Experiential Process Model for Enhancing Classroom Management Skills in Teacher Training through Microteaching

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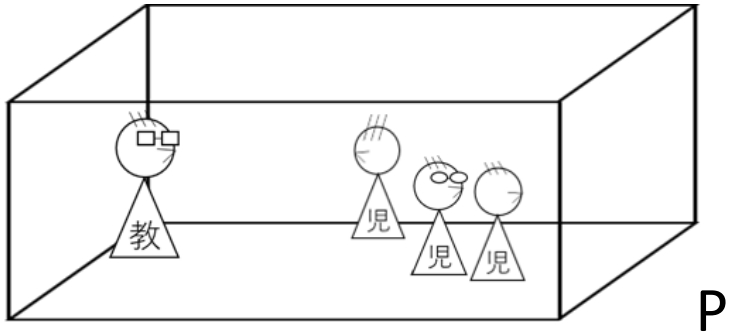
Background: Inclusive Education and Classroom Behavior

Inclusive education is widely recognized, but in many countries, students struggling with learning gaps are labeled as displaying “unexpected behaviors.”

Teacher



Classroom

Pupil

Emergent learning refers to the adaptive skills teachers develop in response to dynamic classroom needs.

Emergent learning, which enables preservice teachers to flexibly respond to students’ needs, is vital for effective classroom management and enhances educational quality.

Background: Importance of Emergent Learning

Microteaching provides prospective teachers with a controlled environment to practice key skills, such as attention management, questioning, and classroom control.(Allen 1966; Sakuma et al. 2019). It can also help teachers develop emergent behaviors to prevent disruptions. (Gower et al., 1995; Capel et al., 1998; Kilic, 2010).

Microteaching can teach emergent behaviors that prevent unexpected classroom disruptions. Research on teachers' decision-making and information processing supports this approach(Yoshizaki, 1988).

Background: Microteaching as a Training Method

To design learning in a simulated classroom, it's important to consider teachers' decision-making models in lesson. Yoshizaki (1988) viewed teachers as information processors who explore routines and adapt to classroom situations.

Sakuma et al. (2019) developed image cards to assist pupil roles' acts in microteaching for this purpose.

This study provides insights into the design and implementation of microteaching sessions that incorporate unexpected student behaviors.

Previous study: Student Image Cards in Microteaching Design

Variation of cards

Attitude type

Achievement level	1	2	3
A	A1	A2	A3
B	B1	B2	B3
C	C1	C2	C3

Example of Image Card “TypeC1”

Individual			Group	
Study −	positivity +	Study ++	Leadership −	Cooperativeness ++

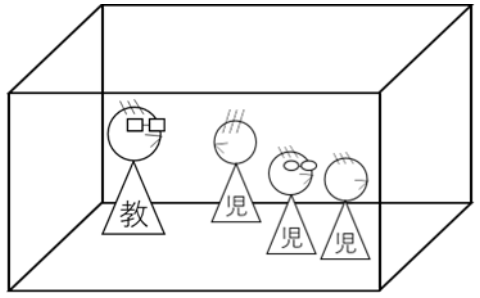
How class attitude appears:

- Learns obediently following the teacher’s instructions.
- Makes a concerted effort to answer questions and prompts.
- Puts forth effort to complete presentation activities and skill-related tasks.
- Is cooperative and actively participates in group learning.
- Has a good rapport with teachers and is committed to learning

Arrangement of rolls

White Board		
C1	B2	A1
B3	C1	B1
C3	C2	C3

Use in Microteaching



The image cards had nine types: A1, A2, A3, B1, B2, B3, C1, C2, C3.

Pupil roll

Generate various types of student-roll.
Acting ” unexpected behaviors” close to the real.

Teacher’s candidates can experience, learn the skill emergently.

Purpose of This Study: Evaluating Microteaching for Behavior Management

Ⅰ This study proposes an "Experiential Process Model," which refines Yoshizaki's (1988) decision-making model to enable prospective teachers to learn classroom management skills experientially through microteaching.

Ⅱ In addition, we evaluated a microteaching method that uses image cards to help teacher candidates manage unexpected student behaviors.

Transcript1

Teacher: "Alright, let's begin."
Student: "Ugh, I don't feel like it." (turning away).
Teacher: "Bob, face forward, please.Now,
let's review the classroom rules..."

Transcript2

Teacher: "Your opinion is good.
Today, we will study how to calculate…
Hey Bob, Why do you stand?
Student: "Look! Butterfly is coming!! "

Experiential Process Model for Enhancing Classroom Management Skills in this study

