# Supplementary File

Supplementary 1

Supplementary 3-1: Data for CT systematic review

Supplementary 2

Supplementary 4-1: Data for Abstraction systematic review

Supplementary 3

Supplementary 5-1: Sample Grading of Artefact

Supplementary 4

Supplementary 5-2: Descriptive Statistics of Charted Variables from Students’ Projects

Supplementary 5

Supplementary 6-1: Examples of the take-home programming tasks

Supplementary 6

Supplementary 6-2: Full documents submitted by the participants

Supplementary 7

Supplementary 7-1: Ethic forms, demographic questionnaire and interview protocol

Supplementary 8

Supplementary 7-2: CT and Programming test

Supplementary 9

Supplementary 7-3: PISA sample released test item