Factor influencing of teachers' readiness to implement the Independent Curriculum

Fitra Delita[1], Tumiar Sidauruk[1], Alna Hanana[2], Mona Adria Wirda[3]

[1]Faculty of Social Sciences, State University of Medan, Medan, Indonesia
[2]Department of Media Studies, School of Communication, Universiti Sains Malaysia, George Town, Malaysia
[3]Graduate Institute of Digital Learning and Education, National Taiwan University of Science and Technology, Taipei, Taiwan

Article Info

ABSTRACT

The education curriculum in Indonesia is gradually changing from the 2013 Curriculum to the Independent "Merdeka" Curriculum. The new curriculum is certainly a challenge for teachers. The aim of this research is to analyze the factors that influence teacher's readiness and to measure the level of teacher readiness in implementing the Independent Curriculum. This quantitative research was designed using a survey method. The participants involved were 172 teachers from elementary, middle, and high school education levels in Medan City, Indonesia. Data were collected using online questionnaires and interviews. Data analysis was conducted using descriptive statistics using mean scores, factor analysis, and multiple linear regression t-test. The research results show the level of teachers' readiness in implementing the Independent Curriculum based on gender, age, and years of teaching experience, both at elementary, middle, and high school levels with a mean interval of 6.00–6.99 (the initiation level). Subsequently, there are four dominant factors that influence teachers' readiness to implement the Independent Curriculum, which are teacher, school, government policy, and student. The teacher factor contributed the most in determining teachers' readiness to implement the Independent Curriculum (43.7%).

Corresponding Author:

Fitra Delita
Faculty of Social Sciences, State University of Medan
St. Willem Iskandar Pasar V, Medan, Indonesia
Email: fitradelita@unimed.ac.id

1. INTRODUCTION

The success of the educational system is largely determined by the curriculum. Curriculum is an instrument to achieve educational goal in any country. It serves as road map for learning that focuses on constructing and improving students attitudes, knowledge, and skills [1]. Specific learning objectives and instructional practices should be aligned in the curriculum [2]. Curriculum is a systematic design and instruction of learning experiences to achieve learning performance and personal social competence for learners. Curriculum provide instruction, strategy, learning material, and evaluation that educators can apply in learning process as a part of curriculum implementation [3].

In curriculum implementation, students associate with learning materials to improve their attitudes, knowledges, and skills [4]. The implementation of curriculum in the educational system involves various elements such as principals, teachers, students, school administrators, and parents directly or indirectly. However, teachers are the main implementers of curriculum. Educators have a main role in the achievement of educational objectives [5]. Teachers' insight toward the curriculum and their preparedness to implement curriculum are the main factors for the success of an educational goal. A teacher who knows the appropriate

approaches, strategies, models, methods, and techniques for curriculum implementation is a qualified teacher [6]. They have a major contribution to student performance. The association of early knowledges and skills of teachers will influence 65% of the learners achievement, if propped by interaction and the quality of teaching and learning process, will influence 90% of the learners achievement [7].

There is previous research related to teachers' readiness to implement curriculum. It is needed to analyze the inhibiting factors that affect teachers in curriculum implementation [8]. Understanding the obstacles to curriculum implementation, especially the new curriculum, and providing a set of tools and training for successful curriculum implementation is the key. Increasing student knowledge is the main goal of curriculum implementation [9]. Therefore, teacher training and development is an important factor for the successful curriculum implementation, while lack of training and readiness is an obstacle to curriculum implementation [10]. The lack of curriculum implementation training for educators, insufficient time duration, and inadequate learning materials had a negative impact on curriculum implementation [11].

Teachers' readiness is a guarantee of results in planning and implementing the curriculum, including the teaching and learning [12]. The low quality of teaching and learning is influenced by the lack of teacher's readiness in implementing the curriculum [13]. The basic component in implementing the curriculum is the readiness of the implementer or educator. Furthermore, 90% of the teachers in West Seram Regency, Maluku, Indonesia are ready to implement the national education curriculum (the 2013 Curriculum), but they are not yet sufficiently equipped to do so [14]. Sundayana [15] conducted a study on the readiness and competence of English language teachers in implementing the 2013 Curriculum. The quantitative data analysis showed that the readiness of teachers' in implementing the 2013 Curriculum had a low correlation with their individual competence. Meanwhile, the results of qualitative data analysis in this study show that the teachers are quite ready to implement the curriculum and have sufficient competence in developing learning plans. Palestina et al. [16] revealed that teachers' knowledge influence their readiness (motivation and preparedness) to implement the curriculum. In addition, Saputra and Nuchron [17] examined the readiness of vocational school teachers in implementing the revised 2013 curriculum in Cilacap Regency, West Java, Indonesia. This study found the factors influencing teachers' readiness, were teacher training (24.1%), teacher professionalism (8.4%), and principal leadership (8.4%).