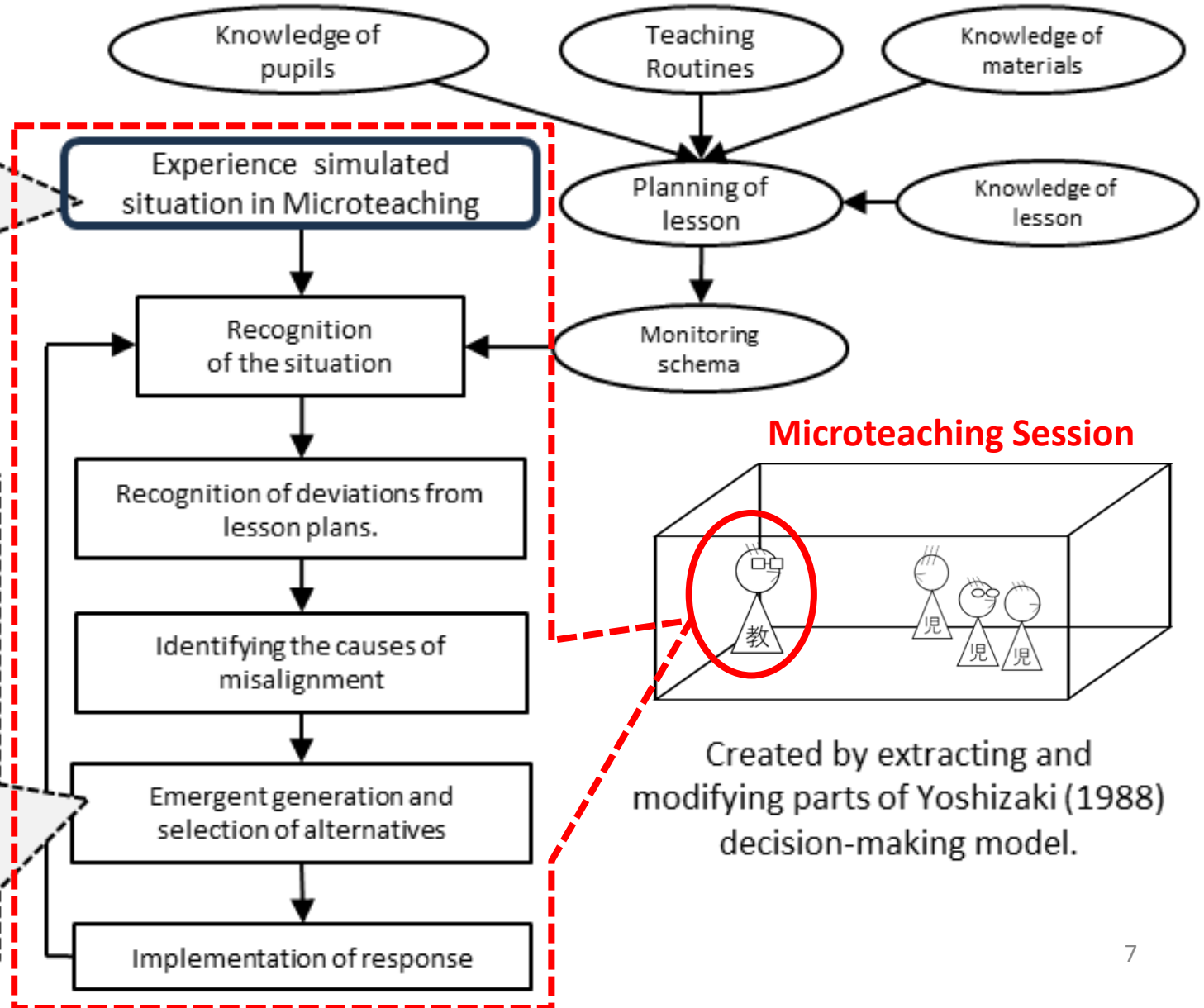
Types of situations that occur within microteaching we designed for this study

- Learning Delays
- Interruptions Withdrawal from study
- Interference with Teachers
- Interference with others

Skills acquiring through microteaching

- Suspend the lesson
- Give cautions and warnings
- Address the cause of the disruptive behavior
- Stop the disruption.
- Establish new classroom rules
- Impose disciplinary action.
- Provide examples of expected behavior
- Praise expected behavior

Emergent learning model in this study



Microteaching Session

Created by extracting and modifying parts of Yoshizaki (1988) decision-making model.

