

Appendix 1

Interview Protocol: Teachers/Principals Perceptions

General interview rules:

- The order of the questions can change with the “natural flow” of the interview. However, make sure that you ask all the questions.
- You can ask the questions using your own words, but the meaning should not change.
- Unless it is not necessary (e.g., demographics), ask open questions that cannot be answered with a simple yes or no whenever possible.
- If an answer has been vague or superficial, ask for more details. Our goal is to receive in-depth information and understanding that can be used in the curriculum development process.
- Before starting the interview, let the participants sign the declaration of consent.
- Don't forget to start the audio recording after you received the participants' consent.
- If possible, take notes of the answers (short notes)

Note for the interviewer: Describe the content of the text below

Computer programming can help children improve their computational thinking (CT) that is transferable to various problem-solving situations. Despite the importance of coding education and CT, there is still a lack of explicit teaching and learning activities of coding and CT.

To fill this gap, the ECCP Lab (<https://sites.google.com/view/weipeng-yang-lab>) and its SIRP project is planning to develop a students' and teacher-training curriculum on robotics coding.

In this survey we will ask you questions about how coding should be taught at your institution, as well as what a teacher-training course should ideally look like. Your input is highly valued and will help to design the SIRP curriculum.

Please answer the questions as accurately as possible. Your answers will be kept confidential.

The findings from this survey are also going to be published in scholarly publications. With your participation you agree to the use of your data for these purposes.

Note for the interviewer: Let the participant sign the declaration of consent now. Start the audio recording afterwards, before you start with the actual interview.

Part A Basic Information

1. Briefly introduce yourself (name, education, working experience, curriculum expertise, etc.)
2. How many years of experience in early childhood education (excluding years of study) do you have?
3. How long have you been working in this kindergarten/childcare?
4. How much have you known about coding and CT?
5. How would you describe your primary role/roles in coding education for kids?
6. How much do you know about coding education?
7. Do you personally think coding education is necessary for 3-6-year-old children?

Part B Students' Curriculum

In this project, it is planned to develop a modular, adaptable story-inspired robotics curriculum for young children which is based on a variety of methods including storytelling, hands-on exploration, and group collaboration.

In the following, we will ask you questions about the student curriculum.

8. Have you observed any benefits of the SIRP curriculum for children?
9. What, in your opinion, are the main barriers/ challenges for introducing such a SIRP curriculum for students at your institution?

Note for the interviewer: Please ask this question open first. Then hand the list out to the participants. Go through the list together and note the answers to aspects that have not been mentioned already.

- No particular challenges
- Lack of qualified faculty to teach coding education
- Lack of curricular time
- Lack of financial resources
- Lack of guidelines for coding lesson planning and implementation
- Lack of awareness of the need for explicit coding education for young children
- Lack of top-down support
- Perception that coding cannot be taught to young children
- A lack of flexibility regarding the SIRP curriculum
- Don't know
- Other (please specify)

Part C Teacher Training Needs

10. Do you think you have received enough training regarding the planning and implementation of coding education for young children?

11. What should the teacher training on coding education cover?

12. How do you prefer to be trained regarding coding education for kids?

13. What critical aspects/barriers/challenges do you see in implementing the teacher training program about coding education at your institution?

Note for the interviewer: Please ask this question open first. Then hand the list out to the participants. Go through the list together and note the answers to aspects that have not been mentioned already.

- No particular challenges
- Lack of qualified trainers to teach the coding training course
- Lack of time of trainers
- Lack of time of teachers
- Lack of financial resources
- Lack of guidelines for teaching and assessing coding education
- Lack of awareness of the need for a coding training course
- Lack of top-down support
- Perception that coding cannot be taught for young children
- Don't know
- Other (please specify)

14. What incentive other than a certificate might be helpful for motivating participation in teacher training and the implementation of coding education for kids?

Part D Final Question of the Interview

15. Do you have any further comments?