Previous research focused more on specific subjects and school education levels. This research discusses the readiness of teachers to implement the Independent Curriculum for different subjects and school levels based on teacher ages', gender, and years of teaching experience. The Independent Curriculum is still being implemented in stages during the educational recovery period from the COVID-19 pandemic. Indonesia implemented the Independent Curriculum as a refinement of the 2013 Curriculum. The new curriculum supports the achievement of 21st century competencies, which include critical, creative and innovative thinking skills, collaboration and communication, or commonly referred to as the 4Cs. The Independent Curriculum also includes the project to strengthening the profile of Pancasila as mandatory content for each subject. However, the implementation of the Independent Curriculum remains a challenge for teachers. The challenge includes the changes in the aspects of planning, implementation, and assessment of learning. Based on the regulation of the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia No. 56 of 2022 on guidelines for curriculum implementation in the context of educational recovery, the Independent Curriculum will be implemented stages in all levels of primary and secondary education in the academic year 2022/2023. For this reason, it is necessary to study the level of teachers' readiness and the factors that influence it in implementing the Independent Curriculum. So, the aim of this study to analyze the factors that influence teacher's readiness and to measure the level of teacher's readiness to implement the Independent Curriculum. Thus, the research question of the study are:
i)   What are factors that influence teacher's readiness to implement the Independent Curriculum?
ii) How the level of teacher's readiness to implement the Independent Curriculum based on gender, age, and experience in teaching?

2. METHOD

This study was quantitative research with a survey approach, specifically a cross-sectional survey. This type is very suitable for describing the characteristics of a population but not for determining cause-and-effect relationships between variables. The research conducted at a point in time and, the attitudes and opinions of the research subjects were observed. Quantitative approach can be used to measure an issue by collecting data in number that can be analyzed using statistical techniques. A total of 229 teachers as population in this research. This research used convenience sampling, which is a non-random sampling that involve participants from the target population. A survey was conducted with 172 teachers as participants who meet certain criteria such as the school has implemented an Independent Curriculum, willingness, and time availability for the purpose of the research [6]. The description of the participants is shown in Table 1.

Table 1. Description of research participants

Based on gender			Based on age			Based on teaching experience			Based on levels of schools		
Gender	Frequency	%	Age	Frequency	%	Teaching experience	Frequency	%	Grade of school	Frequency	%
Male	48	27.9	<30 years	21	12.2	<10 Years	59	34.3	Primary school	60	34.9
Female	124	72.1	30-45 years	89	51.7	10-20 Years	64	37.2	Junior high school	70	40.7
			>45 years	62	36.1	>20 Years	49	28.5	Senior high school	42	24.4
Total	172	100	Total	172	100	Total	172	100	Total	172	100

The survey on the level of teachers' readiness levels to implement the Independent Curriculum was conducted using a questionnaire that was adopted based on six dimensions of teacher readiness assessment, which include teacher effort, knowledge of effort, leadership, climate in the teaching community, teachers' knowledge of the Independent Curriculum, and resources related to curriculum implementation. Each dimension consisted of 10 self-assessment scales according to the readiness levels developed by Edwards et al. [18]. The data then processed and tabulated using descriptive statistics using the mean for each dimension of teacher's readiness. The teacher's readiness questionnaire has 10 rating scales. The determination of the level of teacher's readiness based on the mean is shown in Table 2.

Table 2. Teacher's readiness level

Mean	Level of readiness
1.00–1.99	Level 1: no awareness
2.00–2.99	Level 2: denial
3.00–3.99	Level 3: vague awareness
4.00–4.99	Level 4: preplanning
5.00–5.99	Level 5: preparation
6.00–6.99	Level 6: initiation
7.00–7.99	Level 7: stabilization
8.00–8.99	Level 8: confirmation/expansion
9.00–10.00	Level 9: professionalization

Adapted from Edwards et al. [18]

There were 14 variables modified from various literature and interviews with teachers. The instrument used to assess the factors that influence teachers' readiness to implement the Independent Curriculum was five-point a Likert scale with 1=strongly disagree; 2=disagree; 3=undecided; 4=agree; and 5=strongly agree. The measurement of sampling test of 14 variables resulted in an MSA value >0.5, so each variable was declared valid. The validity test also involved three teams of experts who declared each item in the instrument valid. Reliability with Cronbach's alpha test 0.763 (reliable). Then, exploratory factor analysis was used to extract the 14 variables based on their level of correlation to form dominant factors that influence teachers' readiness to implement the Independent Curriculum. The t-test in multiple linear regression analysis was used to measure the contribution of each dominant factor to teacher readiness.