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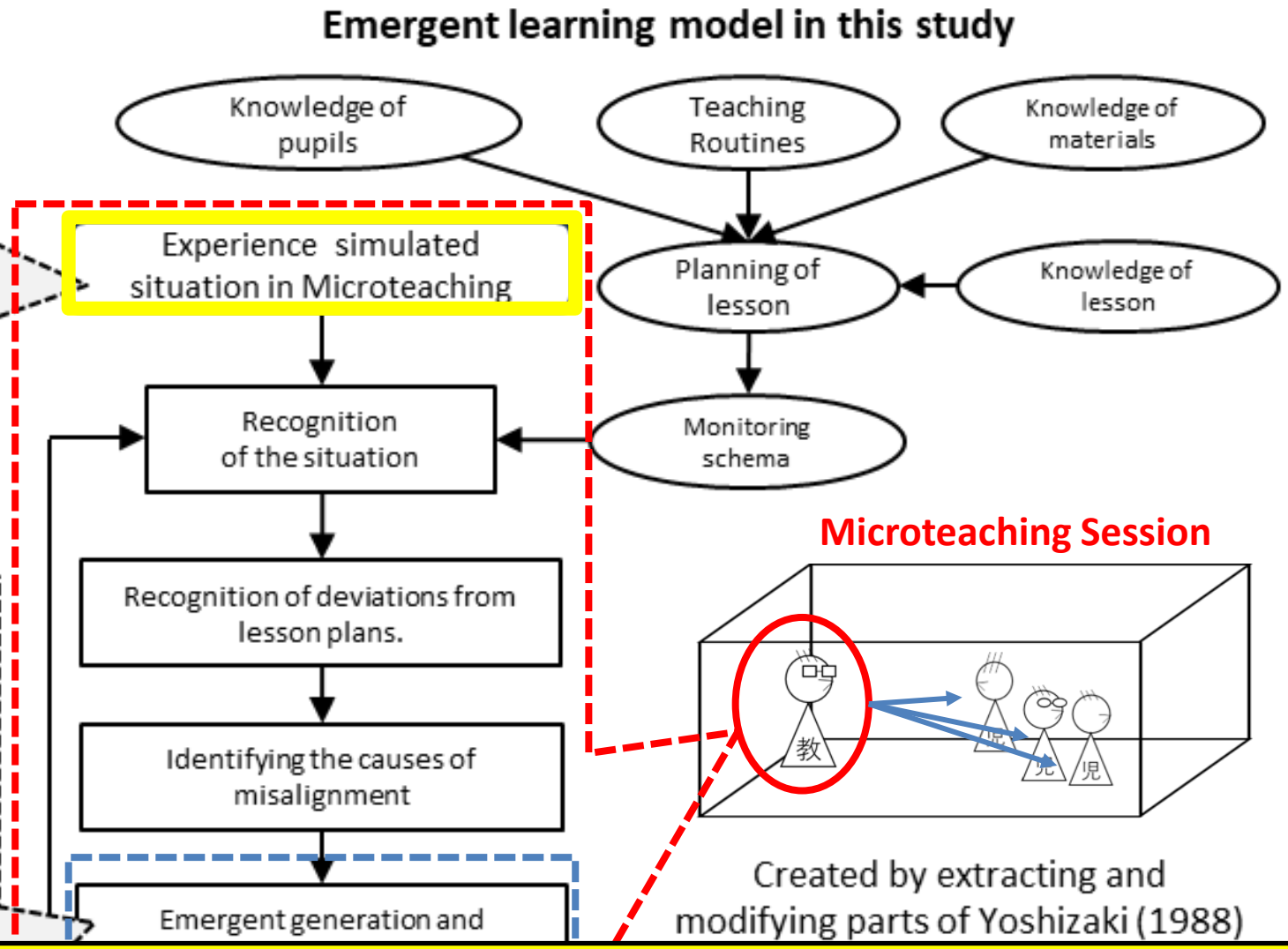

Teacher roles encounter various student behaviors, such as delays, interruptions, withdrawal, and disturbances.

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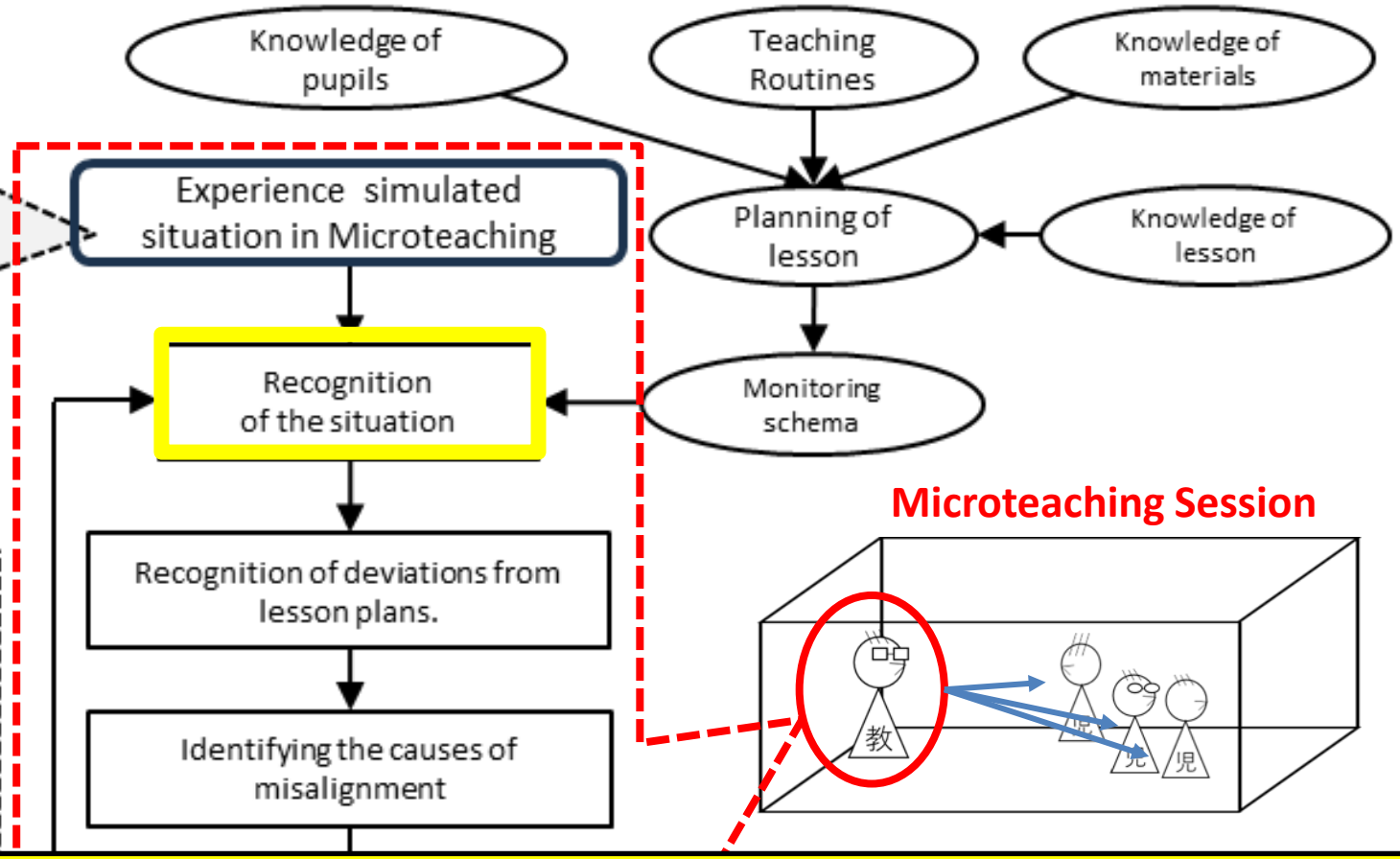
Emergent learning model in this study



