

PROGRAMMING DEVELOP MATHEMATICAL THINKING : CASE OF STATISTIC

Key Words: Programming, Statistical Thinking, Retroductive Inference, Mathematics Education

I. INTRODUCTION

It is important to develop mathematical thinking through programming education but of course it is important to develop computational thinking through programming education as well. But programming teaching-materials to develop mathematical thinking has not been examined in any detail.

PURPOSE

The purpose of this paper is to develop and consider programming teaching-materials to develop statistical thinking for elementary school students.

II. PROGRAMMING TEACHING-MATERIALS TO DEVELOP STATISTICAL THINKING

The context of programming teaching-material to develop statistical thinking developed by me is what elementary school students investigate structure of a vending machine in Japan. When it is judged whether coins are true or fail, it depends on weight, diameter, thickness and the quality of material of coins in Japan. In this paper, they create program to judge true or fail of coins focused on weight of 10-yen coins and 100-yen coins. Perhaps they will consider program to judge whether they are true or fail with representative value (Table 1), dot plot (Fig 1) and histogram (Fig 2) represented weight of 100 coins of 10-yen and 100-yen.

	10-yen coin	100-yen coin
mean	4.4975g	4.7931g
median	4.50g	4.79g
mode	4.51g	4.81g

Table 1: Representative value of weight of coins

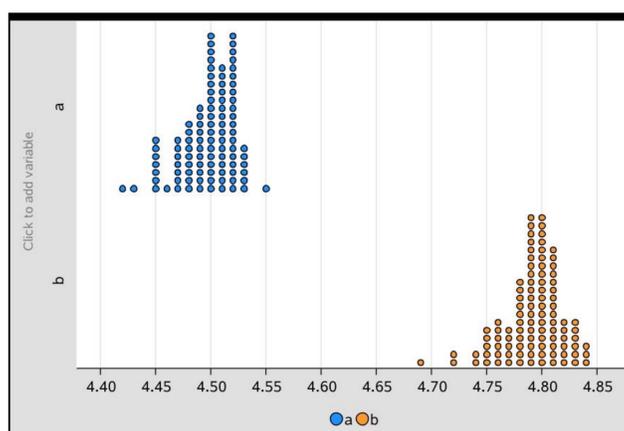


Fig 1

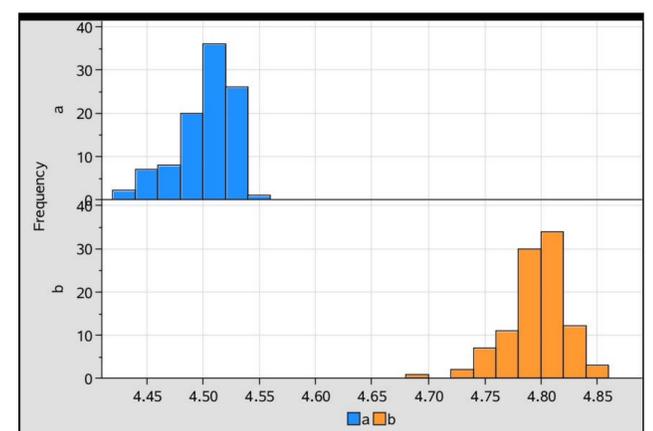


Fig 2

III. CONCLUSION

It is suggested that elementary school students reflect method of statistical problem solving through considering program to judge true or fail of coins.

IV. NEXT CHALLENGE

Next challenge is what consider programming teaching-material through practice teaching in Elementary School with it developed by me.

Reference

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