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PAPER TITLE	STUDY ON CHANGES OF RISK AWARENESS, SAFTY BEHAVIOR AND POSITION IN THE WALK WAY, THROUGH THE ROAD SAFETY EDUCATION FOR CHILDREN OF PRIMARY SCHOOL AND JUNIOR HIGH SCHOOL		
TRACK	ROAD SAFETY		
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KEYWORDS:

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ABSTRACT:

The purpose of this paper was to provide a road safety education to primary school and junior high school students. Through questionnaire surveys implemented before and after lectures as well as actual measurement, the study aimed to grasp the changes in students' risk awareness, behavioral intention and passing position, and encourage them to observe proper traffic behavior. The research area was a regional city in Japan, a primary school district in the suburban residential area of Shunan City. The primary school was Katsuma Primary School and the number of students was. Most of these students subsequently attend one junior high school, Kumage Junior High School.

From the results of research, following were clarified:

The higher grade students had higher risk awareness of the route to and from school. However, it is often observed that when they proceeded to junior high school, their risk awareness fell.

The lecture on the seven road safety rules and the five rules for safe bicycle use provided to students of primary school and junior high school could make their traffic behavior safer.

Their risk awareness maintained the same level into the next grade year.

To conclude, it was confirmed that in order to encourage compliance with the rules of the road, the implementation of road safety education to both primary school and junior high school is beneficial.

Study on Changes in Risk Awareness, Safety Behavior and Position in the Walkway, through the Road Safety Education for Children of Primary School and Junior High School in Shunan City, JAPAN

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1 INTRODUCTION

In April 2012, a traffic accident occurred on a prefectural road of Kameoka City, Kyoto where a light car crashed into rows of students going to primary school together with parents leading them. Ten of them were hit by the car; three died and seven sustained minor and serious injuries. Since this accident, accidents on the routes to and from school have become recognized as a social problem. Therefore security measures on the route to and from school have been advanced on a national level.

As the first step, in August 2012, safety inspections of the routes to and from school were implemented nationwide under the coordination of those concerned with schools, traffic police and road administrators. In July 2013, the “School Route Safety Measure Advisory” system was institutionalized as a project of the Ministry of Education, Culture, Sports, Science and Technology, and began its activities by deploying traffic specialists nationwide.

Since July 2013, the author has been appointed a school route safety measure advisor by the Department of Education of Yamaguchi Prefecture. Since then, the author engaged in instructing proper traffic rules to the students of primary schools and junior high school in accordance with road safety education as well as improving traffic space in cooperation with road administrators. It is common in Japan that primary school students go to school within walking distance. Therefore, as a result, they have to share the same traffic space on the road with other pedestrians, bicycles and cars. A greater percentage of junior high school students tend to commute by bicycle because of a greater commuting distance from home.

In this research, their changes of risk awareness and behavioral intention on the traffic space for primary school students on foot and junior high school students on bicycles while commuting to and from school were discussed. In particular, this research focused on accidental contracts by pedestrians and bicycles on the routes to and from schools.

The purpose of this paper was to provide a road safety education to primary school and junior high school students. Through questionnaire surveys implemented before and after lectures as well as actual measurement, the study aimed to grasp the changes in students’ risk awareness, behavioral intention and passing position, and encourage them to observe proper traffic behavior. The research area was a regional city in Japan, a primary school district in the suburban residential area of Shunan City. The primary school was Katsuma Primary School and the number of students was. Most of these students subsequently attend one junior high school, Kumage Junior High School (Figure 3).



Figure 1. Location of Yamaguchi Prefecture

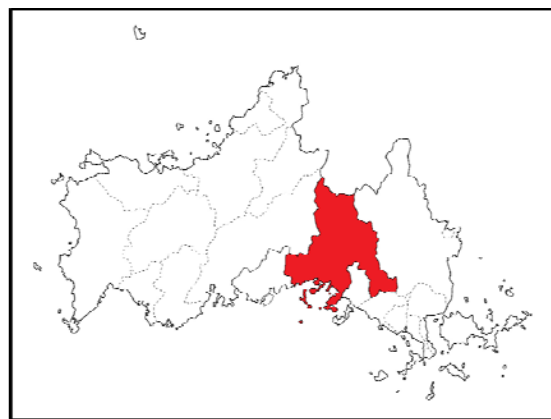


Figure 2. Location of Sunan City in Yamaguchi Pref.

