia in the domain of physics education and science education. The discussion has also performed the minimal requirement for conducting survey research.

The example of the instrument for cross-sectional survey designs (C-SSD)

a. Attitudes towards STEM (AT-STEM)

AT-STEM is aimed to explore Indonesian junior high school students' attitudes towards - "Science, Technology, Engineering and Mathematics" (STEM) [5]. Through the process, as indicated in Figure 1 by addressing EFA (Exploratory Factor Analysis), then four suggested factors: Science, Math, Technology and Engineering, and STEM were endorsed. It was noted that the ratio between the number of items and participants are 1:10 (see Table 2). This ratio is the minimal requirement for the stability of the data. One output from this research was the mapping of the interrelationships among these four factors, which is depicted in Figure 2.

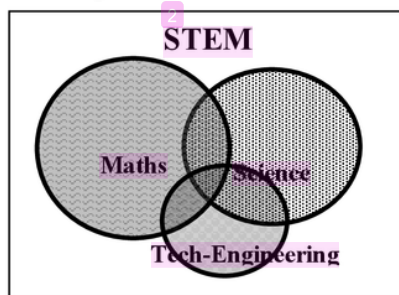


Figure 2. The interrelationships among mathematics, science, technology and/or engineering in junior high school [5].

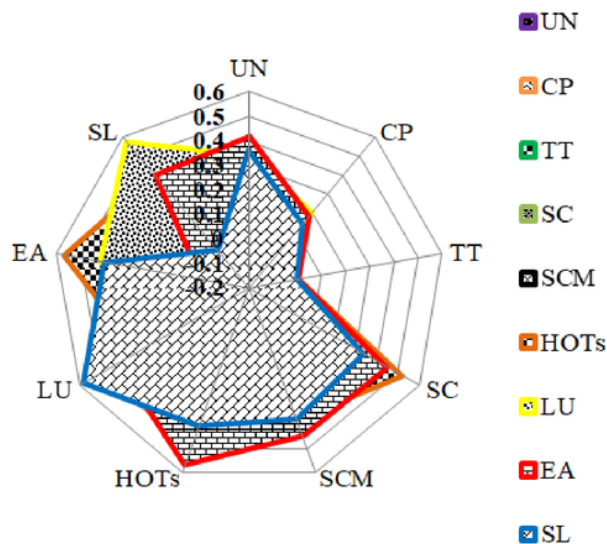


Figure 3. The interrelationships among factors of CLP and PLSE.

4 b. Conception of Learning Physics (CLP) and Physics Learning Self-Efficacy (PLSE) [8]

CLP instrument is targeted to explore the conception of learning physics, while PLSE is expected to survey the PLSE amongst different levels of university students as pre-service physics teachers in Indonesia. The ratio between the number of items and participants was 1:14 for CLP and 1: 9 for PLSE (see Table 2). Through the process as indicated in Figure 1 and by utilising EFA (Exploratory factor analysis), then three factors of CLP: "Understanding (UN), Calculating & Practicing (CP), and Testing (TT)", and six factors of PLSE: "Science Content (SC), Higher-Order Thinking Skills (HOTs), Laboratory Usage (LU), Everyday Application (EA), Science Communication (SCM), and Scientific Literacy (SL)" were endorsed [8]. One outcome of the research was the diagram of the interrelationships among all factors, which is illustrated in Figure 2. Accordingly, the strong relationship among dimensions of CLP and PLSE were UN-EA, UN-SL, SL-LU, SL-EA, SL-HOTs, EA-HOTs, SCM-EA, SCM-EA, and SC-HOTs.

