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What is needed to promote effective traffic safety education for school children?

-Study on the Establishment of Educational Promotion Scheme-





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Purpose of the Study

- Clarify the requirements for promoting effective road safety education for students and establish a scheme for promoting education.
- Components of the Promotion Scheme
 - 1. Development of attractive educational programs (emphasizing <u>students'</u> <u>initiative</u>)
 - 2. Accumulation of evidence (empirical data for measuring effectiveness)
 - 3. Development of teaching materials and evaluation tools
 - 4. Educational support (e.g., training of instructors)

Content of Study (FY2018 to FY2020)

- Educational practices according to developmental stages and student-led activities
- Elementary school students: Educational effects of creating traffic safety maps and their sustainability (A Elementary School, Kochi Prefecture)
- Junior high school students: Systematic learning and accumulation of evidence over three years (B junior high school, Miyagi Prefecture; C junior high school, Yamagata Prefecture)
- High school students: Student-led educational activities (traffic safety symposiums, exchanges between high schools, etc.)

(Miyagi High School Students Cycle Summit, D High School, Iwate Prefecture, E High School, Miyagi Prefecture, F High School, Kochi Prefecture)



Educational Practices for Elementary School Students (A Elementary School, Kochi Prefecture)

A series of educational activities by third-grade students: 46 third-grade students (18 boys, 28 girls)



Fieldwork to find dangerous areas in the school district in October 2018



Student presentation: 3rd graders coached 2nd graders in December 2018



Creating a traffic safety map and dangerous spots in October 2018



Voting for the "Stop!" mark placed at dangerous spots in November 2018



Educational Activities for Elementary School Students (A Elementary School in Kochi Prefecture)

- Change in right and left checking rate when crossing intersections
- A) Verbal instructions before leaving school on October 10, 2018 e.g.) Stop and look left and right. It's a rainy day, so be careful not to slip. Watch out for cars turning right.

1st Observation:

on Oct. 10, 2018 when leaving school

Validation rate: 23.2% (by group)

On Oct. 11, 2018 when coming to school

Validation rate:38.5% (by group)

On Oct. 11, 2018 when leaving school

Validation rate: 23.2% (by group)

B) Teaching specific actions for avoiding danger by using photos in a school assembly on November 5, 2018

2nd Observation:

on November 6, 2018 when coming to school

Validation rate: 77.8% (by group), 70.1% (Individually)

3rd Observation:

on December 14, 2018 when leaving school

4th Observation (14 months later since the previous observation):

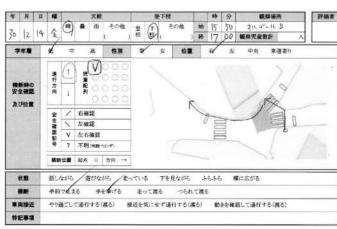
on February 13, 2020 when coming to school

Validation rate: **87.3**% (by group), **69.8**% (Individually)

Validation rate: 91.6% (Individually)

→ Long-lasting effect





It is effective to present photos of actual intersections from the children's viewpoint while teaching them to think about specific actions for avoiding danger.



Educational Activities for Junior High School Students (B Junior High School in Miyagi Prefecture)

Workshop (1st Year students) on April 17, 2019

- Predicting risk when crossing signalized intersections
- Reviewing our own bicycling
 (Mirroring: footage of actual bicycling)
- Reviewing decision making when crossing a signalized intersection (Devil vs. Angel: Self-test and comparison with others)



Workshop (2nd Year students) on April 24, 2019

- Sharing information on dangerous areas in the school district
- Making a traffic safety map (identification of dangerous areas)
- Specific risk situations and risk prediction
- Individual goal "My Vision Zero Declaration"



Workshop (3rd Year students) on April 24, 2019

- Providing the 2nd year students with a presentation of information on dangerous areas in the school district
- Demonstrate (skit) instruction on how to predict and avoid specific risk in the areas.
- Catchphrase message to the juniors



Educational Activities for Junior High School Students (C Junior High School in Yamagata Prefecture)