3.   RESULTS AND DISCUSSION
3.1. Teachers' readiness to implement the Independent Curriculum
Regarding teachers' readiness to implement curriculum, this study focused on teachers' readiness based on gender, age and teaching experience in primary school, junior high school, and senior high school. In primary schools, the readiness of male teachers to implement the curriculum was higher than that of female teachers in junior high school. However, in senior high schools, on the contrary, the readiness of female teachers to implement the curriculum was higher than that of male teachers. Overall, teachers both of genders were at the initiation level of readiness. In terms of age, in primary and junior high schools, readiness of teacher to implement the curriculum was highest among those age of 30-45 years. Whereas in senior high schools, on the contrary, the readiness of teacher to implement the curriculum was highest among those age of >45 years. Based on teaching experience, teachers with 10-20 years of teaching experience in primary schools had the highest readiness. In junior high schools, teachers with more than 10 years of teaching experience had higher readiness to implement the curriculum, whereas in senior high schools, teachers with more than 20 years of teaching experience had the highest readiness to implement the curriculum. Rudhumbu and Plessis [19] revealed there was no significant influence of gender, age, and teaching experience of teachers in curriculum implementation. The results of teachers' readiness based on gender can be seen in Table 3.

Table 3. Teachers' readiness for curriculum implementation based on gender

Aspect	Primary school		Junior high school		Senior high school	
	Male	Female	Male	Female	Male	Female
Teacher effort	6.75	6.37	6.15	5.7	6.08	6.57
Teacher's knowledge of efforts	7.75	6.8	6.12	5.91	6.21	6.89
Leadership	7.25	6.26	6.19	5.97	5.79	6.82
Climate in teaching community	7.37	7	6.65	6.48	6.14	7.14
Teachers' knowledge of Independent Curriculum	6.87	6.19	5.73	5.68	5.43	6.54
Resources	6.25	6.48	6	6.02	6	7.11
Mean	7.04	6.52	6.14	5.96	5.94	6.85

As shown in Table 3, male teachers in primary school had more readiness than male teacher in junior high school and senior high school. Female teachers in senior high school also had the highest readiness compared with female teacher in primary school and junior high school. The mean readiness score of female teachers was 6.44 and the mean readiness score of male teachers was 6.37. Teachers' readiness based on age can be seen in Table 4.

Table 4. Teachers' readiness for curriculum implementation based on age

Aspect	Primary school			Junior high school			Senior high school		
	<30	30-45	>45	<30	30-45	>45	<30	30-45	>45
Teacher effort	6.28	6.39	6.06	5.5	6.12	5.68	6.53	6.41	6.71
Teachers' knowledge of efforts	6	6.25	6.11	5.13	5.85	5.69	6.48	6.17	6.34
Leadership	6.05	6.47	6.17	4.88	6.36	6.03	6.61	6.48	6.47
Climate in teaching community	6.85	6.97	6.5	6.63	6.24	5.79	6.67	6.67	6.84
Teachers' knowledge of Independent Curriculum	6.4	7.08	6.61	6	6.55	6.69	6.81	6.81	6.84
Resources	6.28	6.56	6.17	5.75	6.21	5.86	6.87	6.74	6.89
Mean	6.31	6.62	6.27	5.65	6.22	5.96	6.67	6.55	6.68

As can be seen in Table 4, in primary and junior high schools, the highest readiness was among teachers aged 30-45, while in senior high schools, the highest readiness was among teachers aged over 45. Meanwhile, overall, the highest readiness was among teachers in the 30-45 age range (6.46), categorized in the initiation level of readiness. Teacher readiness based on teaching experience can be seen in Table 5.

Table 5. Teachers' readiness for curriculum implementation based on teaching experience

Aspect	Primary school			Junior high school			Senior high school		
	<10	10-20	>20	<10	10-20	>20	<10	10-20	>20
Teacher effort	6.53	6.42	6.49	6.02	5.89	5.94	6.53	6.43	6.71
Teachers' knowledge of effort	6.29	6.38	6.43	6.73	5.58	5.72	6.39	6.17	6.34
Leadership	6.29	6.51	6.43	7.06	5.97	6.07	6.53	6.48	6.47
Climate in teaching community	6.71	7	6.87	7.65	5.89	6.02	6.67	6.67	6.84
Teacher knowledge of Independent Curriculum	7	7.08	6.96	6.37	5.83	6.62	6.86	6.81	6.78
Resources	6.37	6.49	6.38	7.09	6.01	6.04	6.78	6.74	6.89
Mean	6.53	6.65	6.59	6.82	5.86	6.06	6.62	6.55	6.67

Table 5 showed that at the primary school levels, the highest level of readiness was among teachers with 10-20 years of teaching experience, and at the junior high school level, the highest level of readiness was among teachers with less than 10 years of teaching experience, while at the senior high school levels, the highest level of readiness was among teachers with more than 20 years of teaching. Overall, the level of readiness to implement the Independent Curriculum was highest on average among teachers with less than 10 years of teaching experience (6.65) as categorized in the initiation level of readiness.