The example of longitudinal survey designs (LSD)

Attitudes Towards (Teaching) Science (ATS)

By addressing a longitudinal survey design with trend study (same population, different sampling, over time), the study focused on PSTs' attitudes towards science during three years (2012-2014). Totally, 379 teachers candidates from the Open University at Surabaya regional office joined in the study [9]. Thus, the ratio between the number of items and participants was 1:13 (see Table 2). Through confirmatory factor analysis (CFA) and considered the value of "RMSEA (Root Mean Square Error of Approximation), CFI (Comparative Fit Index, GFI (Goodness of Fit Index), AGFI (Adjusted Goodness of Fit Index), and S-RMR (Standardized RMR)" [9,19], the study resulted in seven factors of Attitudes Towards (Teaching) Science as follows:

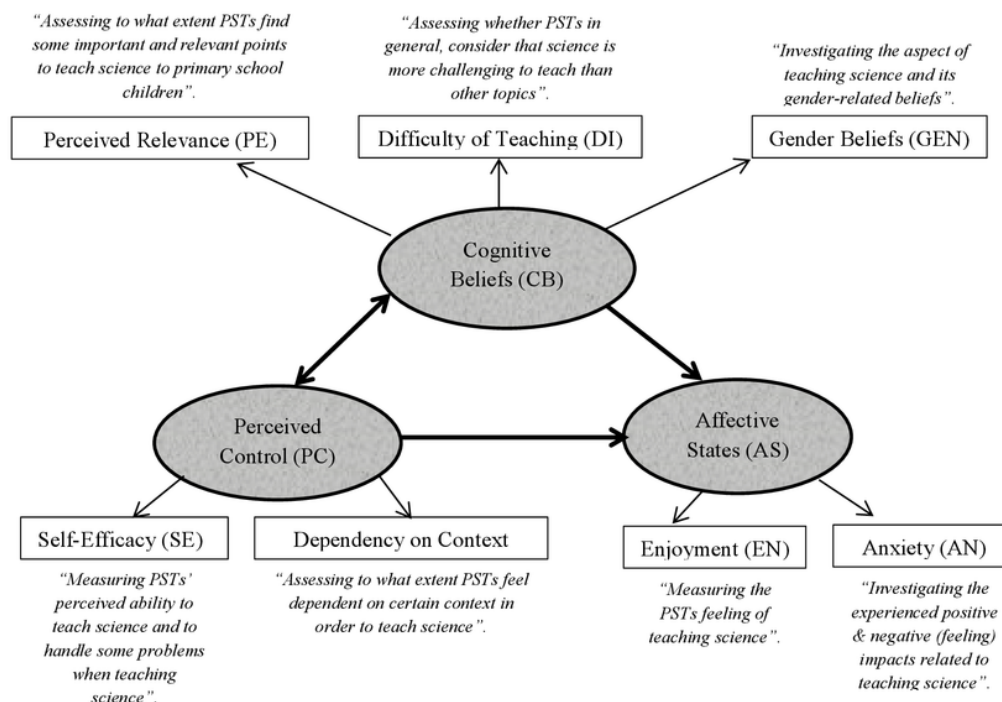


Figure 4. The seven factors of pre-service teachers' attitudes towards (teaching) science [9].

RQ 2: How researchers do in performing a simple process of analysis in physics education survey research?

In order to answer the RQ 2, the following section demonstrated the analysis process of the data from the instrument: **Attitudes towards a New Physics Curriculum (ATNPC)** Questionnaire. Table 3 shows the Kaiser-Meyer-Olkin (KMO) value was .742 and the result of Bartlett's test was significant ($\chi^2 = 3832.242$, $df = 465$, $p < .001$), indicating that the data were appropriate for factor analysis [5,8,10]. Some previous researchers indicated that the data were appropriate for EFA and CFA if KMO value was greater than 0.600 and the Bartlett test was significant [11]. The eigenvalues of the seven proposed factors from the Principal Component Analysis (PCA) were all larger than one (see Figure 5 and Table 4).

Table 3. KMO and Bartlett's Test of ATPNC.