Orientation (all grades at once) on May 17, 2019

- Sharing own bicycling problems
- Sharing the overall goal, "Vision Zero Declaration"
- Presenting a learning task (how to ride a bicycle on a daily basis)

Workshop (each grade) on May 24 and June 10, 2019

- Risk prediction when crossing a signalized/unsignalized intersection
- Reviewing own bicycling
 (Mirroring: Comparing with the way others ride their bicycles)
- Reviewing decision making when crossing a signalized intersection
 (Devil vs. Angel: How we judge ourselves compared to others)

Follow-up (all grades at once) on October 25, 2019

- What they can do /what they still can't do
- Confirmation of the occurrence of bicycle-related accidents
- Gather information on dangerous areas in the school district (For making a traffic safety map for the next year)



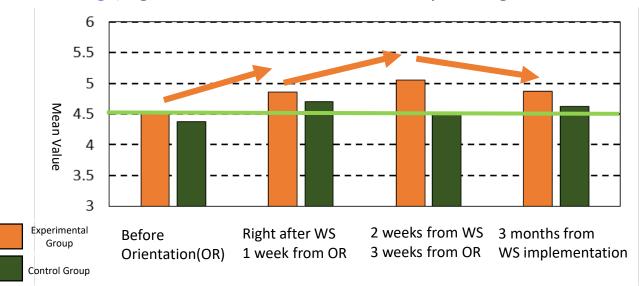






Change in Awareness (Metacognition) before and after Education (C Junior High School, in Yamagata Prefecture)

Monitoring (e.g. You sometimes realize that you forgot to check safety)

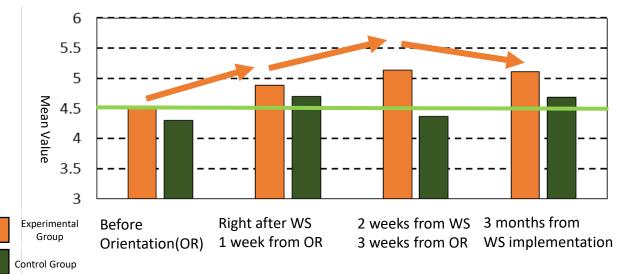


Experimental Group

- Both monitoring and knowledge improved immediately after WS.
- Further improvement after 2 weeks from WS
- Slightly lowered 3 months later, but still higher than before education



Knowledge (e.g. You know how to make a good safety check.)



Through education, they have come to "understand the knowledge necessary for safe bicycling" and "ride the bicycle with awareness of their own bicycling."



Results of Educational Activities (C Junior High School in Yamagata Prefecture)

Worksheet for follow-up: "What I can do now after the workshop/What I can't do yet" (1st Year students)

Often appear for "What Only appear for "What I Often appear for "What I Appear only for Appear for both "What I can do now" I can do now" can't do yet" can't do yet" signal check cross few, speed many, bad, good put away, hurry dangerous, narrow raise one hand, skillful, great stop, right and left, flashing, bicycle cross, sidewalk, walk inspection light Intersection, fast, accelerate, slow, fast. match, go raise, two people riding widen, go capable, run, look dangerous, pass through, yellow pedestrian traffic, back, Car, drop, turn start, can stop good, pico stop, halt, Adjustment, blue, crosswalk, speed unconscious, crossing driving, pass right and left temporary can drop talk, to do accidentally, corner, sign Surrounding, attach, stop, traffic light be late ride brake) turn on use, go down, lower, Safety go, street get off, slope, red commute, stop, Caution, road, green write run out habit, concentration, light, Show, bear in mind perfect, case, awareness, accident, control, think mark, driver

Check and stop at intersections, etc.