Overall, teachers' readiness to implement the Independent Curriculum was at the initiation level. At this level, based on the six dimensions of readiness, it can be described that teachers' efforts in understanding the curriculum are visible, teachers' knowledge of the curriculum is increasing, teachers support the implementation of the curriculum, and support facilities and infrastructure, leaderships, especially education offices and school principals, show a real role in curriculum implementation policy. Based on the interviews, teachers need to be involved in curriculum training. This training can improve their knowledge and skills regarding Independent Curriculum, which is one of solutions to improve teachers' readiness to implement curriculum. Sakan *et al.* [20] found that 30.20 % of the effect of curriculum training on teachers' readiness to implement curriculum.

3.2. Factors influencing teachers' readiness to implement the Independent Curriculum

Table 6 shows the Barlett's sphericity test value was 579.081 with a significance of 0.000, so it can be stated that there was a correlation between the variables being tested (sig. <0.05). The Kaiser-Meyer-Olkin (KMO) test showed a KMO value of 0.806 (greater than 0.5), so the variables were further tested in this research. The results of KMO test and Bartlett's test results can be observed in the Table 6.

Table 6. KMO And bartlett's tests

Kaiser-Meyer-Olkin measure of sampling adequacy		0.806
Bartlett's test of sphericity	Approx. Chi square	579.081
	df	172
	sig.	0.000

A series of exploratory factor analysis steps were performed, including the anti-image correlation test with a value greater than 0.5, calculation of communalities, total variances explained and eigenvalues, which showed four factors formed from the extraction of 14 factors. The results of the rotated component matrix were used to determine the highest correlation value and to determine the variables of each factor, as shown in Table 7.

Table 7. Rotated component matrix

Variable	Component			
	1	2	3	4
V1	0.923			
V3	0.858			
V14	0.851			
V4		0.843		
V13		0.801		
V8		0.773		
V11		0.726		
V6		0.702		
V2			0.906	
V10			0.827	
V7			0.764	
V5				0.729
V9				0.714
V11				0.701

Table 7 shows the correlation between variables with four dominant factors. Factor 1 had a high correlation with the variables of teacher competence (V1), teacher interest and beliefs (V3), and teaching experiences (V14). Factor 2 had a strong correlation with learning resources (V4), physical facilities (V13), heavy workload (V8), and support from professionals and principals (V11). Factor 3 was strongly correlated with curriculum training (V2), regulations and policies (V10), and financial support (V7). Factor 4 was strongly correlated with the variables of student competence (V5), student interest and motivation (V9), and student characteristics (V12). Next, the component transformation matrix was measures to determine the accuracy of the factors in summarizing all the variables. The results of the component transformation matrix can be seen in Table 8.

Table 8. Component transformation matrix

Component	1	2	3	4
1	0.736	0.354	0.462	0.143
2	-0.327	0.805	-0.173	0.296
3	-0.483	0.021	0.709	0.447
4	-0.032	-0.475	-0.006	0.702

Extraction method: principal component analysis
Rotation method: varimax with Kaiser normalization

Table 8 shows that factors 1-4 had correlation values above 0.5. Thus, the four factors formed could summarize 14 variables that influence teachers' readiness to implement the Independent Curriculum. These four factors were teacher-related factor, school-related factor, authority-related factor, and student-related factor. The four dominant factors that influence teachers' readiness to implement the Independent Curriculum

included internal factors and external factors. The results of t-test in multiple linear regression analysis showed that teacher-related factor had contribution of 43.7% influence on teachers' readiness to implement the Independent Curriculum. Meanwhile, the school-related factor had a contribution of 21.3%, the student-related t factor had a contribution of 11.4% and the authority-related factor contributed 8.2%. The results of the t-test in multiple linear regression analysis are shown in Table 9.