Teacher-role extracts the situations of attitudes and behaviors of the student-role from the classroom situation and recognizes and discriminates between expected and non-expected behaviors.

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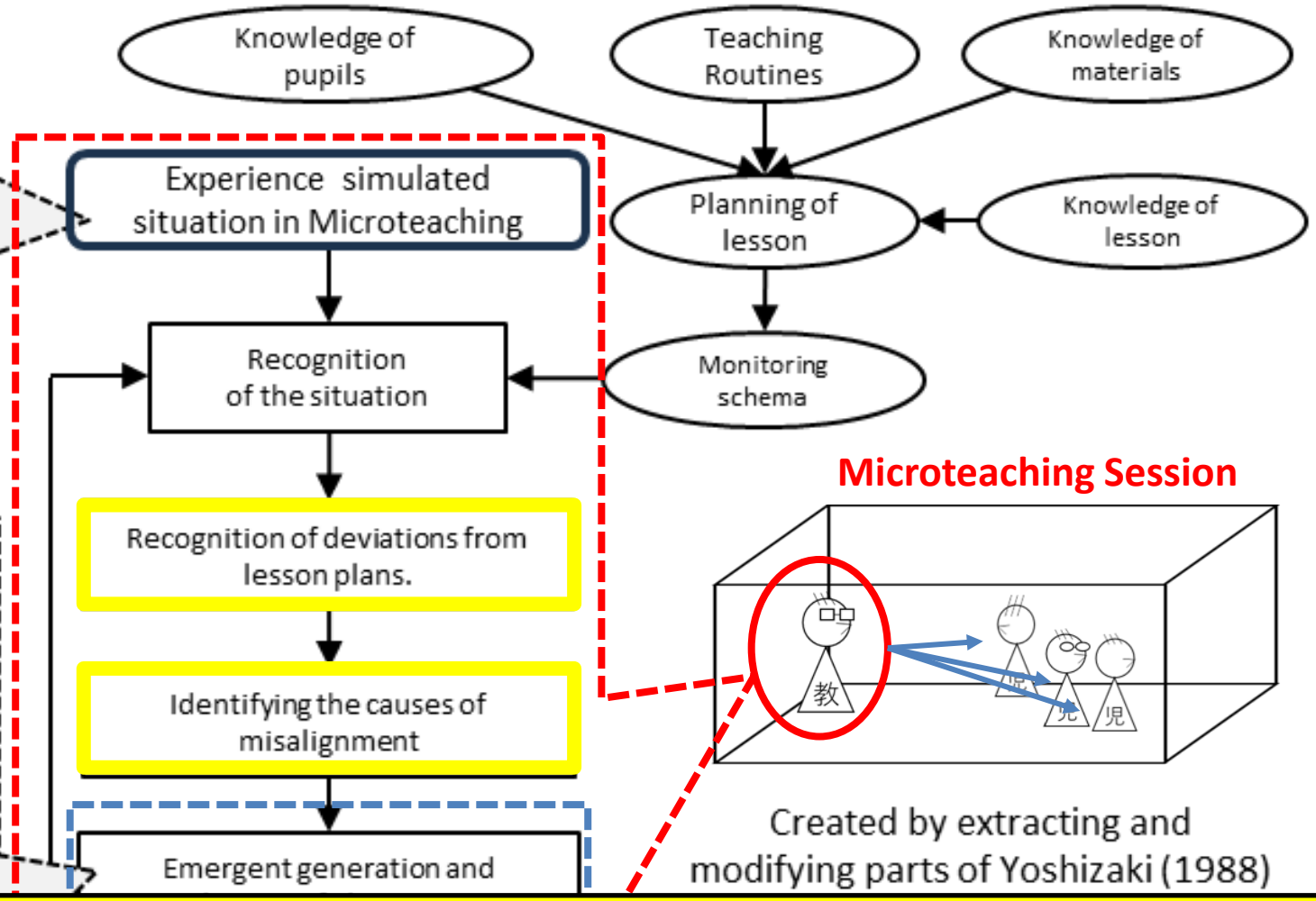
Emergent learning model in this study



Microteaching Session

Created by extracting and modifying parts of Yoshizaki (1988)

The teacher role then recognize the discrepancies between the lesson plan and the actual situation and the factors.

Experiential Process Model for Enhancing Classroom Management Skills in this study

These provide opportunities for teachers to apply management strategies to bridge the gap between their lesson plan and the actual classroom dynamics.

