

Testing the Value of Visualizing
the “Quality of Children’s Play”
-Incorporating Network Analysis into Action Research-

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OUTLINE

1.Introduction

Why do we need a common base of assessing a "Children's Play"?

2.The Objective of the Study

Why do I want to Visualize and Quantify “Children's Play”?

3.Methodology

Why do I choose the Network Analysis? What is "Quality of Play"?

4. The Subject of the Study

Why do I choose the 2 cases from 2 Kindergartens?

5.Findings

Is the Network Analysis is Useful to assess "Quality of Play "?

6.Conclusion and Future Challenges

1. Introduction

- Japanese government set the Educational Goals; cooperation, independence, Understanding Quantities, and Written Words...etc.
- However, the way of linking these **goals** with the **reality** of the child's activity varies from one kindergarten to another.

Cooperation?



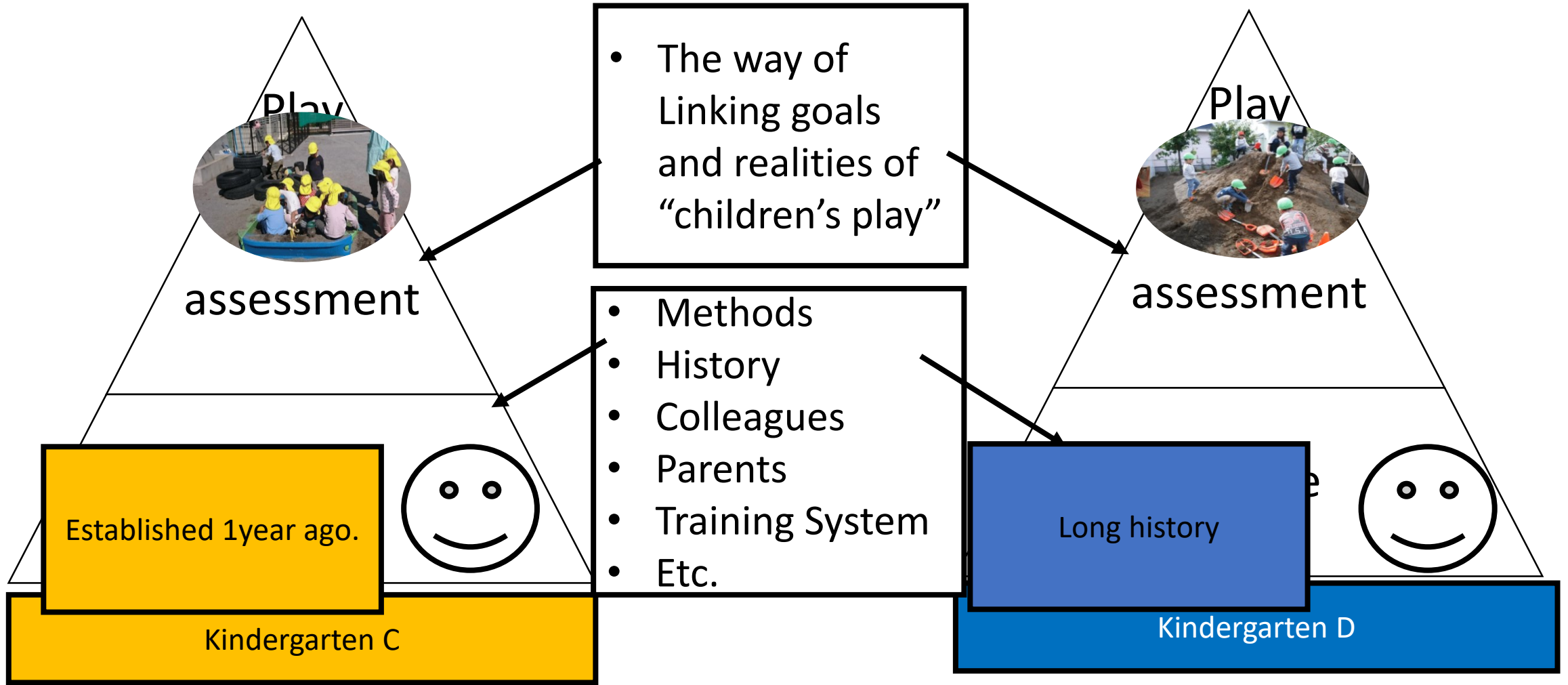
Kindergarten C (3year-old)



Kindergarten D (3year-old)

1. Introduction

- Why does the problem occur?