Table 9. T-test in multiple linear regression analysis

Factor	ƙ	t	Sig.
Teacher	0.437	3.196	0.001
School	0.213	2.536	0.006
Authority	0.082	2.007	0.033
Student	0.114	2.034	0.046

Based on the results of this study, the main component that influences readiness to implement the Independent Curriculum was the teacher-related factor. Teacher-related factor consisted of the variables of teacher competence (V1), teacher interest and beliefs (V3), and teaching experience (V14). Teacher competence consists of four aspects: pedagogical competence, professional competence, personality competence, and social competence [21]. Pedagogical competence has the most influences teachers' readiness to implement a curriculum because this competence includes teacher's ability to plan, implement, and assess the learning. Pedagogical competence is the ability of teachers in organizing learning, which includes the capability to plan a learning instruction or program, the capability to interact or manage the learning activity and the capability to evaluate learning process or develop an assessment [22]. Pedagogical competence combines the knowledge and skills of a teacher to master subject specific knowledge, connect theory and research to learning, and simultaneously utilize knowledge and skills in a logical context [23]. Teachers' ability to combine of tangible resources (instructional materials, technology) and intangible resources (experience, knowledge, and skills) is a part of pedagogical competence [24]. Thus, pedagogical competence becomes a major factor in the successful implementation of the curriculum.

Furthermore, teacher interests and beliefs can determine their readiness to implement a curriculum. With strong interests and beliefs, the teacher will always be ready to implement any curriculum. Similarly, with regard to the teacher's teaching experience, the more experience the teacher has, the more prepared they are for curriculum change. In addition, there is a lack of ability to apply technology and learning innovations, so whatever the curriculum is, teachers' readiness will be low because of teachers' pessimism to implement the new curriculum. The lack of understanding, lack of skills, lack of interest, and lack of belief of teachers can be included in the factors that affect the readiness of teachers to implement the curriculum effectively [17].

The second factor that influencing teachers' readiness to implement the Independent Curriculum in this study was the school-related factors. School-related factors consisted of learning resources (V4), physical facilities (V13), heavy workload (V8), and support from professionals and principals (V11). The learning resources provided by schools, especially textbooks, both in print and electronic form, really support the implementation of the curriculum. However, the newly implemented Independent Curriculum does not yet facilitate teachers to obtain complete textbooks, both teacher and student textbooks, for all subjects. The availability and quality of learning resources will affect student learning outcomes and the learning process as a part of curriculum implementation [11]. Physical facilities such as classrooms, laboratories, and learning support tools are very much needed in the learning process. Having the support of a team of colleagues and the school principal will increase the teachers' readiness to implement the Independent Curriculum. Physical facilities such as classrooms, laboratories, workshops, libraries, and sports fields also affect the successful of implementation of the curriculum [25]. The presence and quality of adequate facilities or amenities have a major impact on curriculum implementation [1]. The lack of support and guidance from professional team or the school principal also influences teachers' readiness to implement curriculum.

Factor 3 in this research was the factor related to the authorities. Variables in this factor included curriculum training (V2), regulation and policy (V10), and financial support (V7). The Ministry of Education, Culture, Research and Technology and the Office of Education as state institutions responsible for education, are obliged to provide training for all teachers to increase their readiness to implement the curriculum. Training related to the implementation of the new curriculum is very necessary, especially for teachers [26]. Teacher training programs can be developed by policy makers and play an important role in educational reform [27]. Moreover, clear regulations and policies must be formulated to serve as guidelines for curriculum implementation. Financial support for curriculum implementation is also needed. Vlok [28] stated that responsible leaders must be able to innovate, including in policies according to their field of work.

Regarding education reform policies, for example, curriculum changes, leaders play a role in developing teachers' professionalism and knowledge [29]. Tanang and Abu [30] stated that policies, infrastructure, and financial support are needed to improve teacher professionalism. In reality, there are few number of teachers who have received training on Independent Curriculum but the policy requires all of the teachers to implement it. There are even teachers who take the initiative to attend training at their own expense or learn autodidactically from internet sources. As a matter of fact, educational policies and regulations as external factors that affect the successful implementation of the curriculum. The regulators and policy-makers employ emphasis on the school to implement the national curriculum in a particular established method [31].

Factor 4 in this study was the student-related factor. Variables in this factor include student competence (V5), student interest and motivation (V9), and student characteristics (V12). Student competence, interest, motivation, and characteristics are factors that determine the success of the curriculum. Therefore, this factor also influences readiness of teacher to implement the Independent Curriculum at the primary, middle, and high school levels. Students who have good initial ability, interest, motivation, and characteristics will have the opportunity to achieve better final results [32]. Conversely, students who have low initial ability, poor interest, motivation, and insufficient characteristics will need more effort to achieve the expected learning outcomes or in a broader context, to achieve the curriculum goals [33]. The student-related factors affects the choice of learning experiences, therefore it is necessary to consider the distinct characteristics of students in curriculum implementation, such as students background and ability [25].

