

## Introduction

There is an ambiguous situation in Russia with the using of digital educational resources (ICT). On the one hand, schools report that they have all the necessary technical equipment. On the other hand, teachers rarely use ICT in class.

One of the barriers for teachers to use ICT in class is their resistance to change (RtCh). RtCh can be seen as an indicator of other problems related to the integration of technologies in training, for example, lack of ICT skills. Another point of view is that RtCh is a personality trait that can be an independent factor. However, studies that reveal the use of ICT by teachers usually do not take into account the personal characteristics of teachers.

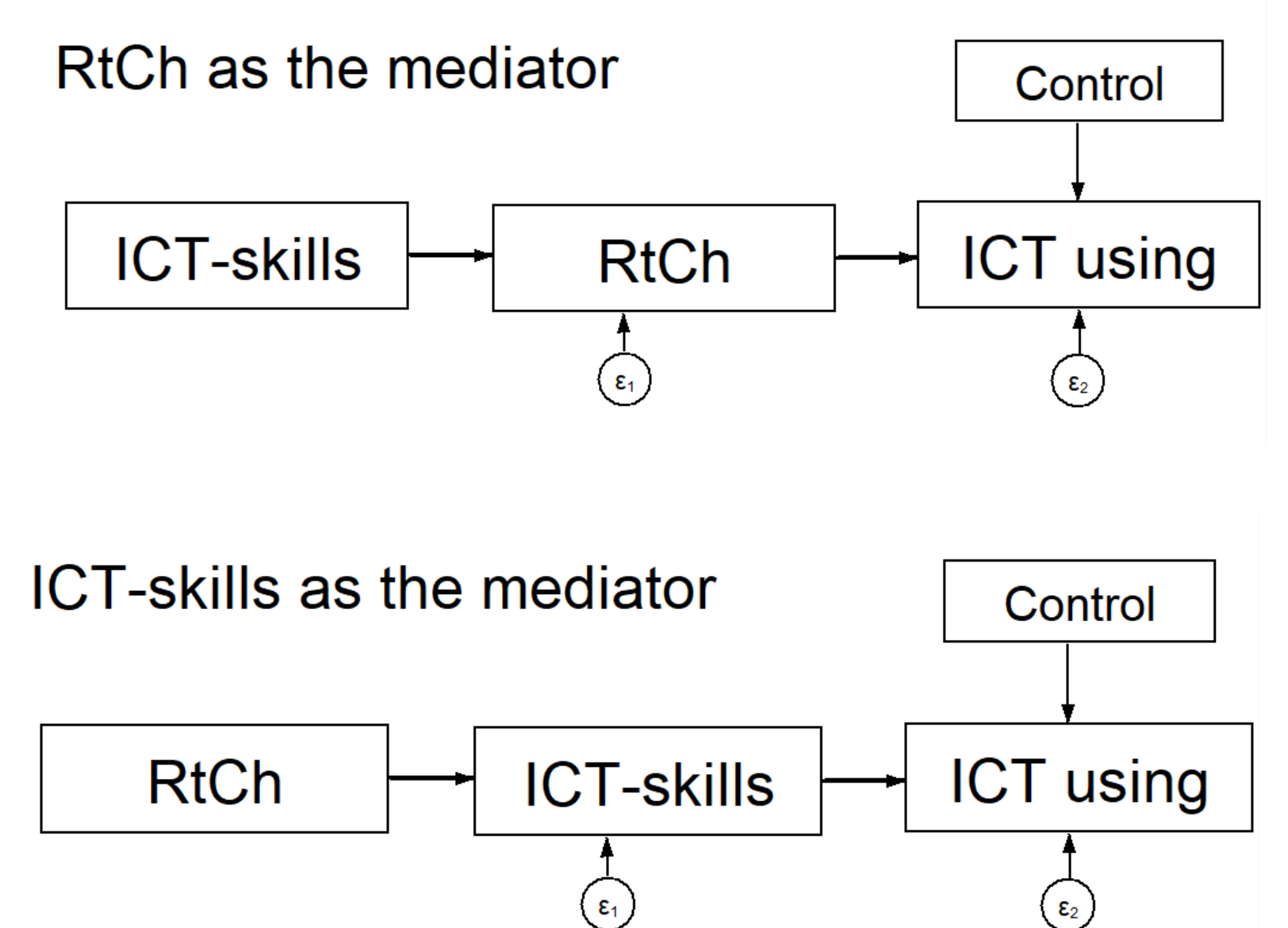
The aim of this study is to analyze the role of RtCh in the relationship between the teacher ICT-skills and using ICT in the classroom. We also tested the role of RtCh in relation between ICT-skills and teachers' ICT using outside classrooms in order to demonstrate the importance of the school context.