- Teachers are influenced by the culture of their own kindergartens unwittingly.

2.The Objective of the Study

- Teachers can't reflect their way of assessment if they stay in their own cultures.
- However, they should pursue children's development regardless of which cultures they belong to. To solve this...

1. Traditional Way

Action Research

Action research means that researchers cooperate with teachers to improve educational practices.

2. New Way

?

2.The Objective of the Study

1. Traditional Process

Action Research

1. Researchers often show teachers other educational culture's pictures, movies, transcribed cases.

Problem: Linking images and words

2. Researchers and teachers transcribe cases which represents how improve their practice. Then, they discuss with people outside of their kindergarten about the cases. Discussion is important to ensure the objectivity of their output.

2. New Process

3. Building a common base of assessing “children’s play”. To avoid too much interpretations, I will try to visualize and quantify cases that are transcribed by action researchers.

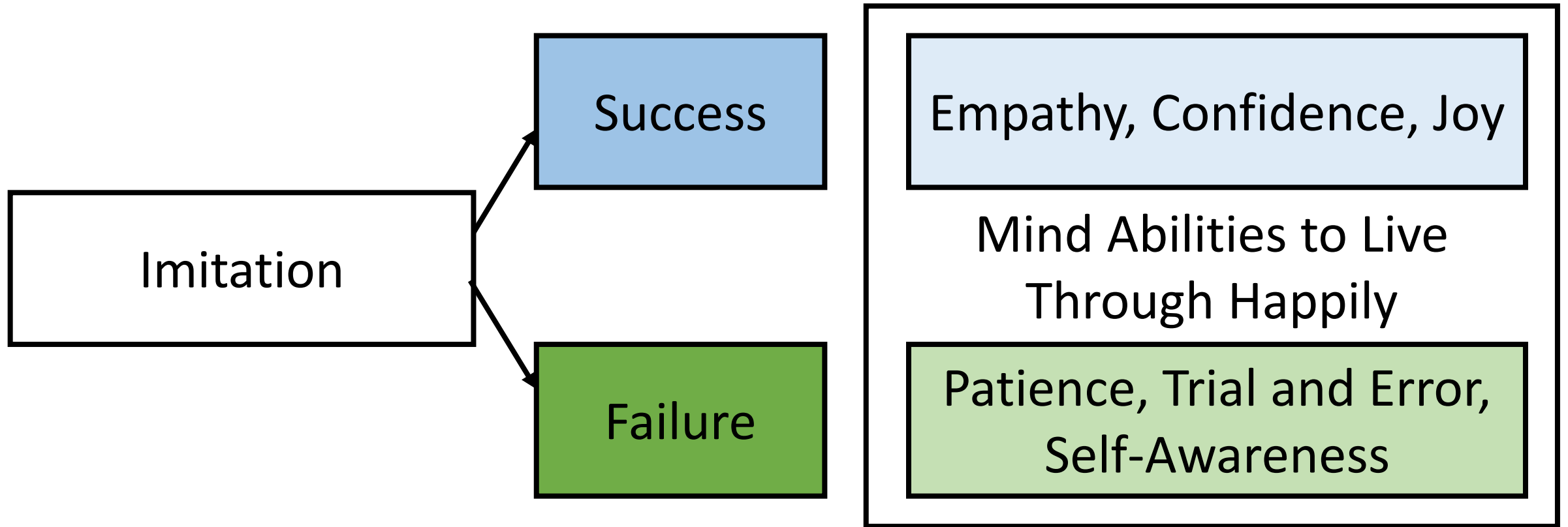
3.Methodology

- I will make an attempt to use the “Network Analysis” to find out the common basis for assessing the "Children’s play”.



3. Methodology

- I focus on children's mind development.
- "Imitation" is important to develop their mind.



3.Methodology

- “Imitation” is supported by environment, which contains people, tools, and places.
- Teachers provide an environment that is attractive enough for children to imitate.

People	Teacher, Class Mates, Senior, Junior...etc
Tools	Shovel, Crayon, Paper, Water...etc.
Places	Sand box, Craft Corner, Pretending Play Corner, Reading Place...etc.

3.Methodology

What is a “Quality of Play”?

- “Quality of play” means the degree to which child development can be promoted.
- In other words, “Quality of play” means the degree to which the child is related to the environment to imitate someone.

3.Methodology

- I use “Network Analysis” to find out the common way of assessing the “Quality of Play”.