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- Interruptions Withdrawal from study
- Interference with Teachers
- Interference with others

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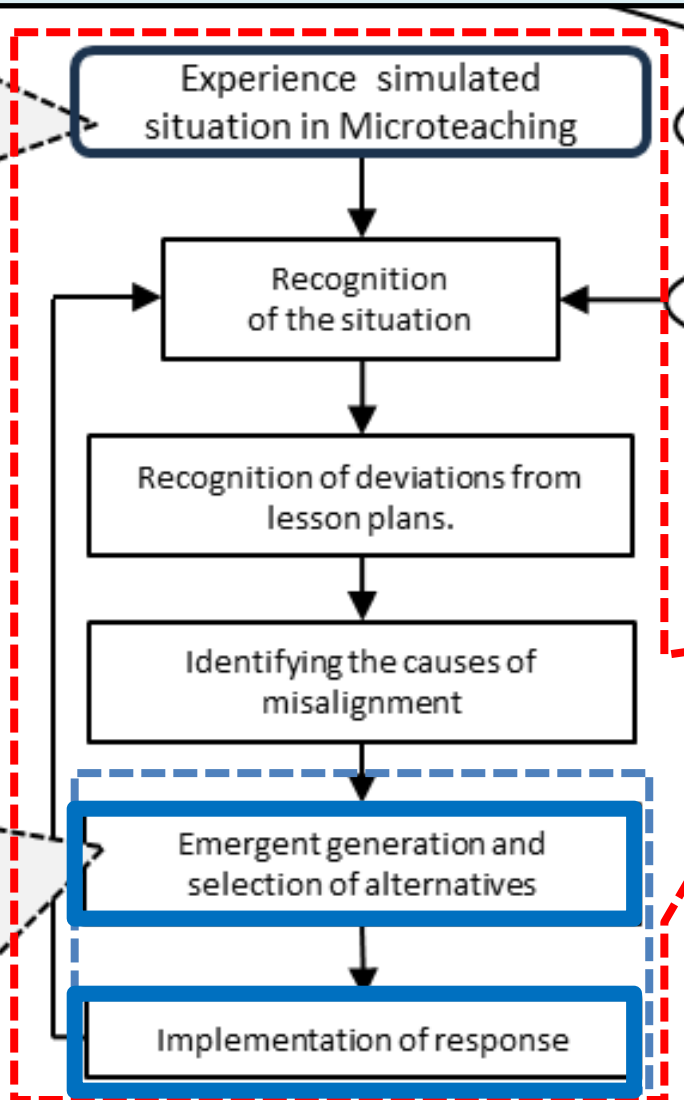
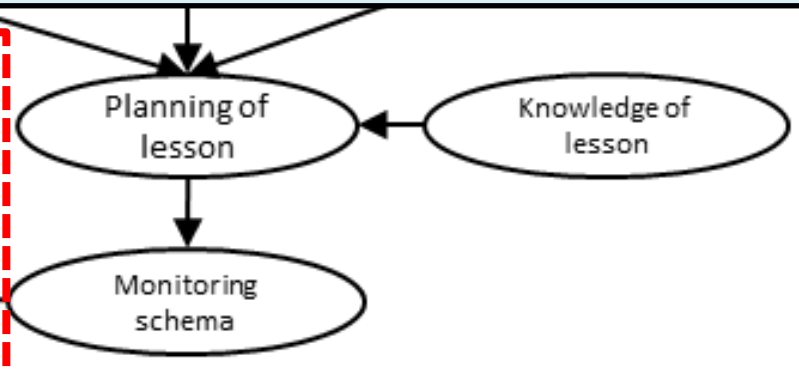
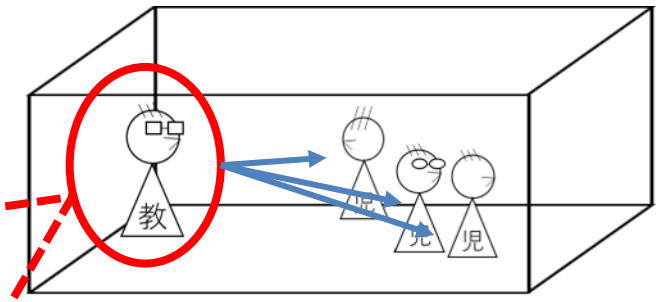