The result of this study clearly shows that there are four factors that influence the teachers' readiness to implement the curriculum includes teacher-related, school-related, authority-related, and student-related factors. Overall, teachers' readiness to implement the Independent Curriculum is at the initiation level. The findings of this study are hoped to give descriptions and adequate information for all stakeholders such as educational policymakers, principal, administrations, and teachers. The findings can be considered in educational program especially related to improve the level of readiness of teacher trough curriculum training. Additionally, this study uses the quantitative approach with convenience sampling. It is suggested for further study to use qualitative or combined approaches (qualitative and quantitative) with large samples, add other variables, and expand the scope to obtain more accurate results.

4.   CONCLUSION

Teachers readiness to implement the curriculum determines the success of achieving the curriculum's goals. The Independent Curriculum has not been fully implemented at all school levels in Indonesia. Even though the Independent Curriculum implementation policy has been published, teachers' readiness to implement the new curriculum needs to be considered by all parties, especially education policy makers. Based on the distribution of mean scores, the level of teachers' readiness can be assessed based on gender, age and years of teaching experience. The level of teachers' readiness at the primary, middle, and high school levels is at the initiation level with a mean value in the interval 6.00–6.99. This level is still far from the highest level of community readiness, which is level 9 (professionalization) based on the teacher readiness assessment. There are 14 variables that influence teachers' readiness to implement the Independent Curriculum. As a result of factor analysis, 14 initial variables were extracted into four dominant factors that influence teachers' readiness to implement the Independent Curriculum: teacher-related, school-related, authority-related, and student-related factors. The teacher-related factor is the main factor that contributed to influence teachers' readiness with an influence of 43.7%, whereas the school-related factor contributed 21.3%, the student-related factor contributed 11.4%, and the authority-related factor contributed 8.2% to teachers' readiness to implement the Independent Curriculum. The results clearly indicated that the several factors influencing the successful of curriculum implementation that were common in many other countries. Therefore, training related to Independent Curriculum implementation should be consider by educational policymakers to enhance teachers' readiness. Teachers as implementers of the curriculum should continuously improve their capacity and skills in teaching and learning.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Fitra Delita	✓	✓			✓	✓	✓	✓	✓	✓				✓
Tumiar Sidauruk				✓		✓	✓		✓		✓	✓	✓	
Alna Hanana	✓	✓	✓		✓			✓	✓	✓	✓			
Mona Adria Wirda					✓			✓	✓	✓		✓	✓	

C : **C**onceptualization	I : **I**nvestigation	Vi : **Vi**sualization
M : **M**ethodology	R : **R**esources	Su : **Su**pervision
So : **So**ftware	D : **D**ata Curation	P : **P**roject administration
Va : **Va**lidation	O : Writing - **O**riginal Draft	Fu : **Fu**nding acquisition
Fo : **Fo**rmal analysis	E : Writing - Review & **E**diting	

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

INFORMED CONSENT

All participants in this study were provided with information about the research objectives and procedures and gave their consent before participating in the study.

ETHICAL APPROVAL

This research has received ethical approval from the Research Ethics Committee of the Institute for Research and Community Service, Universitas Negeri Medan, Indonesia.

DATA AVAILABILITY

The data used in this study is available upon request from the corresponding author [FD] and will be provided in accordance with the applicable data access policies.

REFERENCES

[1]   F. Delita, N. Berutu, and N. Nofrion, "Online learning: the effects of using e-modules on self-efficacy, motivation and learning outcomes," *Turkish Online Journal of Distance Education*, vol. 23, no. 4, pp. 93–107, Oct. 2022, doi: 10.17718/tojde.1182760.
[2]   A. MacDonald, G. Barton, M. Baguley, and K. Hartwig, "Teachers' curriculum stories: perceptions and preparedness to enact change," *Educational Philosophy and Theory*, vol. 48, no. 13, pp. 1336–1351, Nov. 2016, doi: 10.1080/00131857.2016.1210496.
[3]   B. Leask, "Internationalization of the curriculum, teaching and learning," in *The International Encyclopedia of Higher Education Systems and Institutions*, P. N. Teixeira and J. C. Shin, Eds., Dordrecht, Dordrecht: Springer Netherlands, 2020, pp. 1940–1949, doi: 10.1007/978-94-017-8905-9_244.
[4]   A. A. M. Al Khateeb, "Measuring digital competence and ICT literacy: an exploratory study of in-service English language teachers in the context of Saudi Arabia," *International Education Studies*, vol. 10, no. 12, pp. 38–51, Nov. 2017, doi: 10.5539/ies.v10n12p38.
[5]   S. Salam, Y. Roza, and Z. Daim, "The analysis of student's error on completing teacher competency test for prospective high school mathematics teacher," in *The Fourth South East Asia Design/Development Research International Conference 2016*, 2016, pp. 404–408.
[6]   M. M. Kennedy, "How Does Professional Development Improve Teaching?" *Review of Educational Research*, vol. 86, no. 4, pp. 945–980, 2016, doi: 10.3102/0034654315626800.
[7]   B. S. Bloom, *Human characteristics and school learning*. New York: McGraw-Hill, 1976.
[8]   B. Lochner, R. M. Conrad, and E. Graham, "Secondary teachers' concerns in adopting learning management systems: a U.S. perspective," *TechTrends*, vol. 59, no. 5, pp. 62–70, 2015, doi: 10.1007/s11528-015-0892-4.