- Why because, “Network Analysis” might Visualize and Quantify the features of the environment, which children relate to while they are playing.

4.What is a Network Analysis?

- The relationships represented by dots and lines are called a “net work” in the Network Analysis.

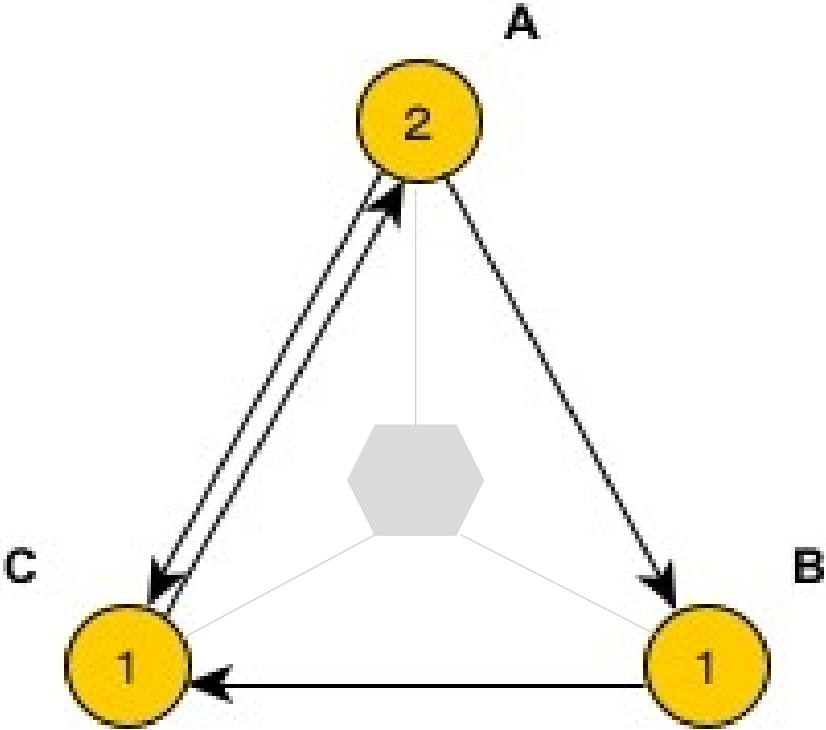


Figure1:Graph1

Vertices	Person/Tools/ Places
Edges	Relationships
Arrowhead	Direction
Numbers	Edges emanating from the each Vertex.
Quadrilateral vertex	Play theme

4.What is a Network Analysis?

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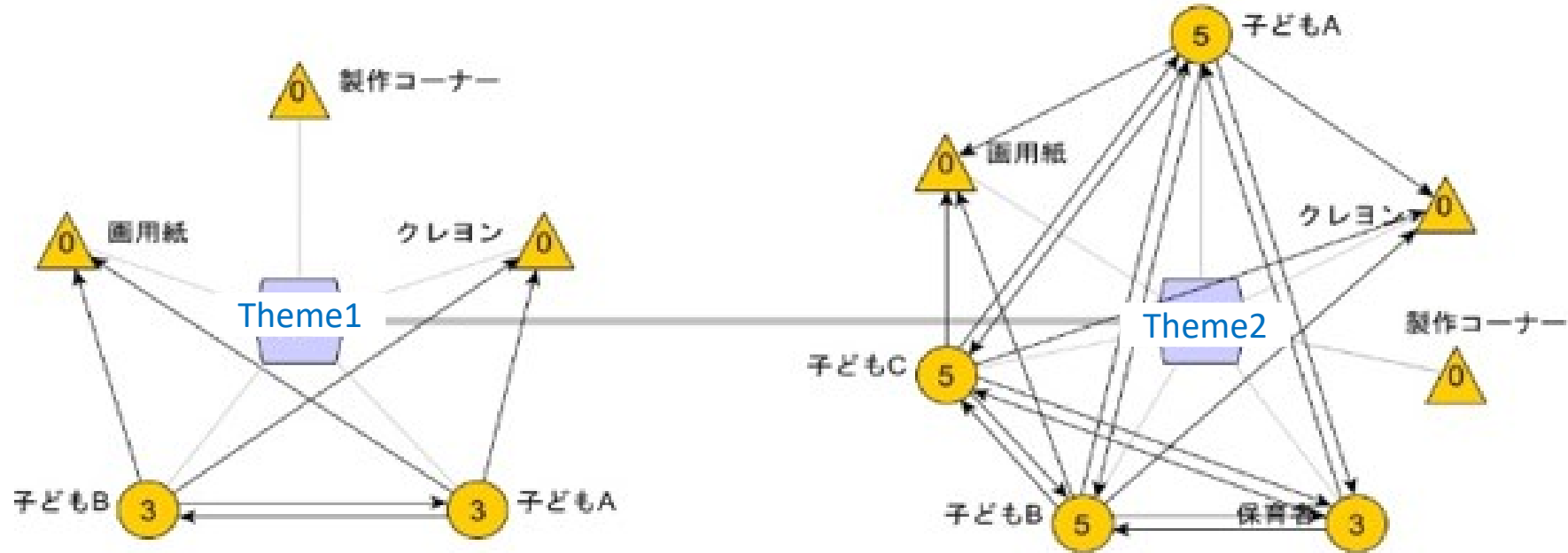