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.	.742	
Approx. Chi-Square	3832.242	
Bartlett's Test of Sphericity	df	465
	Sig.	.000

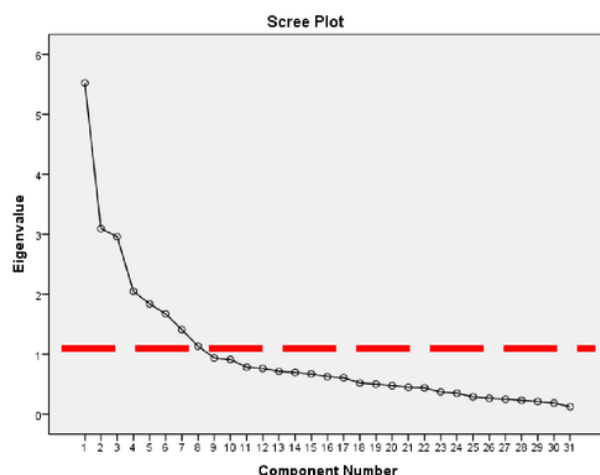


Figure 5. The scree plot of the seven factors of ATPNC based on eigenvalues.

Table 4. The eigenvalues of the seven factors of ATPNC.

Component (Factor)	Initial Eigenvalues		
	Total	% of Variance	Cumulative of Variance (%)
1	5.524	17.819	17.819
2	3.094	9.979	27.798
3	2.959	9.546	37.344
4	2.047	6.604	43.948
5	1.839	5.933	49.881
6	1.670	5.388	55.268
7	1.407	4.539	59.808

The seven factors calculated for 59.81% of the total variance. Factor loadings of the Attitudes towards a New Physics Curriculum intended to measure each factor were between .507 and .907. The loading factor less than .400 were excluded in the analysis [5,7-9,13]. The Cronbach's α coefficients

for seven factors were .893, .746, .772, .749, .694, .688, and .731, respectively, and the overall alpha value was .806 (see Table 5). It was indicating that the most factors had a moderate internal consistency and other factor had a high internal consistency in assessing the PSTs' ATNPC, and were accepted for further investigation of the study. Based on the rule of thumb by Nunnally and Bernstein: (.700 for internal consistency reliability), therefore all values of alpha were acceptable [10-12]. Meanwhile, the value of skewness and kurtosis were in the range of -2 to +2, indicating that the data were appropriate for further multivariate analysis, such as correlation, regression, and analysis of variance [7,10].

Table 5. Rotated component matrix among seven factors of ATNPC with varimax rotation.

Item	Loading Factor (λ) ^a						
	GP (α = .893)	AE (α = .746)	AA (α = .772)	NA (α = .749)	PA (α = .694)	CC (α = .688)	GE (α = .731)
A2	.907						
A1	.836						
A6	.818	(11.98% of Variance Explained)					
A3	.805						
A7	.783						
C4		.831					
C5		.725					
C3		.681	(9.33% of Variance Explained)				
C2		.573					
C1		.507					
G2			.774				
G1			.759				
G4			.732	(9.07% of Variance Explained)			
G5			.677				
G3			.626				
B1				.864			
B4				.773			
B6				.605	(8.36% of Variance Explained)		
B5				.565			
B3				.516			
F2					.860		
F4					.726		
F3			(7.30% of Variance Explained)			.651	
F1					.575		
E1						.803	
E4						.768	
E2			(7.20% of Variance Explained)				.596
E3						.549	
D3							.891
D2				(6.56% of Variance Explained)			.777
D4							.600
Total variance explained = 59.81% and the overall Cronbach Alpha α = .806							

^aNote: Extraction Method: "Principal Component Analysis (PCA)".

Rotation Method: "Varimax with Kaiser Normalization".

[A= Government Policy (GP); B= Need Analysis (NA); C= Assessment Effect (AE); D= Globalisation Effect (GE); E= Curriculum Content (CC); F= Practical Application (PA); and G= Academic Anxiety (AA)]

Based on Table 5, Attitudes towards a New Physics Curriculum (ATNPC) were influenced by seven factors: Government Policy (GP), Need Analysis (NA), Assessment Effect (AE), Globalisation Effect (GE), Curriculum Content (CC), Practical Application (PA), and Academic Anxiety (AA). Regarding the factor of government policy (GP), a new physics curriculum should consider content-based curriculum, process-based curriculum, policy borrowing from other countries, the reflection of previous curriculum, and local wisdom like a demographic bonus.