[9] E. Viro, D. Lehtonen, J. Joutsenlahti, and V. Tahvanainen, "Teachers' perspectives on project-based learning in mathematics and science," *European Journal of Science and Mathematics Education*, vol. 8, no. 1, pp. 12–31, Jan. 2020, doi: 10.30935/scimath/9544.

[10] R. Orale and D. Sarmiento, "Senior high school curriculum in the Philippines, USA, and Japan," *Journal of Academic Research*, vol. 1, no. 3, pp. 12–23, 2016.

[11] M. P. Omondi, "Factors Influencing implementation of curriculum in public primary schools in Ukwala Division of Siaya County, Kenya," Ph.D. dissertation, University of Nairobi, Nairobi, Kenya, 2014.

[12] C. J. G. Nijhuis, J. M. Pieters, and J. M. Voogt, "Influence of culture on curriculum development in Ghana: an undervalued factor?" *Journal of Curriculum Studies*, vol. 45, no. 2, pp. 225–250, Apr. 2013, doi: 10.1080/00220272.2012.737861.

[13] A. C. K. Cheung and P. M. Wong, "Factors affecting the implementation of curriculum reform in Hong Kong," *International Journal of Educational Management*, vol. 26, no. 1, pp. 39–54, Jan. 2012, doi: 10.1108/09513541211194374.

[14] D. Rumahlatu, E. K. Huliselan, and J. Takaria, "An analysis of the readiness and implementation of 2013 Curriculum in the west part of Seram District, Maluku Province, Indonesia," *International Journal of Environmental and Science Education*, vol. 11, no. 12, pp. 5662–5675, 2016.

[15] W. Sundayana, "Readiness and competence of senior high school English teachers to implement Curriculum 2013," *Indonesian Journal of Applied Linguistics*, vol. 5, no. 1, pp. 28–35, 2015, doi: 10.17509/ijal.v5i1.828.

[16] R. L. Palestina, A. D. Pangan, and I. V. Ancho, "Curriculum implementation facilitating and hindering factors: The Philippine context," *International Journal of Education*, vol. 13, no. 2, 2020, doi: 10.17509/ije.v13i2.25340.

[17] H. I. Saputra and N. Nuchron, "Vocational school teachers' readiness in implementing Curriculum 2013 revised edition in Cilacap Regency," *Jurnal Pendidikan Vokasi*, vol. 9, no. 2, pp. 119–131, Jun. 2019, doi: 10.21831/jpv.v9i2.24551.

[18] R. W. Edwards, P. Jumper-Thurman, B. A. Plested, E. R. Oetting, and L. Swanson, "The community readiness model: research to practice ruth," *Journal of Community Psychology*, vol. 28, no. 3, pp. 291–307, 2000.

[19] N. Rudhumbu and E. C. E. du Plessis, "Factors influencing curriculum implementation in accredited private universities in Botswana," *Journal of Applied Research in Higher Education*, vol. 13, no. 4, pp. 1062–1084, Oct. 2021, doi: 10.1108/JARHE-04-2020-0083.

[20] R. M. Sakan, Y. Utanto, and A. R. RC, "Determination of teachers readiness in implementing curriculum 2013 at senior high schools in Kupang City, East Nusa Tenggara," *Innovative Journal of Curriculum and Educational Technology*, vol. 8, no. 1, pp. 24–32, 2019.

[21] A. C. Ornstein and F. P. Hunkins, *Curriculum: foundations, principles, and issues*. London: Pearson Education Limited, 2018.

[22] Akhyak, M. Idrus, and Y. A. Bakar, "Implementation of teachers pedagogy competence to optimizing learners development in public primary school in Indonesia," *International Journal of Education and Research*, vol. 1, no. 9, pp. 1–10, 2013.