Figure2:Graph2

4.What is Network Analysis?

- “Density ” represents the closeness of vertices in a network.
- In terms of childcare, “density” represents **how much the child is involved with the environment.**

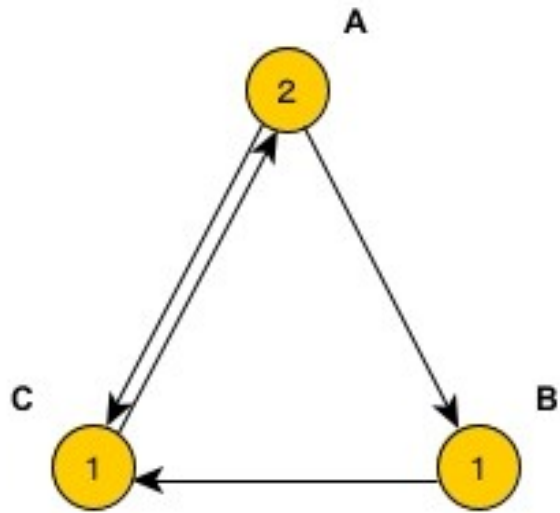


Table1: Calculation Method of Figure2

Symbol	Meaning	Value in Fig.2
t	Number of edges in a networks	4
n	Number of vertices in a network	3
$n(n-1)$	Maximum number of edges that a network can theoretically have	6
$\text{Density} = t/n(n-1)$	Density	$0.677 = 4/3(3-1)$

5. Subject of the Study

- I conduct network analysis for 2 cases from 2 kindergartens, which is transcribed by action researchers.

Kindergarten E	20 years	Similarities ▪ Events in free time play ▪ Craft ▪ 2nd grade ▪ Pretending play
Kindergarten F	3 years	

5. Subject of the Study

- Case1: Kindergarten E

Children change to **swimwear** immediately after reaching school; **three children** pretend to play a “sea play”.

Three more children, motivated by watching their **teacher**, start making a “**floating ring**”; their friends make “**underwater glasses**.”

The **wall** decorated by the picture of fishes is chosen as the “sea” and the **gymnastic set** is chosen as a “beach house.”

More children join the play; **four children** eat “**snacks**” in the “beach house.”

5. Subject of the Study

- Case2: Kindergarten F

One child goes to the craft corner immediately after reaching school.

The child asks the teacher to fold a “throwing star” (*Shuriken*) and shows it to friends.

More children line up in front of the teacher to get “throwing stars” which was made by teacher.