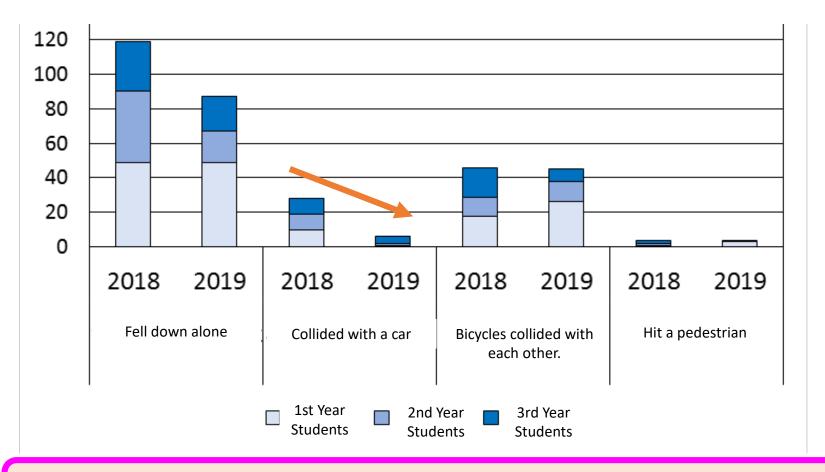
Speed

Difficulty in responding to different situations (Interpersonal, road environment, emotions such as hurry, etc.)



Accidents after Educational Activities (C Junior High School in Yamagata Prefecture)

Comparison with the previous year (2018) (515 students in the whole school)



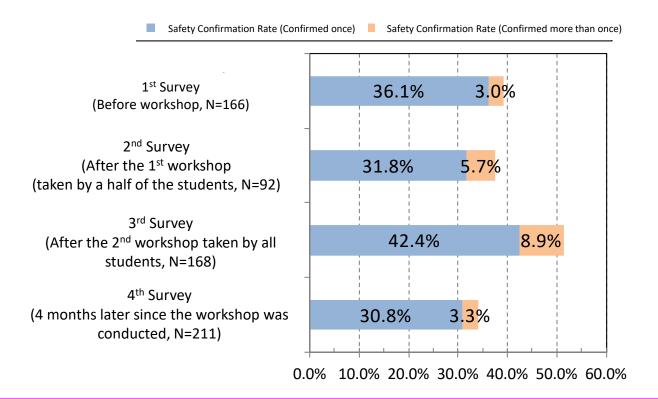
- A program focusing on checking and stopping at signalized and unsignalized intersections has resulted in fewer collisions with cars.
- Other educational activities are needed for single-person accidents and accidents between bicycles.



Changes in Safety Confirmation Behavior through Educational Activities (B Junior High School in Miyagi Prefecture)

 Safety Confirmation Behavior Evaluation Index:
 Safety confirmation rate P_{SC}

 P_{SC} : Safety confirmation rate Number of crossers who performed safety confirmation. Number of observed crossers



- Maximum safety confirmation rate in the survey after the second workshop (taken by all students)
- The percentage of students who perform multiple safety confirmation increased after attending the workshop.
- Safety confirmation rate tends to decline 4 months after attending the workshop.



Analysis of Factors Affecting Safety Confirmation Behavior (B Junior High School in Miyagi Prefecture)

- Analysis Results
- Model 1
- Evaluated the effect of whether or not a participant attended a workshop (Data used: May 11 only, N=118)
- Model 2
- Verified the effect of elapsed time after attending the workshop on behavior (Data used: 4 all time points, N=711)

Parameter Estimation Results of Model 1

Explanatory variables	Estimated value
Workshop attendance dummy	1.15***
Group traffic dummies	-0.86**
Intercept	-0.41
R-squared (U)	0.09
Target rate [%].	70.34
p-value	<0.01

Code condition: ***: 1% significance, **: 5% significance, *: 10% significance)
Act on safety confirmation: positive, Act on no safety confirmation: negative

Model 1 Results

- People who have received safety training are more likely to check safety.
- Hard to check safety when riding in a group
- Confirmed the effects of attending the workshop
- ➤ There is a limit to how long the effect lasts.