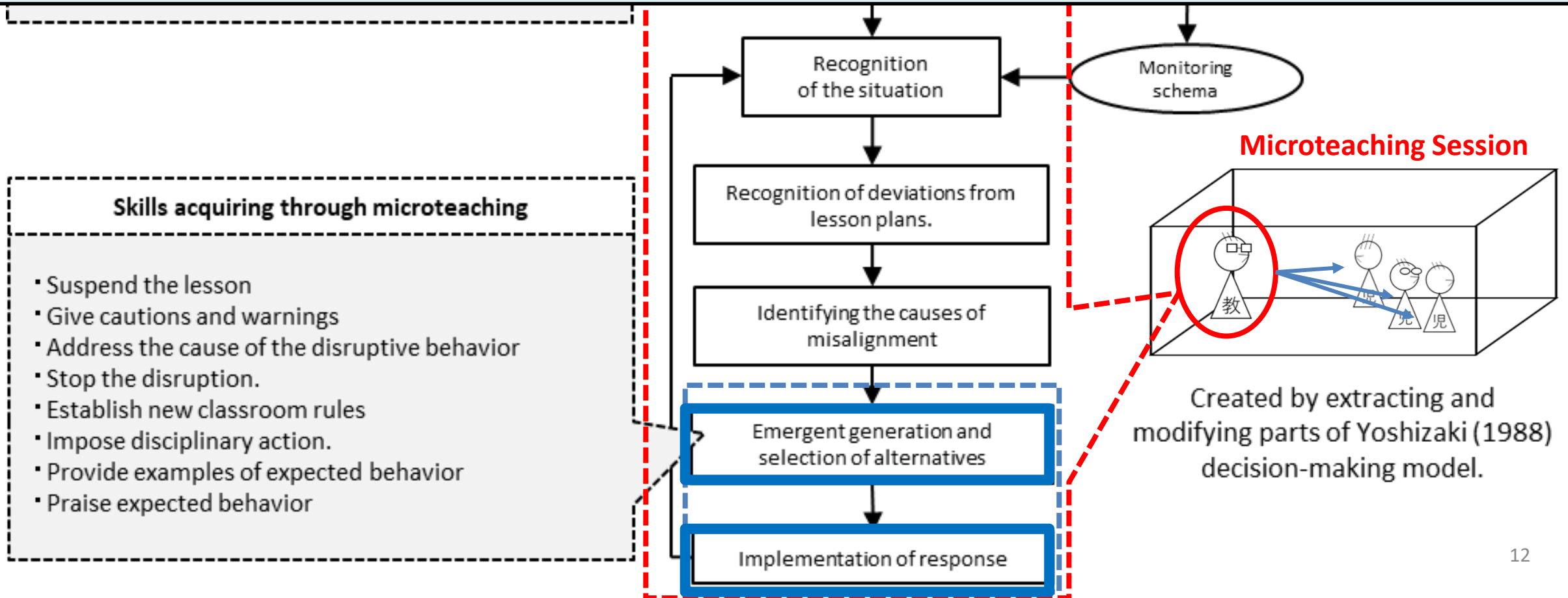
Microteaching Session



Created by extracting and modifying parts of Yoshizaki (1988) decision-making model.

Experiential Process Model for Enhancing Classroom Management Skills in this study

Thus, we assume emergent learning, in which the number of perceived unexpected behaviors, including disruptive behaviors to the lesson, decision-making activities related to management are activated, and the teacher role invokes management behaviors and creates alternative solutions.



Method: Overview of Evaluation of Classroom Simulation in Microteaching

The following three evaluations of the simulated classroom environment were obtained.

Analysis purpose

1) How closely it matches real classroom situations overall.
2) How closely individual scenarios match real situations.
3) Whether each scenario offers a chance to learn management skills.

Practice

Elementary School 3rd Grade Lesson

Group1	teacher-roll(1), student-roll(9)
Gropu2	teacher-roll(1), student-roll(9)

Date: 12 December 2015

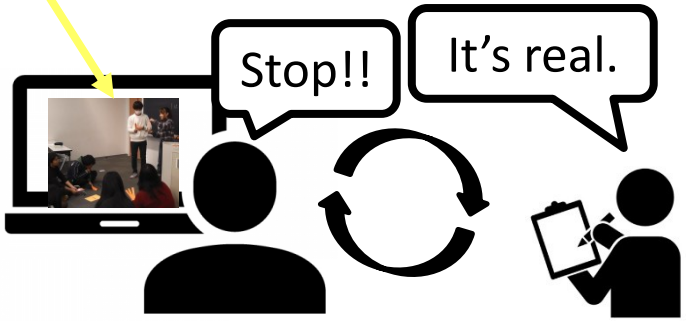
- Participants: second-year university students aspiring to become teachers
- Time: 30 minutes

Evaluation experiment

Method

- Using recordings
- Stimulated recall
- Stop & Motion
- Questionnaire/Interview
- **Evaluators: Proficient 5 teachers**（Average 29.8 years, S.D 10.8 years of experience）.

・Pauses lesson recordings to analyze teaching moments ・Encourages reflection on decision-making
・Uses recordings to recall teachers' thought processes ・Enhances understanding of in-the-moment decisions



Date: 16 April －14 May 2016

Method: Teacher rolls' lesson design for Microteaching
Elementary School 3rd Grade Lesson

Learning goals	To understand how to add and subtract decimals to and from one decimal place, and to be able to perform these calculations.

Design1 was to line up A4-sized sheets of colored paper, which were regarded as 1, with thin sheets of colored paper, which were regarded as 0.1, and ask students to think about how many 0.1s could be placed in the sheet "1".

Design1

Step	contents
1	See how many 0.1 bars can be placed in a sheet of 1
2	Three people attempt to add decimals by giving each other a bar of 0.1.
3	Present the calculation formulas thought up by the group and confirm how to add decimals.
4	Based on what you have learnt, keep in mind that adding 10 0.1's equals 1.

Design2 was to ask the students to think about how many 0.5L and 0.3L together would be, through the juxtaposition of 'colored paper with a picture of two beakers' and 'thin colored paper that is 0.1L.

Design2

Step	contents
1	Check how to find the combined volume of 0.5 L and 0.3 L
2	Each person thinks about how to calculate 0.5+0.3
3	Present their ideas to each other and explore better ways of doing things
4	Based on what you have learned, consider how to calculate 0.8+0.2 and 0.4+0.7.