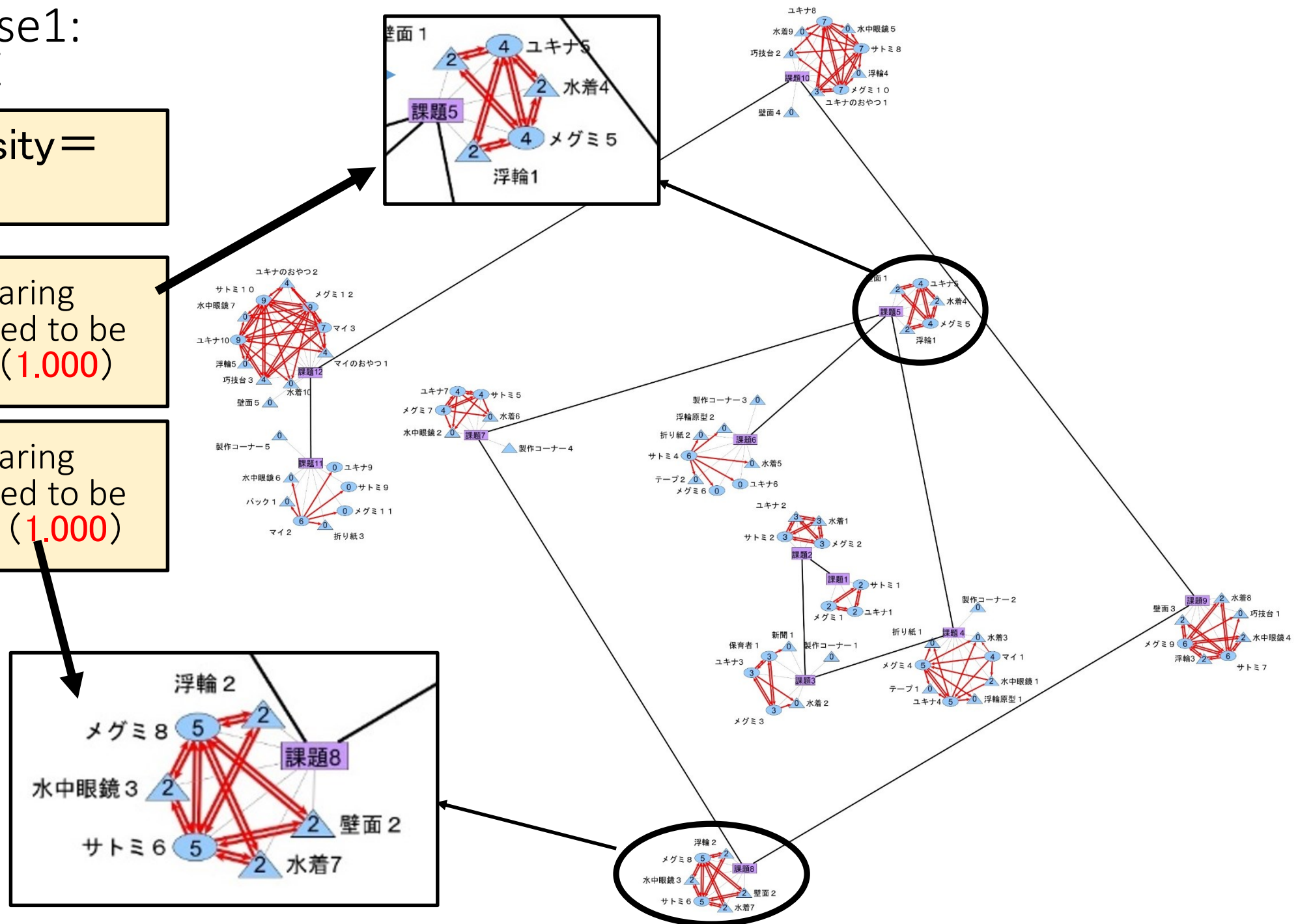
Children who given “throwing stars” take them back home in their bags.

6. Findings Case1: Kindergarten E

Average of Density =
0.6228

Children enjoyed sharing
images and pretended to be
playing with friends (**1.000**)