Parameter Estimation Results of Model 2

Explanatory variables	Estimated value
Dummy after the first workshop2	0.41**
Vehicle Approach Dummy	0.77***
4Dummy after 3 months	-0.32*
Red light stop dummy	-0.67***
Intercept	-0.37
R-squared(U)	0.06
Target rate [%].	62.96
p-value	<0.0001

Model 2 Results

- > Students are more likely to check their safety after the second workshop, and less likely to check their safety after 4 months have passed since the workshop.
- Easy to check safety when there is a vehicle in the intersection, and difficult to check safety when passing after stopping at the red light



Educational Activities for High School Students (Miyagi High School Cycle Summit)

Objective

In order to promote traffic safety education based on citizenship education, share the latest information on activities to solve problems independently by students through inter-school cooperation, and to have high school students acquire the ability to plan and propose traffic safety initiatives in cooperation with elementary, junior high and high schools.

Miyagi High School Cycle Summit on Aug. 5 in 2019

- Participated in a symposium on "Traffic Safety Activities through Brotherhood"
- Information sharing on issues faced by each school
- High School Student Group Discussion: "Proposed Approaches to Traffic Safety Activities in Collaboration with Elementary, Junior High and High Schools - What High School Students Can Do"



Content

- (1) How to share information among elementary, junior high, and high schools on how to predict and avoid risks related to dangerous areas in the community or on the way to school.
- (2) Consider ways in which the entire high school or all students can be involved in the proposed initiative.



Educational Activities for High School Students (D High School in Iwate Prefecture)

Preparatory activities for the traffic safety symposium organized by the student council

Meeting with the principal

June 3, 2019

Meeting with the teacher in charge Confirmation of time schedule, etc.

August 28, 2019

Meeting with student council members

September 4, 2019

Exchanging opinions valuing students' independence

- (1) Presentation of the task
- (2) Opinions and thoughts from students
- (3) Finalization of contents
- (4) Sharing goals

Meeting with the student council and the teacher in charge (1)

October 2, 2019

Meeting with the student council and the teacher in charge (2)

October 16,2019

Meeting with the student council and the teacher in charge (3)

November 6, 2019

Meeting with student council and teacher in charge (4) Rehearsal

November 26, 2019





Traffic Safety Symposium Held

November 27, 2019

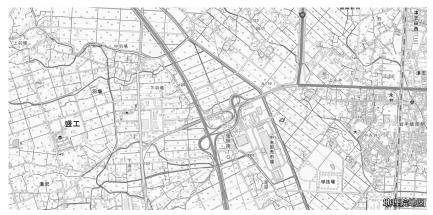


Educational Activities for High School Students (D High School in Iwate Prefecture)

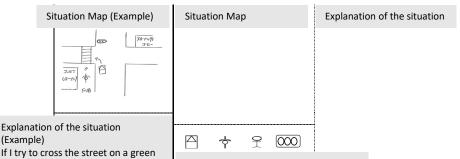
Meeting with the student council and the teacher in charge (1)

[Questionnaire Survey 1]

[Question A-(1)] Circle the dangerous places on the map below where you have experienced a near-miss, or where you have been in danger of contacting with a car or a person when riding your bicycle to school. You may circle more than one place. If you do not ride a bicycle, please answer this question based on when you were walking.



Choose one of the danger spots marked on the map above that you would like to tell other students about, circle it in red, and draw a simple drawing of the situation using the example to explain how the spot is dangerous.





Explanation of the situation (Example)

light, I may collide with a car turning left from behind on the right. It is a downhill slope, so I speed up and try to cross while the light is green.

Car/ Bicycle / Pedestrian / Traffic Light

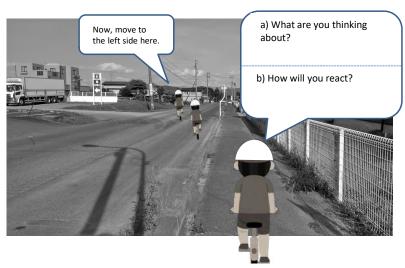
Use the symbols above and indicate the surrounding buildings, etc. to create a drawing.