Results of Analysis: Approximation of Real Classroom

	Design1				Design2		
	Degree of approximation				Degree of approximation		
Question	Mean	S.D.	*P-value*		Mean	S.D.	*P-value*
(i) Diverse situations	4.60	0.55	*0.032* *		4.60	0.55	*0.024* *
(ii) Individual pupil situation	4.20	0.84	*0.002* **		4.20	0.45	*0.003* **
(iii)Overall situation of the pupil	4.40	0.55	*0.004* **		4.20	0.45	*0.002* **
(iv)Impact and change on other pupils.	4.40	0.89	*0.004* **		4.20	0.45	*0.003* **
(v)Test the trust relationship with teachers.	4.20	0.45	*0.032* *		4.00	1.00	*0.099* +

1: Not applicable - 5: Fully applicable, N = 5

*not significant: n.s. p<.10: + p<.05: * p<.01: ** p<.001: ****

To determine whether the five simulated situations - (1) -(5) events that test the trust relationship with the teacher - approximated the actual situations.

A one-sample t-test was conducted with the population mean considered to be 3. The results of the analysis showed a significant trend and a significant difference in the results of all the responses of the rater groups.

Method: Simulated Situations in Microteaching extracted by Authors

Design1

No.	Situation
1	Situations where instructions are not followed and the class is held up
2	Messing with other children
3	Playing with stationery or teaching aids
4	Throwing things
5	Threatening or provoking other children
6	Going outside without permission
7	Inviting other children to play
8	Shouting or shouting
9	Playing with stationery or teaching aids
10	Pointing out minor mistakes by the teacher
11	Situations where children start to play
12	Talking about topics unrelated to the lesson
13	Drawing on the blackboard
14	Singing a song when bored with learning
15	Situations where the pupil's gaze is not looking in the direction of anyone other than the teacher

Design2

No.	Situation
1	Sleeping situation from the beginning of the class
2	Situations where they turn their back
3	Playing with stationery or misbehaving
4	Hitting another friend to wake them up
5	Messing with a friend
6	Dropping things
7	Walking around situation
8	Going outside
9	Hitting another friend to wake them up
10	Turns his/her back
11	A situation where the child starts reading a book
12	Situations where the whole place becomes noisy
13	Situations where the child does not want to cooperate in a cooperative learning situation
14	Throwing erasers or scraps of paper
15	A situation in which the whole class becomes increasingly noisy while writing on the board
16	A situation in which greetings are not coordinated

Results of Analysis: Environmental Assessment(1/2)

Design1

No.	Mean	S.D.	*P-value*
1	4.8	0.45	***
2	4.8	0.45	***
3	4.6	0.55	**
4	4.8	0.45	***
5	4.2	1.3	*n.s.*
6	3.6	1.67	*n.s.*
7	3.6	1.79	*n.s.*
8	4.2	0.84	**
9	4.2	0.45	**
10	4.2	0.84	*
11	4.6	0.55	**
12	4.8	0.45	***
13	3.6	1.95	*n.s.*
14	3.6	1.52	*n.s.*
15	4.6	0.89	*

Design2

No.	Mean	S.D.	*P-value*
1	3.8	1.3	*n.s.*
2	4.8	0.45	***
3	4.5	0.58	**
4	3.0	0.71	*n.s.*
5	4.2	0.45	**
6	3.8	0.45	*
7	4.4	0.55	**
8	4.2	1.3	*n.s.*
9	3.4	0.55	*n.s.*
10	4.2	0.45	**
11	4.0	1.22	*n.s.*
12	4.8	0.45	***
13	4.2	0.84	*
14	4.0	1	*n.s.*
15	4.4	0.55	**
16	3.8	1.3	*n.s.*

1: Not applicable - 5: Fully applicable, N = 5

*not significant: n.s. p<.10: + p<.05: * p<.01: ** p<.001: ****

The results presented in Tables highlight the significant differences in the degree of similarity and frequency of pupil-roll.

To determine the proportion of simulated situations that are close to the actual situations by the evaluators.

A one-sample t-test was conducted using the results of five responses to a total of 31 simulated situations, 15 from Design1 and 16 from the Design2.

Results of Analysis: Environmental Assessment(2/2)

Design1

No.	Mean	S.D.	*P-value*
1	4.8	0.45	***
2	4.8	0.45	***
3	4.6	0.55	**
4	4.8	0.45	***
5	4.2	1.3	*n.s.*
6	3.6	1.67	*n.s.*
7	3.6	1.79	*n.s.*
8	4.2	0.84	**
9	4.2	0.45	**
10	4.2	0.84	*
11	4.6	0.55	**
12	4.8	0.45	***
13	3.6	1.95	*n.s.*
14	3.6	1.52	*n.s.*
15	4.6	0.89	*

Design2

No.	Mean	S.D.	*P-value*
1	3.8	1.3	*n.s.*
2	4.8	0.45	***
3	4.5	0.58	**
4	3.0	0.71	*n.s.*
5	4.2	0.45	**
6	3.8	0.45	*
7	4.4	0.55	**
8	4.2	1.3	*n.s.*
9	3.4	0.55	*n.s.*
10	4.2	0.45	**
11	4.0	1.22	*n.s.*
12	4.8	0.45	***
13	4.2	0.84	*
14	4.0	1	*n.s.*
15	4.4	0.55	**
16	3.8	1.3	*n.s.*

1: Not applicable - 5: Fully applicable, N = 5

*not significant: n.s. p<.10: + p<.05: * p<.01: ** p<.001: ****

	Event (X)	No similarity (Y)	Similarity (X-Y)	Percentage
Design 1	15	5	10	0.67
Design 2	16	6	10	0.63

Key findings from the statistical analysis indicate that 60% of the simulated situations in our microteaching sessions are similar to real classroom cases.