Turning to the factor of Need Analysis (NA), the new physics curriculum should address the need of stakeholder, society, and citizen. Additionally, the synergy between the component of knowledge, skills, affection, and scientific literacy should be implemented in a new physics curriculum.

Considering the factor of Assessment Effect (AE), the impact of large-scale assessment such as TIMSS, PISA, and PIRLS gives an opportunity for initiating a new physics curriculum [1,15]. Moreover, the trend of *de-grading* and *de-testing* in the world, as well as authentic assessment, should give a link-match between content and process of curriculum and evaluation standard.

Then, relating to Globalisation Effect (GE), it is important to apply a new physics curriculum due to the effect of global development. Additionally, the era of Asean Economic Community (*Masyarakat Ekonomi Asean*, MEA) and the success of developed countries in education influence on developing new physics curriculum.

The factor of Curriculum Content (CC) is initiated by the rationale that it is the time for implementing a new physics curriculum with integrated knowledge and skills together as well as implementing four kinds of knowledge: factual, conceptual, procedural, and metacognition, which is documented in Curriculum 2013 (K13). In addition, the new physics curriculum has already added the newest content in order to make it appropriate with the global era (such as global warming, digital technology, and renewable energy). Moreover, Veloo, Nor, and Khalid highlighted the curriculum content should address some attitudes and beliefs, such as “interest towards physics, attitude towards career related to physics, attitude towards the importance of physics, attitude towards physics teachers, attitude towards difficulty in physics, and attitude towards usage of physics equipment” [15].

Practical Application (PA) factor deals with the situation that new physics curriculum should give a wider opportunity for teacher and school to perform their creativity, to optimise physics laboratory facilities in order to enhance students’ skills. Indeed, the learning approach and model that suggested in K13 is well-done for implementation in the school. In a short sentence, a new physics curriculum should relevance to practice [17].

The last factor is Academic Anxiety (AA). This factor highlighted the anxiety for teachers, students, government, citizen, and university with pre-service physics teacher program in implementing a new physics curriculum (K13). As Austin et al. stated that in a new curriculum mater, a teacher should prepare teaching methods, assessment methods, and many things; therefore overall satisfaction with physics education is questionable [16]. On the other hand, Oğuz argued that academic anxiety refers to contradiction, interest, and appreciation of the special subject, i.e. physics [17]. The study about curriculum is part of the research topic in science education (SE), i.e. goals, policy, and curriculum that not many researchers give more attention. This implies that “the research regarding goals, policy, and curriculum may aim to discuss some fundamental ideas or contemporary status regarding the goals, policy and curriculum in SE and it may not necessarily conduct an empirical study” [18].

4. Conclusion

Indonesian physics education researchers have the great potency in conducting survey research due to the demographic sources. This local wisdom becomes a positive impact in supporting and triggering the piloting survey study in term of the ratio between number of items and participants. The minimum requirement in stabilising the data is 1:10, which is well-done performed by four studies, i.e. AT-STEM (Attitudes towards STEM), Conception of Learning Physics (CLP) and Physics Learning Self-Efficacy (PLSE), Attitudes towards (Teaching) Science (ATS), and Attitudes towards a New Physics Curriculum (ATNPC). Thus, if the total of items is 30, then the minimum of participants is 300. In

similar way, if the number of items is 50, then the minimum participants should be 500. Therefore, it is easy to get a high response rate with the biggest population of the country like Indonesia.

The process of analysing data in survey study includes **EFA** (Exploratory Factor Analysis) and/or **CFA** (Confirmatory Factor Analysis). In the case of ATNPC, which was demonstrated in the previous section, the steps considered varimax rotation, checked the eigenvalues, evaluated loading factor of items, and measured Cronbach's alpha coefficient. Meanwhile, confirmatory factor analysis (CFA) as performed in ATS considered the value of **RMSEA** (Root Mean Square Error of Approximation), **CFI** (Comparative Fit Index), **S-RMR** (Standardized RMR), **GFI** (Goodness of Fit Index), and **AGFI** (Adjusted Goodness of Fit Index) [19].