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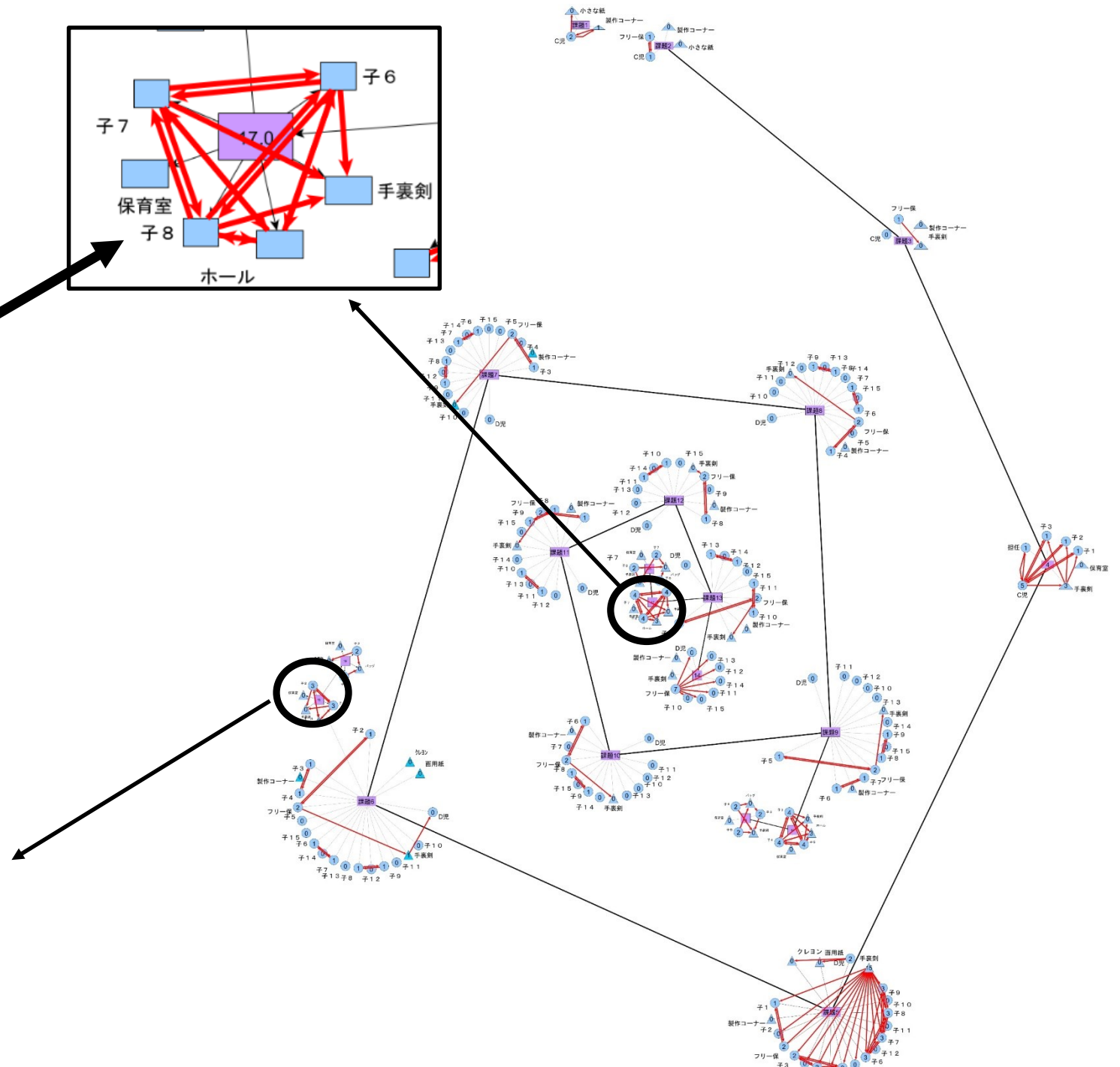
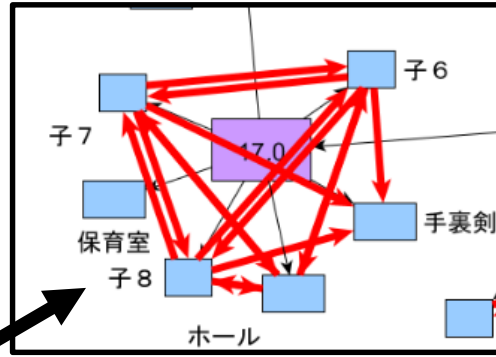
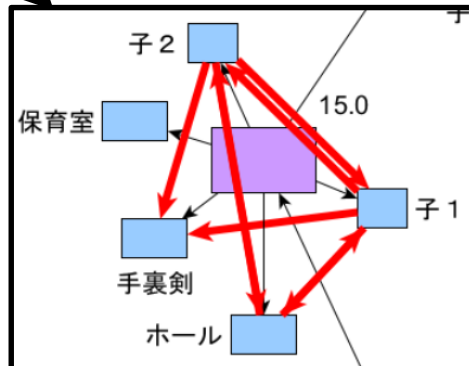


6. Findings Case2: Kindergarten F

Average of Density = **0.2211**

Children exhibited a sense of camaraderie by owning the same things as their friends (**0.625**)

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7. Conclusion and Future Challenges

Conclusion

Network Analysis could help to visualize and quantify one aspect of the “quality of play” for comparison.

Teachers would be able to reflect on and improve the quality of play beyond the cultural implications of each kindergarten by referring to the results of Network Analysis.

7. Conclusion and Future Challenges

Challenges

Making the rules for drawing edges be more precisely.

comparative study on the practices of kindergartens in other countries.