[23] A. Sahana and V. E, "Assessing the pedagogical competencies of affiliated B-school faculty members using principal component analysis," *IRACST – International Journal of Commerce, Business and Management (IJCBM)*, vol. 4, no. 2, pp. 1150–1155, 2015.

[24] S. Madhavaram and D. A. Laverie, "Developing pedagogical competence: issues and implications for marketing education," *Journal of Marketing Education*, vol. 32, no. 2, pp. 197–213, 2010, doi: 10.1177/0273475309360162.

[25] G. K. Chaudhary, "Factors affecting curriculum implementation for students," *International journal of applied research*, vol. 1, no. 12, pp. 984–986, 2015.

[26] S. Suyanto, "A reflection on the implementation of a new curriculum in Indonesia: a crucial problem on school readiness," in *AIP Conference Proceedings*, 2017, p. 100008, doi: 10.1063/1.4995218.

[27] N. L. Serdenciuc, "Competency-based education – implications on teachers' training," *Procedia - Social and Behavioral Sciences*, vol. 76, pp. 754–758, Apr. 2013, doi: 10.1016/j.sbspro.2013.04.200.

[28] A. Vlok, "A leadership competency profile for innovation leaders in a science-based research and innovation organization in South Africa," *Procedia - Social and Behavioral Sciences*, vol. 41, pp. 209–226, 2012, doi: 10.1016/j.sbspro.2012.04.025.

[29] M. Taylor, A. Yates, L. H. Meyer, and P. Kinsella, "Teacher professional leadership in support of teacher professional development," *Teaching and Teacher Education*, vol. 27, no. 1, pp. 85–94, Jan. 2011, doi: 10.1016/j.tate.2010.07.005.

[30] H. Tanang and B. Abu, "Teacher professionalism and professional development practices in South Sulawesi, Indonesia," *Journal of Curriculum and Teaching*, vol. 3, no. 2, pp. 25–42, Jul. 2014, doi: 10.5430/jct.v3n2p25.

[31] S.-V. Toma, I. V. Alexa, and D. A. Șarpe, "Identifying the risk in higher education institutions," in *Procedia Economics and Finance*, 2014, pp. 342–349, doi: 10.1016/S2212-5671(14)00520-6.

[32] J. Gore, A. Lloyd, M. Smith, J. Bowe, H. Ellis, and D. Lubans, "Effects of professional development on the quality of teaching: Results from a randomised controlled trial of Quality Teaching Rounds," *Teaching and Teacher Education*, vol. 68, pp. 99–113, 2017, doi: 10.1016/j.tate.2017.08.007.

[33] R. J. Dunn and S. A. Doolittle, "Professional development for teaching personal and social responsibility: Past, present, and future," *Journal of Teaching in Physical Education*, vol. 39, no. 3, pp. 347–356, 2020, doi: 10.1123/JTPE.2019-0226.

BIOGRAPHIES OF AUTHORS

Fitra Delita 🆔 🔗 SC ◐ is a lecturer of Department of Geography Education, Faculty of Social Sciences, Universitas Negeri Medan. She completed her undergraduate and graduate studies in the Department of Geography Education, Universitas Negeri Padang. Her research interests include curriculum, distance education, e-learning and multimedia, instructional design, and artificial intelligence. She has been conducting research on new trends and approaches in education technologies and e-learning for a while. In this regard, her first book has been published in 2020. She can be contacted at email: fitradelita@unimed.ac.id.

Tumiar Sidauruk 🆔 📇 SC ◐ is a senior lecturer of Department of Geography Education, Faculty of Social Sciences, Universitas Negeri Medan. Her research focuses on teaching and learning, curriculum design, online learning, and hybrid learning. She can be contacted at email: tumiarsidauruk@unimed.ac.id.

Alna Hanana 🆔 📇 SC ◐ is a Ph.D. candidate, Department of Media Studies, School of Communication, Universiti Sains Malaysia, George Town, Malaysia. She is a lecturer of communication science, Andalas University. Her research and publication focus on media studies, communication, and cultural studies. She can be contacted at email: alnahanana@student.usm.my.

Mona Adria Wirda 🆔 📇 SC ◐ is a Ph.D. candidate, Graduate Institute of Digital Learning and Education, National Taiwan University of Science and Technology, Taipei, Taiwan. She is a lecturer of Department of Geography Education, Faculty of Social Sciences, Universitas Negeri Medan. Her research and publication focus on test and assessment, evaluation, digital learning, learning material, and instruction. She can be contacted at email: monaadriawirda@gmail.com.