

Korean and Indonesian Science Teachers' Teaching Experience During the COVID-19: An Exploratory Analysis

Nam-Hwa Kang

Korea National University of Education



Research Team

- Korea National University of Education

- Prof. Dr. Nam-Hwa Kang – Science Education
- Prof. Dr. Yeongsun Kwak – Science Education
- Prof. Dr. Kwangho Lee – Mathematics Education

- Indonesia University of Education

- Prof. Dr. Ari Widodo - Science Education
- Prof. Dr. Dinn Wahyudin - Curriculum and Educational Technology
- Prof. Dr. Tatang Herman - Mathematics Education
- Dr. Al Jupri - Mathematics Education
- Dr. Ida Kaniawati - Physics Education
- Dr. Irma Rahma Suwarma - Physics Education
- Ms. Eliyawati - Science Education
- Ms. Indrie Prihastuti - Science Education

Problem

- School lockdown due to the pandemic requiring socially distanced education
 - ⊙ New ways to teaching in new learning environment
 - ⊙ New expectations for teachers
- How did the teachers address socially distanced teaching in the two countries?

Challenges Perceived (4-point scale)

1. Managing synchronous lessons*
2. Managing asynchronous lessons*
3. Maintaining student motivation
4. Preparing students' mental readiness
5. Preparing students' technological literacy*
6. Overcoming students' lack of learning facilities*
7. Assessing student learning

*statistically significant difference ($p < .05$)

→ Indonesian science teachers felt more challenges in four aspects.

	South Korea (n=114)	Indonesia (n=1043)	t-value	p-value
	Mean(SD)	Mean(SD)		
1.	2.84(.918)	3.068(.717)	-2.546	.012*
2.	2.50(.989)	2.75(.882)	-2.626	.010*
3.	3.43(.665)	3.33(.670)	1.573	.116
4.	3.30(.716)	3.22(.694)	1.103	.270
5.	2.88(.864)	3.09(.758)	-2.562	.012*
6.	2.72(.964)	3.03(.814)	-3.312	.001*
7.	3.12(.822)	3.24(.681)	-1.501	.081

Curriculum Adjustment

1. Reducing content coverage
2. Focusing on core concepts
3. Integration with other subjects

South Korea (n=114)	Indonesia (n=1043)	t-value	p-value
Mean(SD)	Mean(SD)		
2.54(.979)	3.01(.857)	-4.839	<.001*
3.05(.861)	3.21(.784)	-2.014	.044*
1.86(.940)	2.74(.840)	-10.548	<.001*

- Korean science teachers changed content much less than Indonesian science teachers.

Teaching approach

1. Adjust teaching strategies
 2. Adjust teaching materials
 3. Adjust teaching media
 4. Using LMS(learning management system) for classroom management
 5. Adjust classroom management through groupwork
 6. Provide more motivational supports
- There was not much difference but in using LMS and groupwork in favor of Indonesian science teachers.

	South Korea (n=114)	Indonesia (n=1043)	t-value	p-value
	Mean(SD)	Mean (SD)		
1. strategies	3.24(.669)	3.18(.748)	.827	.409
2. Materials	3.27(.682)	3.23(.747)	.612	.541
3. Teaching media	3.20(.719)	3.21(.764)	-.135	.892
4. LMS	2.11(.993)	2.77(.920)	-7.136	<.001*
5. Group works	2.38(1.034)	2.62(.918)	-2.362	.020*
6. Motivational support	2.96(.841)	3.09(.771)	-1.631	.103

Assessment

	South Korea (n=82)	Indonesia (n=1048)	t-value	p-value
	Mean (SD)	Mean (SD)		
Paper and pencil	2.87(.798)	3.30(.718)	-5.205	.000*
Project	2.12(1.035)	2.24(.859)	-.977	.331
Performance	3.12(.807)	2.44(.836)	7.162	.000*
Assignment	2.80(1.024)	3.44(.648)	-5.531	.000*
Portfolio	2.78(1.078)	2.40(.967)	3.362	.001*

- Assessment was the most different area. This might depend on whether the assessment was implemented online or not.