This suggests that the microteaching model was effective in simulating real-life classroom dynamics.

Results of Analysis: Learning Management Behavior in Microteaching

		A	B	C	D	E	F	G	H
		Add new tasks for pupil	Change how to teach	Change notable pupil	Change how to learn	Encourage pupil to learn together	Change how to communicate with pupils	Give formative feedback to pupils	Give cautions and warnings for pupil
Design1	Measured value	22	12	1	15	1	10	5	31
Design2	Measured value	16	17	4	5	1	13	6	30
Total	Measured value	38	29	5	20	2	23	11	61
	Expected value	(23.63)	(23.63)	(23.63)	(23.63)	(23.63)	(23.63)	(23.63)	(23.63)

A chi-square test revealed no significant difference between the two designs in terms of overall learning opportunities for management behaviors.

However, a subsequent analysis using the total score found significant differences in the specific types of management behavior opportunities experienced by the teacher role ($\chi^2 (7) = 110.894, p < .01$).

Results of Analysis: Learning Management Behavior Comparison (1/2)

Multiple comparisons using Ryan's nominal levels revealed significant differences among management behaviors.

A	B	C	D	E	F	G	H
Add new tasks for pupil	**Change how to teach**	**Change notable pupil**	**Change how to learn**	**Encourage pupil to learn together**	**Change how to communicate with pupils**	**Give formative feedback to pupils**	**Give cautions and warnings for pupil**

Multiple comparisons using Ryan's nominal levels

Comparison	*Critical value*	*P-value*	*Comparison*	*Critical value*	*P-value*
A> C	*4.2*	* *p<0.0002*	*G< H*	*4.2*	* *p<0.0002*
A> E	*4.2*	* *p<0.0002*	*A> E*	*3.4*	* *p=0.0006*
A> G	*3.1*	* *p=0.0020*	*B> E*	*3.5*	* *p=0.0004*
C< D	*3.3*	* *p=0.0012*	*C< H*	*4.3*	* *p<0.0002*
C< H	*5.1*	* *p<0.0002*	*D< H*	*4.1*	* *p<0.0002*
D> E	*3.3*	* *p=0.0012*	*E< H*	*5*	* *p<0.0002*
E< H	*5.1*	* *p<0.0002*	*G< H*	*3.8*	* *p<0.0002*
F< H	*3.1*	* *p=0.0018*			

*not significant: n.s. p<.10: + p<.05: * p<.01: ** p<.001: ****

Results of Analysis: Learning Management Behavior Comparison (2/2)

Comparison	Critical value	P-value	Comparison	Critical value	P-value
A> C	4.2	* p<0.0002	G< H	4.2	* p<0.0002
A> E	4.2	* p<0.0002	A> E	3.4	* p=0.0006
A> G	3.1	* p=0.0020	B> E	3.5	* p=0.0004
C< D	3.3	* p=0.0012	C< H	4.3	* p<0.0002
C< H	5.1	* p<0.0002	D< H	4.1	* p<0.0002
D> E	3.3	* p=0.0012	E< H	5	* p<0.0002
E< H	5.1	* p<0.0002	G< H	3.8	* p<0.0002
F< H	3.1	* p=0.0018			

The results indicate that the teacher roles had the opportunity to learn the management behavior of inserting teaching materials rather than other skills.

Teacher roles practiced management behaviors such as attention, instruction, material integration, question sequencing, communication, and activity adjustments. Unexpected behaviors prompted actions like cautioning, scolding, and class interruptions.

Results of Analysis: Types of Management Behaviors

The teacher roles experienced various management behaviors, including attention, instruction, material insertion, question sequencing, communication, and activity changes.

They found that unexpected behavior triggered management behaviors like cautioning, scolding, and interrupting the class.

While students were confused, the teacher roles learned to identify key student roles, adjust their lesson plans, and implement appropriate management actions.

This suggests the method's effectiveness as an emergent learning approach for invoking and creating management behaviors.

Discussion: Management Responses to Behavior

This study proposes microteaching as a method for developing classroom management skills in preservice teachers. By incorporating unexpected behaviors, this approach offers a realistic, comprehensive training experience.

Previous studies have highlighted the potential importance of emergent learning in classroom management.

Haug (2017) noted the varying definitions and implementations of inclusive education across countries, emphasizing the need for flexible responses to students' needs.

This study supports the potential effectiveness of microteaching in improving teaching skills such as attention management, questioning, and class control (Gower et al., 1995; Capel et al., 1998; Kilic, 2010).

Conclusion & Future Work: Microteaching for Classroom Management

This study suggests that microteaching can effectively prepare teachers by simulating real classroom dynamics. Future applications could enhance teacher training programs worldwide, especially in addressing unexpected classroom behaviors.

While the findings suggest potential benefits, further research is needed to establish more robust scientific validation.

By refining the pre-teaching preparation of student roles and considering more diverse simulated situations, future studies can better assess the effectiveness of emergent learning strategies in classroom management training.

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Thank you all.