The purpose of this section was to provide a road safety education for both Katsuma Primary School and Kumage Junior High School sharing the same route to and from school, grasp the changes in students' awareness and behavior, and obtain the knowledge necessary to encourage them to observe proper traffic behavior. (Figure 3).

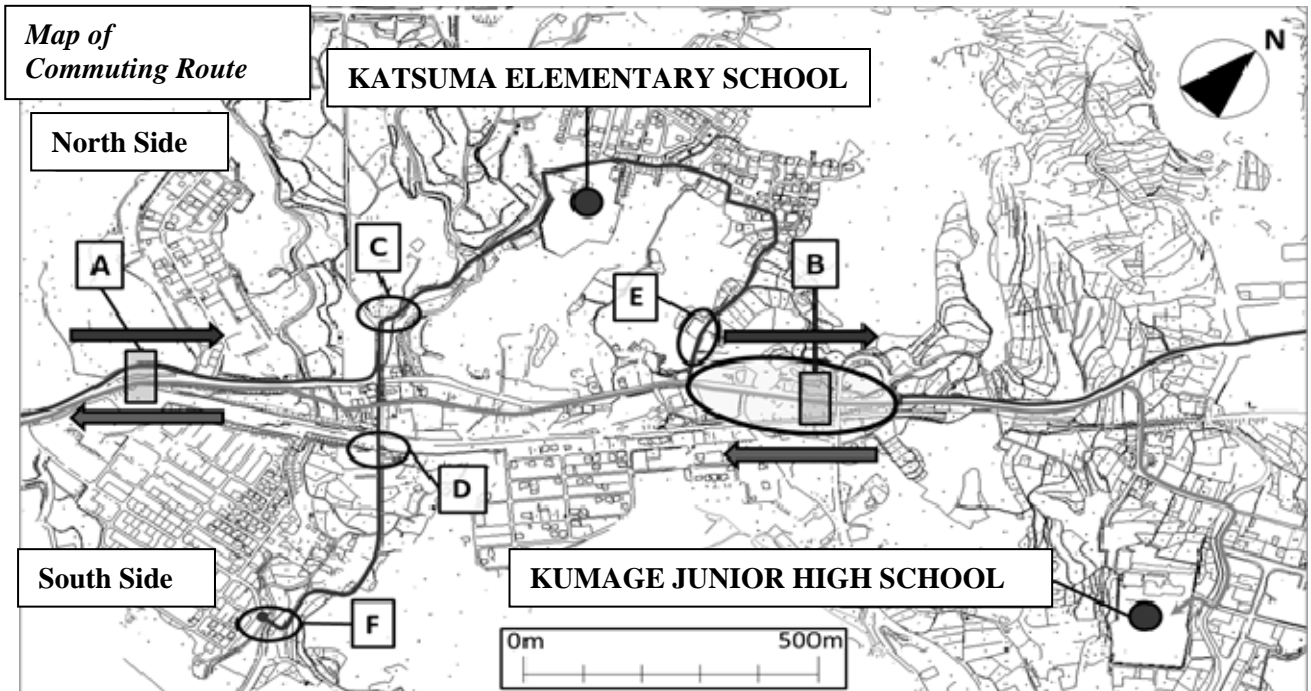


Figure 3. Location of Katsuma Primary School and Kumage Junior High School .

2 PURPOSE OF LECTURE FOR ROAD SAFETY AND MEASURING METHOD OF EFFECTS OF LECTURE

The purpose of this research was to encourage primary school and junior high school students to comply with traffic regulations and good manners while commuting to and from school through road safety education, and improve their traffic behavior.

By grasping the changes of awareness and behaviors concerning road safety through questionnaire surveys, and by observing changes in children's passing position through observation survey, the effects of the road safety education were discussed.

As for the method of research, road safety education was provided to both a primary school and junior high school in the Katsuma area of Shunan City. The road safety education focused on the improvement of traffic spaces shared by both the primary school and junior high school. The structure of the survey is shown in Figure 4.

	Select district and Schools		Behavioral intention and Passing position
Before	Questionnaire Survey	⇔	Obsevation Survey
	↓		
	Lecture for Road Safety Education		
	↓		
After	Questionnaire Survey	⇔	Obsevation Survey

Figure 4. Structure of the Survey .

3 ABBREVIATIONS AND UNITS

3.1 OBSERVATION SURVEY

The number of pedestrians and bicycles passing through an observation site installed during the commuting hours for students of primary school and junior high school were counted by a counter for each direction.