Assessment (2)

Question		Indonesia				South Korea			
		Online	Offline	Both	No use	Online	Offline	Both	No use
Q1	Paper and pencil	50.4%	10.7%	38.5%	0.5%	2.6%	84.3%	9.6%	3.5%
Q2	Project	42.6%	18.5%	23.1%	15.8%	4.3%	27.8%	39.1%	28.7%
Q3	Performance	45.7%	18.5%	25.4%	10.4%	0.0%	70.4%	27.8%	1.7%
Q4	Assignment	48.9%	11.5%	39.3%	0.3%	7.0%	20.0%	61.7%	11.3%
Q5	Portfolio	37.3%	17.6%	29.2%	15.9%	7.0%	27.8%	47.0%	18.3%

Professional Development Needs

1. Technology use
 2. Collaboration skills
 3. Professional learning skills
 4. Curriculum reconstruction skills
 5. Flexible lesson planning skills
 6. Teaching with technology
 7. Developing teaching materials
 8. New assessment techniques
 9. Skills to motivate and engage students
- **On all items, Indonesia teachers expressed more needs.**

Item	South Korea (n=82)	Indonesia (n=1048)	t-value	p-value
	Mean(SD)	Mean(SD)		
1.	2.57(.956)	3.41(.709)	-7.789	.000*
2.	2.79(.828)	3.40(.661)	-7.884	.000*
3.	2.74(1.087)	3.27(.799)	-4.256	.000*
4.	2.79(.965)	3.46(.654)	-6.159	.000*
5.	2.66(.892)	3.33(.744)	-6.622	.000*
6.	2.78(.875)	3.47(.653)	-6.968	.000*
7.	2.95(.768)	3.49(.638)	-6.180	.000*
8.	3.16(.777)	3.47(.651)	-4.143	.000*
9.	3.18(.705)	3.49(.639)	-4.201	.000*
10.	3.26(.682)	3.52(.621)	-3.613	.000*



Who supported teachers?

	South Korea(n=114)	Indonesia(n=1048)	t-value	p-value
	Mean(SD)	Mean(SD)		
Colleagues	3.11(.817)	3.23(.740)	-1.509	.132
Teacher Association	2.35(1.089)	3.06(.809)	-6.729	<.001*
Government	1.86(.861)	2.87(.751)	-12.034	<.001*
Your school	2.68(.867)	3.30(.711)	-7.468	<.001*
University	1.39(.686)	2.30(.924)	-12.854	<.001*
Parents	1.25(.588)	2.73(.878)	-24.199	<.001*
Community	1.25(.508)	2.49(.850)	-22.932	<.001*

→ Teacher support in South Korea was generally low and provided by a few sources – colleagues, teacher associations and schools.

Value of support types

	South Korea(n=114)	Indonesia(n=1043)	t-value	p-value
	Mean(SD)	Mean(SD)		
1. Financial	3.04(.940)	2.48(.865)	6.489	<.001*
2. Facilities and Materials	3.25(.738)	2.78(.760)	6.315	<.001*
3. Knowledge/skills	3.00(.841)	2.86(.769)	1.803	.036*
4. Psychological support	2.86(.881)	2.73(.781)	1.703	.044*
5. Policy	3.21(.836)	2.84(.756)	4.571	<.001*

Prediction of teaching post-pandemic

- Korean science teachers tended to predict more changes (improvement) than Indonesian science teachers.

	South Korea(n=114)	Indonesia(n=1043)	t-value	p-value
	Mean(SD)	Mean(SD)		
Keep new practices learned during the pandemic	3.11(.721)	2.89(.760)	3.335	.005*
Back to old teaching practices	2.02(.882)	2.52(.837)	-5.761	<.001*
Improving the old practices	3.23(.625)	3.41(.654)	-.985	.003*

Discussion and Further Research

- Where are the differences originated from?
- Further analysis with more background information and in depth case studies will shed light on different ways teachers addressed new ways of teaching and how to support teacher professional development for the post-pandemic era.