Some recommendations for physics education research are proposed. *First*, for describing trends, determining individual opinions about special topics or policy issues, demonstrating some relationships, and providing useful information to evaluate educational programs, survey design is suggested. *Second*, for reaching generalisation, both type of survey research: a cross-sectional survey and longitudinal survey is one of the solutions in physics education research. *Third*, for the better conclusion, in conducting survey research the researcher should deal with the expression; "the larger participants the better results". The researcher, therefore, should – "engage in the processes of sampling from a population, collecting data through questionnaires or interviews, designing instruments for data collection, and obtaining a high response rate". *Fourth*, the physics education researchers should give more attention to the research topic regarding goals, policy, and curriculum. *Finally*, all survey studies reported in this paper utilised the non-test method, the further research should address test method, i.e. multiple choice test (MCT), two-tier test, three-tier test, and four-tier test.

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References

- [1] Suprpto N 2016 *Asia-Pacific Forum on Sci. Learn. Teach.* **17** 16.
- [2] Kemdikbud 2013 *Arahan Mendikbud: Pengembangan Kurikulum 2013* [Penyegaran Nara Sumber pelatihan guru untuk implementasi Kurikulum 2013, Jakarta, 26-28 Juni 2013] PPT version.
- [3] Saichudin M 2016 *Menuju bonus demografi Indonesia tahun 2020-2030* Retrieved from <http://fkmalmarsya.blogspot.com/2015/03/menuju-bonus-demografi-indonesia-tahun.html>.
- [4] Creswell J W 2012 *Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th Ed.)* (Boston, MA: Pearson)
- [5] Suprpto N 2016 *J. Turkish Sci. Educ.* **13** (Special Issue) 75.
- [6] Blossfeld H-P, von Maurice J, Bayer M and Skopek J (Eds.) 2016 *Methodological issues of longitudinal surveys: The example of the National Educational Panel Study* (Fachmedien Wiesbaden GmbH: Springer)
- [7] Gideon L 2012 *Handbook of survey methodology for the social sciences* (New York, NY: Springer)
- [8] Suprpto N, Chang T-S and Ku C-H 2017 *J. Baltic Sci. Educ.* **16** 7.
- [9] Suprpto N and Mursid A 2017 *Turkish Online J. Dist. Educ.* **18** 66.
- [10] Stevens J 2002 *Applied multivariate statistics for the social sciences* (Mahwah, NJ: Erlbaum)
- [11] Nunnally J C and Bernstein I H 1994 *Psychometric theory (3rd ed.)* (New York, NY: McGraw-Hill)
- [12] Suprpto N and Chang T-S 2015 *Proc. Inter. Conf. Sci. & Sci. Educ. (IconSSE 2015)*

- [13] Suprpto N and Ku C-H 2016 *Int. Educ. Studies* **9** 19.
- [14] Suprpto N, Syahrul D A, Agustihana S, Pertiwi C A and Ku C-H 2016 *Chemistry* **25** 718.
- [15] Veloo A, Nor R and Khalid R 2015 *Int. Educ. Studies* **8** 35.
- [16] Austin Z, Collins D, Remillard A, Kelcher S and Chuia S 2006 *Am. J. Pharm. Educ.* **70** 50.
- [17] Oğuz A 2012 *Educ. Sci.: Theory and Prac.* **12** 854.
- [18] Lin T-C, Lin T-J and Tsai C-C 2014 *Int. J. Sci. Educ.* **36** 1346.
- [19] Teo T, Tsai L-L and Yang C-C 2013 Applying structural equation modeling (SEM) in educational research: An introduction (pp 3-21), In Khine M S (Ed.) *Application of structural equation modeling in educational research and practice* (Rotterdam: Sense Publishers)

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