At the same time, in order to confirm the passing positions of pedestrians and bicycles, a video shoot of the walkway was conducted. The changes in passing positions before and after the lecture were examined, and the impact of the road safety education on student behavior was discussed.

- i Outline of observation at Katsuma Primary School district (implementation date: May 22)
An observation was conducted at two points from 07:00 to 08:00: spot A (Photograph 1) on a walkway of National Route 2 and spot B (Photograph 2) on a side strip of a city road (Figure 5).
- ii Outline of observation at Kumage Junior High School district (implementation date: June 24)
An observation was conducted at spot C (Photograph 3) from 07:00 to 08:00, as shown Figure 5

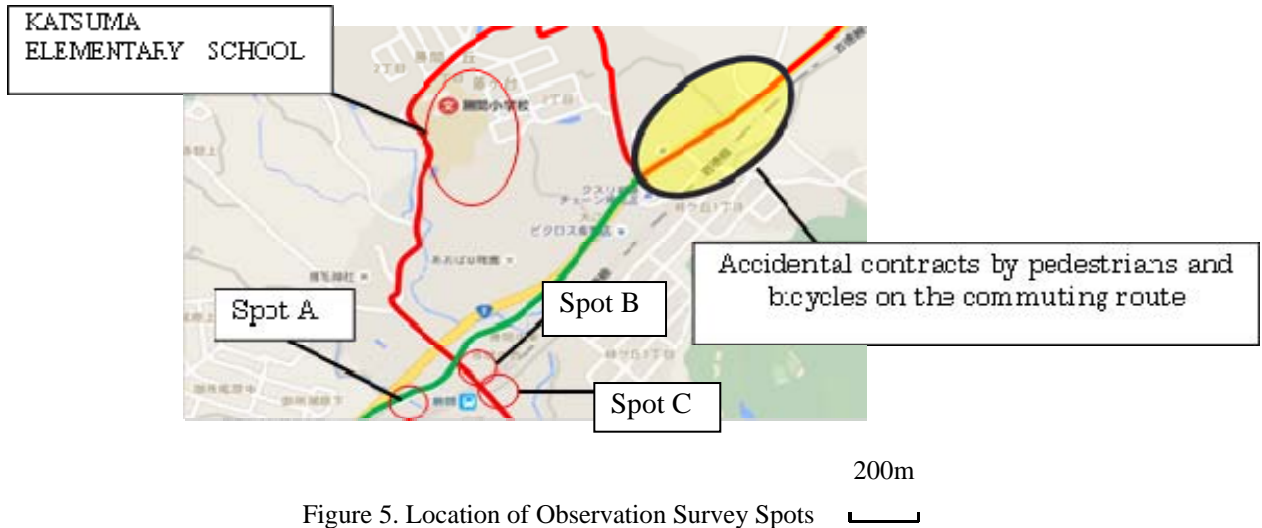


Figure 5. Location of Observation Survey Spots



Photograph 1. Snap Photo of Spot A



Photograph 2. Snap Photo of Spot B



Photograph 3. Snap Photo of Spot C

3.2 QUESTIONNAIRE SURVEY

The pre-questionnaire was conducted two weeks before the lecture was given and the results were aggregated, organized and reflected on the contents of the lecture.

There is the correspondence relationship in the question items between pre- and post-questionnaire.

As the question items were the same as the last two years, the changes in students' awareness in accordance with school year progress were confirmed.

3.3 DATE OF LECTURE ON ROAD SAFETY

- i June 2, 2015, Shunan City, Katsuma Primary School, 281 students of the third, fourth, fifth and sixth grades
- ii June 26, 2014, Shunan City, Kumage Junior High School, all 382 students

4 CHANGES OF AWARENESS AND BEHAVIOR OBSERVED IN THE STUDENTS OF KATSUMA PRIMARY SCHOOL

4.1 CHANGES OF AWARENESS AND BEHAVIOR (from 2013 to 2015)

That reduces the recognize who the safety is, that is, it means that the person who was aware of the danger has increased. The percentage of the fifth grade students in 2013 who "didn't think" the route to and from school was safe (or were aware of danger) rose to 33% after the lecture.

The percentage of the sixth grade students who were aware of danger in 2014 had remained high at 36% before the lecture and it rose to 46% after the lecture. However, that of the students of Kumage Junior High School in 2015 from Katsuma Primary School lowered to 17% before the lecture (please see Table 2).

It is considered to be due in part to the students' awareness being reset when their commuting means changed from foot to bicycle.

