# International Comparative Study on Inquiry-based Learning (IBL)

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Please check the following questionnaire. Besides, please let me know if any item needs to be corrected. Especially, yellow lines. Of course, you can add more items that you want to survey. Once you all have completed your checks, we will prepare the form (Google Forms) indicating the final items to you.

I want to survey the following:

- The relationship between attitudes toward inquiry learning and ICT skills (development of the content of ICONESS2023)
- Relationship between attitudes toward inquiry learning and self-efficacy (expansion of Fukui's paper written in Japanese. Journal of Japan Society of Educational Technology. accepted.)
- The relationship between attitudes toward inquiry learning and mindset (new)
- The relationship between attitudes toward inquiry learning and computational thinking (new)
  *In both cases, international comparisons and comparisons between in- and pre-service teachers will be made. Of course, depends on the number of respondents.

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## Contents of Survey Items

- Face Items
- ICT Skills
  Ministry of Education, Culture, Sports, Science and Technology. (2018). Checklist of the Ability of ICT Utilization Among Schoolteachers (Revised 2018).
  https://www.mext.go.jp/a_menu/shotou/zyouhou/detail/__icsFiles/afieldfile/2019/05/17/1416800_001.pdf [in Japanese]
- Consciousness for Inquiry-based Learning
  Fukui, M., Kuroda, M., Amemiya, K., Maeda, M., Ng, K. T., Anggoro, S. & Ong, E. T. (2023). Japanese School Teachers' Attitudes and Awareness Toward Inquiry-based Learning Activities and Their Relationship with ICT Skills, 2nd International Conference on Social Science (ICONESS) 2023 (Indonesia) (Scheduled to be published in Scopus Journal). accepted.
- Mindset (Fixed-/Growth-)
  Dweck, C.S. (2007). Boosting Achievement with Messages that Motivate, Education Canada, 47, 2, pp. 6-10.
- General Self-Efficacy (https://userpage.fu-berlin.de/~health/selfscal.htm)
  Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, Measures in health psychology: A user's portfolio. Causal and control beliefs (pp. 35-37). Windsor, UK: NFER-NELSON.
- Computational thinking
  Korkmaz, Ö., Cakir, R., & Özden, M. Y. (2017). A Validity and Reliability Study of the Computational Thinking Scales (CTS). Computers in Human Behavior, 72, 558–569.

Face Items

| *Country | [Japan/Malaysia/Indonesia/China/Others] | |
|---|---|---|
| *Age | | |
| *Gender | [Male/Female/Others] | |
| *Years of service | | |
| *Pre-service or In-service | [Pre-service/In-service] | |
| (if pre-servie) | | |
| | grade (or, Year) | [1/2/3/4/…] |
| | Whether you plan to become a teacher or something else | |
| | What kind of school will you want to work in? (In Malaysia, teachers work in 4 categories of school (school types) Early Childhood Primary School (Years 1-6) Secondary School (Forms 1-5) Form 6/Pre-University/Matriculation (In Indonesia, there 5 categories) Early Childhood Kindergaten Elementary Schoo (Years 1-6) Junior High School (7-9) Senior High School (10-12) | [elementary school/middle school/high school/Others] |
| (if In-service) | | |
| | School Type Early Childhood Kindergaten Elementary Schoo (Years 1-6) Junior High School (7-9) Senior High School (10-12) | [elementary school/middle school/high school/Others] |
| | Employment status | [full-time/part-time/others] |
| | Post | [Depends on country?] |

## ICT skills (4-point Likert Scale)
[4: I can/3: I can fairly/2: I cannot much/ 1: I can hardly]

*Factor 1: Ability to utilize ICT for researching teaching materials, preparing and evaluating instruction, and school duties (Ability to use ICT for researching teaching materials)

| 1. Plan and utilize the computer and the Internet to improve education's effectiveness. |
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| 2. Utilize the Internet to collect teaching materials for classes and school work, and to disseminate information required for cooperation with parents and the local community. |
| 3. Utilize word processing, spreadsheet, presentation software, and so on, to prepare handouts and materials necessary for classes, and documents and materials needed for classroom management and school administration. |
| 4. Record and organize students' works, reports, worksheets, and so on, using computers to grasp their learning status and utilize them for evaluation. |

*Factor 2: Ability to use ICT in the classroom

| 5. Present materials effectively using computers and presentation devices to increase students' interest, clarify issues, and have students summarize what they have learned. |
|---|

| 6. Effectively present students' opinions by utilizing computers and presentation devices, to have students share and compare each other's opinions, ideas, work, and so on. |
|---|
| 7. Consolidate knowledge and acquire skills, utilize learning software to have students work on repetitive tasks and tasks according to the level of understanding and proficiency of each student. |
| 8. Effectively use computers and software for group discussions to summarize ideas and for collaborative work to produce reports, materials, and artwork. |

*Factor 3: Ability to guide students in the use of ICT

| 9. Teach students to acquire the basic computer operation skills (typing, file operation, etc.) necessary for learning activities. |
|---|
| 10. Teach students to use computers and the Internet to gather information and select reliable information according to their purposes. |
| 11. Teach students to use word processing, spreadsheet, presentation software, and so on, 11 to organize their research and thoughts and to summarize them in sentences, tables, graphs, and so on. |
| 12. Teach students to use computers and software to exchange and share their thoughts and ideas. |

*Factor 4: Ability to teach the knowledge and attitudes that form the basis of information use (Ability to teach knowledge and attitudes)

| 13. Teach students to take responsibility for their actions when participating in the information society, respect others and their rights, and follow the rules in gathering and disseminating information. |
|---|
| 14. When using the Internet, teach students to avoid antisocial behavior, illegal activities, and Internet crimes, and use the Internet appropriately while caring for their health. |
| 15. Teach children and students to set and manage passwords appropriately, based on basic information security knowledge, and safely use computers and the Internet. |
| 16. Help students realize the convenience of computers and the Internet, motivate them to use them in their studies, and understand how they work. |