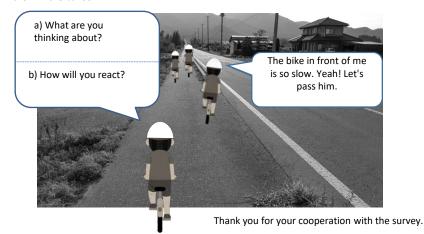
Educational Activities for High School Students (D High School in Iwate Prefecture)

Meeting with the student council and the teacher in charge (1) [Questionnaire Survey 2]

(Scene 1) When leaving school, a Moriko student running in front of you crossed the street diagonally to your left. At this moment, a) what are you thinking about? And b) How will you react? Write them in the balloon.



(Scene 3) A Morko student running in front of you is trying to overtake the others. At this moment, a) what are you thinking about? And b) how will you react? Write them in the balloon.

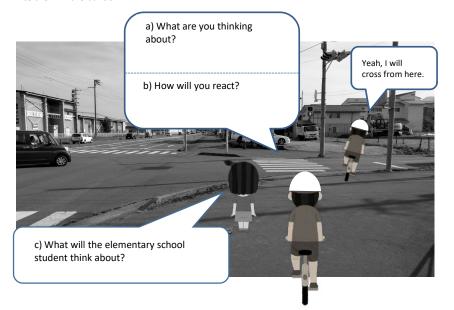


(Scene 2) On the way to school, at a green light intersection, a Moriko student running in front of you crossed the street diagonally and turned in the direction of Moriko.

At this moment, a) what are you thinking about?

And b) how will you react?

Also, what do you think c) the elementary school student near you is thinking about? Write them in the balloon.





Educational Activities for High School Students (D High School in Iwate Prefecture)

Holding a symposium organized by the student council

(1) Raising an issue







Proposals from Student Guidance Department

- (1) Ensure the safety of elementary and junior high school students and set a good example.
- (2) Diagonal crossing is prohibited.
- (3) Running alongside is prohibited.
- (4) Overtaking is prohibited.

Opinion exchange on proposals from the student guidance department

A) Is it feasible? B) What are the reasons for the difficulty?



November 27, 2019

(2) Discussion (remarks from students)

I sometimes run into school children from ahead. In order to avoid colliding with the school children, I may step out onto the roadway, but is such overtaking also prohibited?

(3) Proposals from Dr. Kitamura (including the perspective of ESD and citizenship education)

- When you want to pass someone, when you're in a hurry, or when you're frustrated, you may only think about yourself like "I, I, I, ..." I think you're thinking self-centeredly.
- Passing without saying a word is not the only solution, but if there is a problem, we need to overcome the situation more safely. We need to keep in mind that we need to use the road space safely together.



Student-led Traffic Safety Activities (D High School in Iwate Prefecture)

1. Creating a traffic safety video

Created a video to promote traffic safety for new students and all students in the school.

Contents: Patterns of bicycle accidents

(Driving while on the phone, driving alongside, overtaking)

Message from students to student: (Tuna sushi) "Ma", "Gu"...

It was a student's idea!

2. Holding a traffic safety symposium

The student council planned and organized the symposium.

Contents:

- Information sharing on dangerous spots in school zone (How to predict and avoid danger)
- Reviewing own bicycling (Response to dangerous behavior such as overtaking)
- External Participants
 Police stations under the jurisdiction, local traffic instructors,
 Iwate Prefectural Board of Education, and experts



Taking video at a driving school on Aug. 8, 2020



Symposium for each grade level on Sep. 9, 2020



Information Exchange on Traffic Safety Activities between High Schools (D High School in Iwate Prefecture - E High School in Miyagi Prefecture)

 Objective: To exchange information on the activities of each school, promote student-led activities, and build a cooperative system

1. Exchange of video messages

- August 2020 The student council and teachers in D High School in Iwate Prefecture created a video message.
 - → Delivered to the student council of E High School in Miyagi Prefecture

Content: Struggles, gains, thoughts of teachers, etc. when the student council of D High School planned a traffic safety symposium.