4.2 CHANGE IN ACCORDANCE TO SCHOOL YEAR PROGRESS (from 2013 to 2015)

The fifth grade students in 2013 were good at maintaining risk awareness for three years. However, the sixth grade students' risk awareness lowered after the lecture compared to before the lecture. The first grade junior high school students retained low risk awareness at 13% before the lecture and 20% after the lecture (please see Table 3).

However, the second grade junior high school students kept 19% before the lecture and it can be confirmed that their risk awareness would be maintained and promoted by repeating the lecture.

Table 2. Question: Do you think about the route to and from school was safe.

	5th grade KATSUMA P.S. (2013)		6th grade KATSUMA P.S. (2014)		1st grade KUMAGE J.H.S (2015)	
	before	after	before	after	before	after
think	65%	46%	43%	38%	48%	36%
N/A	18%	21%	21%	16%	35%	27%
didn't think	17%	33%	36%	46%	17%	35%

	6th grade KATSUMA P.S. (2013)		1st grade KUMAGE J.H.S (2014)		2nd grade KUMAGE J.H.S (2015)	
	before	after	before	after	before	after
think	64%	60%	60%	46%	47%	37%
N/A	19%	28%	27%	33%	34%	40%
didn't think	16%	12%	13%	20%	19%	23%

4.3 COMPLIANCE OF SEVEN ROAD SAFETY RULES

The three items of "Keep to the left when walking a narrow road," "Do not cross a broad road where there is no pedestrian crossing" and "Walk on the opposite side of the walkway from the road" were only observed at a rate of around 50-60%. However, after the lecture, it increased up to just below 80% (please see Figure 6).

Some primary school students were not conscious of passing position and it was found that their awareness of it improved after the lecture.

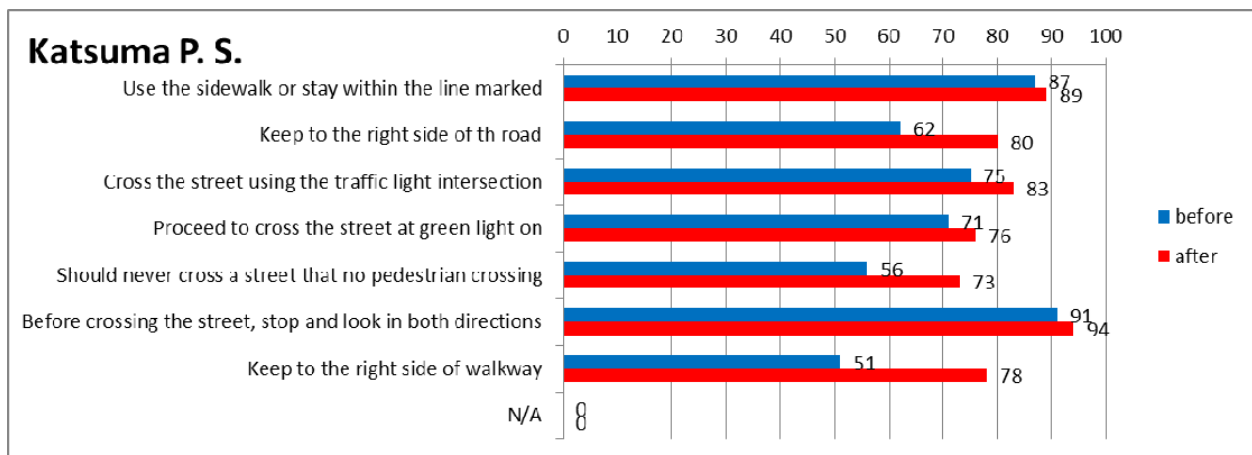


Figure 6. Compliance of Seven Road Safety Rules, Katsuma Primary School (Katsuma P.S.)

4.4 BEHAVIORAL CHANGE AT SPOT A

A behavioral change regarding “Walk on the opposite side of the walkway from the road” of the seven rules was recognized. In accordance with the observations before and after the lecture, those who walked on the opposite side of the walkway from the road rather than its center increased. However, this has not been quantified yet.

4.5 BEHAVIORAL CHANGE AT SPOT B

The behavioral change regarding “walk on the inner side of the side strip relative to the roadway in roads without walkways” was recognized. The percentage of primary school students who walked on the side strip’s outer side decreased from 20% before the lecture to 14% after the lecture.

Because the students commute to and from Katsuma Primary School in groups, the scenes where upper grade students guide the lower grades not to stray outside side strips are often observed.