## Method

**Sample.** The study used data collected during the joint research of the Higher School of Economics and the Yandex.Uchebnik company. The survey was attended by 437 third-grade teachers from two Russian regions.

**Variables.** For dependent variables were used scales from two questions for teachers "How often you do following" - for classroom (6 statements, Cronbach's alpha = 0,61) and outside classrooms (11 statements, Cronbach's alpha = 0,75) activities.

**Analysis strategy.** Two main models were tested using SEM. In the first one RtCh was the mediator between teachers' ICT-skills and ICT using (both in classrooms and outside classrooms). In the second one, ICT-skills were tested as the mediator.



## Results

Results show that RtCh and ICT skills are connected negatively (Table 1). Both variables have a significant relationship with ICT using at school: RtCh—negative, skills—positive. However, while skills are positive related to ICT using outside classrooms, RtCh does not show any significant relationship with such activities.

The technical equipment and even teachers' age do not related to ICT using at school while controlling their skills and RtCh. The speed of the Internet even shows a negative relationship: the higher the speed, the less often teachers use ICT. The teachers' age is significant only for ICT using outside classrooms and shows a negative relationship.

Table 1. Results of the structural equation modeling

	Model 1—RtCh as		Model 2		Model 3		Model 4	
	Mediator: RtCh	ICT using AT SCHOOL	Mediator: ICT skills	ICT using AT SCHOOL	Mediator: RtCh	ICT using OUTSIDE SCHOOL	Mediator: ICT skills	ICT using OUTSIDE SCHOOL
ICT skills	-0.26*** (0.05)	0.24*** (0.06)	0.24*** (0.06)		-0.26*** (0.05)	0.33*** (0.05)		0.33*** (0.05)
RtCh		-0.13** (0.05)	-0.27*** (0.05)	-0.13** (0.05)		-0.04 (0.05)	-0.27*** (0.05)	-0.04 (0.05)
Age		0.00 (0.01)		0.00 (0.01)		-0.01** (0.01)		-0.01** (0.01)
N of computers for students		-0.01 (0.01)		-0.01 (0.01)		0.00 (0.01)		0.00 (0.01)
School type		0.06 (0.17)		0.06 (0.17)		-0.09 (0.16)		-0.09 (0.16)
Area (1=city)		0.30** (0.12)		0.30** (0.12)		0.09 (0.11)		0.09 (0.11)
Internet speed		-0.05*** (0.02)		-0.05*** (0.02)		0.02 (0.02)		0.02 (0.02)
Const	0.00	-0.13	-0.01	-0.13	0.00	0.46*	-0.01	0.46*
N	339	339	339	339	339	339	339	339

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 2. Models' fit statistics

	Model 1	Model 2	Model 3	Model 4
RMSEA	0.049	0.124	0.049	0.124
SRMR	0.034	0.048	0.034	0.05
CFI	0.935	0.691	0.948	0.738
TLI	0.831	0.197	0.864	0.318
AIC	10041.1	10063.3	10022.6	10044.8
BIC	10087.0	10109.2	10068.5	10090.7

The best model for both dependent variables is the one in which the RTC acts as a mediator. In other words, even for the use of ICT for personal purposes, it seems important to consider teacher's RtCh.

## Conclusion

- Resistance to change is a factor that explains quite well the relationship between teachers' ICT skills and their actual use in the educational process.
- Even with a high level of ICT use skills, teachers do not seek to apply them at work, changing the familiar education process.
- Resistance to change is not a barrier to the use of acquired ICT skills outside classrooms.
- In the present study, we did not identify the significance of the schools' technical equipment as an important factor for the intensity of the teacher's use of ICT in the lessons.
- For educational policy, this means that investments both in providing schools with technical equipment and in teacher training (at least in the format in which it is currently taking place) have reached their limit, and it is important to take into account other factors to intensify digitalization.

## Main references

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