• September 2020 The student council of E High School in Miyagi Prefecture replied with a video message.

2. Student council interaction through the web conference

September 14, 2020 From 4 p.m. to 5 p.m.

Content: Opinions and thoughts from each member of the student council of E High School

- Self Introduction
- Current status and challenges of both schools
- Introduction of the past activities related to traffic safety
- Exchange of opinions (between students and between teachers)





Support for Student-led Traffic Safety Activities (F High School in Kochi Prefecture)

Objective: To promote student-led activities, experts support as advisors.

1. Traffic Issues Web Discussion

 August 24, 2020 Web meeting with the traffic safety promotion committee in F High School in Kochi Prefecture

Content: Exchange of opinions on how to solve the traffic problems faced by School F

- (1) Congestion on school zone during coming to school (pedestrians, bikes, and vehicles)
- (2) Promote the use of helmets by bicycle commuters
- Danger on the Road to School
 How about starting with having students, teachers, and parents
 understand the current situation → Publish a traffic safety newspaper
- Promoting the use of helmets
 Implementation of Helmet Wearing Week



These are ideas suggested by students!

2. Publishing the traffic safety newspaper (No. 1)

 December 2020 Students acted as reporters and wrote about their activities in articles to distribute.



Establishment of WG: To further promote proactive educational activities

Through three years of research and study:.

Students' proactive traffic safety activities lead to changes in awareness and behavior.

How can proactive traffic safety activities be established in society?

Need to create a mechanism for social implementation



WG1 "Promotion utilizing the Reward and Subsidy System"

Objective

- Award model educational activities led by students and support the continuation of such activities.
- In particular, encourage the activities of young people to raise their awareness of social contribution.
- Realize the draft and operation of the reward and subsidy system

Member

Yuto Kitamura (Graduate School, The University of Tokyo) ★

Maki Kato (Waseda University)

Daisuke Hirata (Mujiko Create Co. Ltd.)

Naoko Yoshikado (Kochi Prefectural Board of Education)

WG2 "Mechanism to support Social Implementation-oriented Continuing Activities"

Objective

- Realize ways to support student-led activities to continue in the school.
- Support for the preparation of teaching materials and instructional plans, advice on learning and teaching methods, provision of one-stop services, etc.

Member

Naoya Kanda (Tohoku University of Community Service and Science) ★

Hiroshi Nakai (Graduate School, Osaka University)
Yusuke Okuyama (R45, Hinode Driving School)
Fumi Kojima (Graduate School, Saitama University)



[WG1] Proposal for the IATSS Reward and Subsidy System: Establishment of a New Youth Category in the Performance Category (Draft)

The reason for the proposal

We would like to utilize the IATSS Reward and Subsidy System as a mechanism to promote effective traffic safety education for children and students.

Aim

This program recognizes and supports traffic safety-related activities conducted by young people that contribute to the realization of an ideal traffic society, and activities with such objectives that are expected to develop in the future.

Requirements

- Emphasis should be placed on the fact that young people's citizenship and social skills are nurtured through the activities, and that the activities can be evaluated as sound educational activities.
- This program targets outstanding activities in which children and students are actively involved and have already achieved a certain level of success.
- As a supplementary prize, we will provide opportunities to visit domestic and overseas sites or a cash prize to subsidize activities. If the prize money is to be given out, it should be discussed between the academic society and the school, and the use of the money should be clarified.

Future development

The IATSS will conduct trials through social contribution activities in the next fiscal year, including how to collect information on outstanding traffic safety initiatives in schools nationwide, and will develop a system to propose to the Reward and Subsidy System.