## Consciousness for Inquiry-based Learning

| * Which of the following best describes your inquiry-based learning instruction? (implementation status of IBL) | [I am currently teaching (currently teaching)/I am not currently teaching but have taught before (currently teaching but have taught before)/I have never taught before (have never taught)] |
|---|---|
| * Which of the following best describes your years of experience with inquiry-based learning? (number of years teaching IBL) | [none/less than 1 year/1-2 years/3-5 years/6-9 years/over 10 years] |
| *Please choose one image of inquiry learning that best describes your perception. | [5: very good/4: good/3: nether/2: not so good/1: not good at all] |
| *Please describe the inquiry-based learning activities you have conducted to date. | [Free answer] |
| | |
| *Please select one statement that applies to your confidence in inquiry-based learning instruction. (confidence in teaching IBL) | [5: very much/4: fairly well/3: nether/2: not much/1: not at all] |
| *Do you think inquiry-based learning is more important than traditional learning? (Importance of IBL) | [7: significant/6: /5: /4: /3: /2: /1: not important at all] |
| To what extent do you need a guidebook or teaching module on conducting an inquiry-based learning? | 4. Need<br>3. Somewhat Need<br>2. Limited need<br>1. Do not need |

## Mindset (Dweck, 2007. https://nrich.maths.org/content/id/7768/Dweck.pdf)
[6: Strongly Agree/5: Agree/4: Mostly Agree/3: Mostly Disagree/2: Disagree/1: Strongly Disagree]

Read each sentence below and then circle the one number that shows how much you agree with it. There are no right or wrong answers.
(fixed-mindset)

| |
|---|
| 1. You have a certain amount of intelligence, and you really can't do much to change it. |
| 2. Your intelligence is something about you that you can't change very much. |
| 3. You can learn new things, but you can't really change your basic intelligence. |

(growth-mindset)

| |
|---|
| 4. No matter who you are, you can change your intelligence a lot. |
| 5. You can always greatly change how intelligent you are. |
| 6. No matter how much intelligence you have, you can always change it quite a bit. |

## General Self-Efficacy Scale (GSES) (Schwarzer & Jerusalem, 1995)
[1 = Not at all true/2 = Hardly true/3 = Moderately true/4 = Exactly true]

| |
|---|
| 1. I can always manage to solve difficult problems if I try hard enough. |
| 2. If someone opposes me, I can find the means and ways to get what I want. |
| 3. It is easy for me to stick to my aims and accomplish my goals. |
| 4. I am confident that I could deal efficiently with unexpected events. |
| 5. Thanks to my resourcefulness, I know how to handle unforeseen situations. |
| 6. I can solve most problems if I invest the necessary effort. |
| 7. I can remain calm when facing difficulties because I can rely on my coping abilities. |
| 8. When I am confronted with a problem, I can usually find several solutions. |
| 9. If I am in trouble, I can usually think of a solution. |
| 10. I can usually handle whatever comes my way. |

## Computational Thinking (CT) (Korkmaz et al., 2017)
[5-point likert scale.

*Factor 1: Creativity

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|---|
| 1. I like the people who are sure of most of their decisions. |
| 2. I like the people who are realistic and neutral. |
| 3. I believe that I can solve most of the problems I face if I have sufficient amount of time and if I show effort. |
| 4. I have a belief that I can solve the problems possible to occur when I encounter with a new situation. |
| 5. I trust that I can apply the plan while making it to solve a problem of mine. |
| 6. Dreaming causes my most important projects to come to light. |
| 7. I trust my intuitions and feelings of "trueness" and "wrongness" when I approach the solution of a problem. |
| 8. When I encounter with a problem, I stop before proceeding to another subject and think over that problem. |

*Factor 2: Algorithmic Thinking

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| 9. I can immediately establish the equity that will give the solution of a problem. |
| 10. I think that I have a special interest in the mathematical processes. |
| 11. I think that I learn better the instructions made with the help of mathematical symbols and concepts. |
| 12. I believe that I can easily catch the relation between the figures. |
| 13. I can mathematically express the solution ways of the problems I face in the daily life. |

| |
|---|
| 14. I can digitize a mathematical problem expressed verbally. |

*Factor 3: Cooperativity

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| 15.  I like experiencing cooperative learning together with my ==group of friends.== |
| 16. In the cooperative learning, I think that I attain/will attain more successful results because ==I am work==. (… I am committed/diligent/hardworking?) |
| 17. I like solving problems related to group project together with my friends in cooperative learning. |
| 18. More ideas occur in cooperative learning. |

*Factor 4: Critical Thinking

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|---|
| 19. I am good at preparing regular plans regarding the solution of the complex problems. |
| 20. It is fun to try to solve the complex problems. |
| 21. I am willing to learn challenging things. |
| 22. I am proud of being able to think with a great precision. |
| 23. I make use of a systematic method while comparing the options at my hand and while reaching a decision. |

*Factor 5: Problem Solving

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|---|
| 24*. I have problems in the demonstration of the solution of a problem in my mind. |
| 25*. I have problems in the issue of where and how I should use the variables such as X and Y in the solution. |
| 26*. I cannot apply the solution ways I plan respectively and gradually. |
| 27*. I cannot produce so many options while thinking of the possible solution ways regarding a problem. |
| 28*. I cannot develop my own ideas in the environment of cooperative learning. |
| 29*. It tires me to try to learn something together with my group friends in cooperative learning. |

*invert scale