Youth Category Reward and Subsidy System (Draft)

1	業 績 部 門 (ユース部門)				
理想的な交通社会の実現に貢献する					
1. 具体的取組等					
2. 普及啓発活動等					
であり、児童・生徒	であり、児童・生徒主体の活動として顕著なもの				
過去3年以内に5	成果が顕著となった業績				
学校をベースとした	活動を行っている、小、中、高のグループ				
2件以内					
◇クリスタル盾	1 (/件)				
◇賞状	1 (/受賞対象)				
◇副賞	賞金(活動助成金)または国内外の視察				
交通と安全に関れ	交通と安全に関わる ◇通学、通学路 ◇教育				
• • • • • • • • • • • • • • • • • • • •	転車運転 ◇交通マナー ◇啓発活動				
◇地域との連携〈	◇調査研究				
社会貢献	市民性、社会性が同時に育まれていること				
独創地・創造	性 発創育 丁夫 努力のみられるもの				
奨 励	過去に受賞経験がなく、事業に携わった 人々の 励みとなり、一層の努力が期待できるもの				
					
波及効果	● 同様の活動をしている他の学校、団体、グループ				
収 仪刈未	等に良い刺激となるもの				
*************************************	※今後の継続した活動が期待できるもの				
137141	00 × 12 × 12 × 12 × 13 × 13 × 13 × 13 × 13				



[WG2] Mechanism to support Social Implementation-oriented Continuing Activities

Perspectives of thinking about social implementation

- To be used for solving problems in each school.
- Administrators and teachers should be able to take the initiative.
- Be able to consult with external advisors.
- The educational program must be highly effective.

Requirements for educational programs

- The educational program must be developmentally appropriate.
- Teaching materials and a teaching plan should be a set.
- Attractive educational programs
 - Children can work on their own initiative.
 - Be able to convey to others and society
- Be able to be arranged according to each school's assignment.
- Retention and continuity are two-sided relationship with the Reward and Subsidy System

Use of external supporters

- Assume police, traffic safety associations, driving schools, universities, etc.
- One-stop support system to connect school sites and external advisors

IATSS version of the support mechanism aiming for retention and continuity in school. (Draft)

Objective

Provide educational programs that can be used by teachers on a school-by-school basis to meet the challenges of each school.

Provided by

- Developmental issues and educational goals in each developmental stage
- Instructional plans and materials that are consistent with the government course guidelines
- Evaluation methods for educational effectiveness
- Classroom video (activities and explanation at a model school)
- How to work with external advisors and parents

Means of provision

- Distribution using the Internet
- Provide information at teacher training and other opportunities



[WG2] Mechanism to support Social Implementation-oriented Continuing Activities

Example of a teaching plan

Classification	Time Allocation	Slide	Description
	1 minute	交差点を横断するときの テーマ① 自分の乗り方をよりかえる テーマ② 自分の無持ちをよりかえる ー 毛質と天使ー	-In order to think about how to prevent accidents, I would like you to review the way of riding a bicycle todayAfterwards, you will review how you feel when you are riding a bicycle.
2 minutes Development	2 mir	● 角 自分たちの自転車の乗り方を ありかえってみよう	-The first thing to do is to look back and think about the way you ride your bicycleAt the orientation, we went over a few things about how to ride a bicycle on a daily basis.
		-The student council president took the initiative to rideAs we heard in the orientation, is there anything that you are concerned about?	

Examples of teaching materials



- Instructional plans and materials will be distributed via the Internet in a format that can be arranged by each school.
- Examples of Classroom Videos





Summary and Future Tasks

- Results of the research and study project (3 years)
 - Development of educational programs that emphasize on students' autonomy
 - Development of teaching materials and instructional plans, development of evaluation tools, and accumulation of evidence related to educational effectiveness
- Future tasks:
 - Social implementation of developed educational programs

(*Applied for as a social contribution project for FY2021)

Promotion utilizing the Reward and Subsidy System

- Uncover pioneering educational activities.
- Screening meeting and election and award ceremony trials
- Disseminate information on award targets, selection criteria, and presentation guidelines to schools through the Board of Education and invite participation.

Mechanism to support Social Implementationoriented Continuing Activitiesactivities

- Organize developed teaching materials and teaching plans, etc.
- Hearing survey on how to provide support
- Sharing teaching materials, instructional plans, etc.
- One-stop service trial



International Association of Traffic and Safety Sciences