5 CHANGE IN AWARENESS SEEN IN KUMAGE JUNIOR HIGH SCHOOL STUDENTS

5.1 RISK AWARENESS WHEN COMMUTING TO SCHOOL

No remarkable change was observed in risk awareness of the first grade junior high school students in 2014, shown as 15% before the lecture and 19% after the lecture. When they proceeded to the second grade, it increased a little from 18% before the lecture to 21% after the lecture; however, the change was not remarkable (Table 3).

5.2 CHANGE IN ACCORDANCE TO SCHOOL YEAR PROGRESS (from 2014 to 2015)

A great change was observed in risk awareness of the 2nd grade students in 2014 from 19% before the lecture to 33% after the lecture.

After they proceeded to the 3rd grade, the percentage before the lecture decreased to 26% and its percentage after the lecture was remained at 32%, the level of the previous year. The percentage of risk awareness was highest in the third grade students among all three grades (Table 3).

Table 3. Question: Do you think about the route to and from school was safe.

	1st grade KUMAGE J.H.S (2014)		2nd grade KUMAGE J.H.S (2015)	
	before	after	before	after
answer				
think	60%	52%	48%	38%
N/A	25%	28%	34%	40%
did`nt think	15%	19%	18%	21%

	2nd grade KUMAGE J.H.S (2014)		3rd grade KUMAGE J.H.S (2015)	
	before	after	before	after
answer				
think	49%	45%	41%	39%
N/A	31%	22%	33%	29%
did`nt think	19%	33%	26%	32%

5.3 STATUS OF COMPLIANCE WITH SEVEN ROAD-SAFETY RULES

Before the lecture, the three items of “Keep to the left when walking a narrow road,” “Do not cross a broad road where there is no pedestrian crossing” and “Walk on the opposite side of the walkway from the road” were observed only 50% of the time, compared with other items; however, after the lecture it increased to 70%. From the above, it was clarified that students’ awareness was also promoted by the lecture in Kumage Junior High School. (Figure 7).

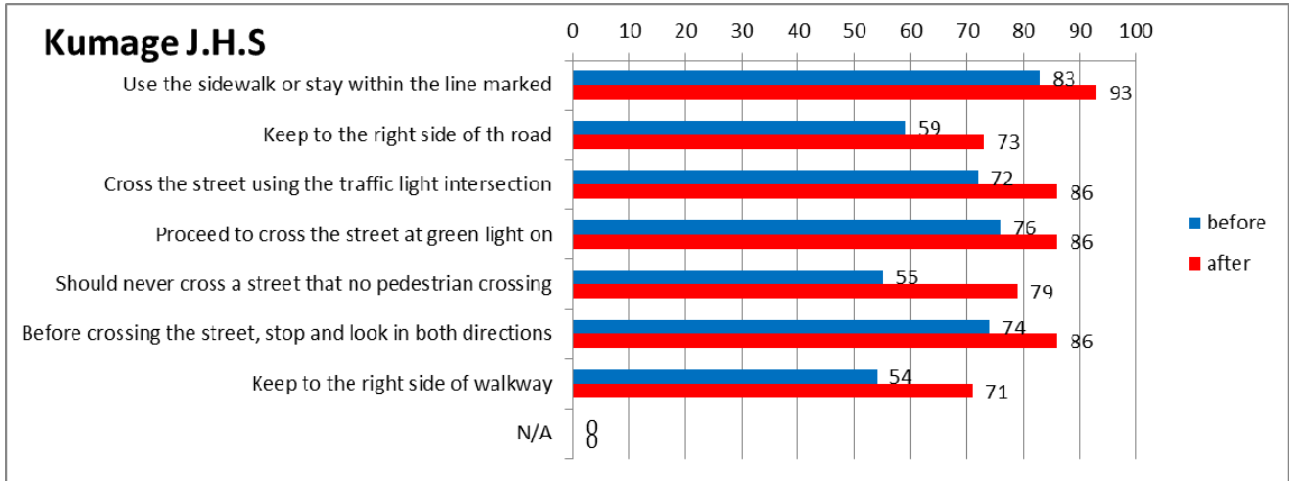


Figure 7. Compliance of Seven Road Safety Rules, Kumage Junior High School (Kumage J.H.S)

5.4 COMPLIANCE INTENTION OF FIVE RULES FOR SAFE USE OF BICYCLE

Before the lecture, the awareness of “Can use walkway only when it is specially approved” and “Go slowly on the left side of roadway” were low in particular. It is considered that the awareness of the students commuting to school by bicycle became low because their commuting means changed(Figure 8).

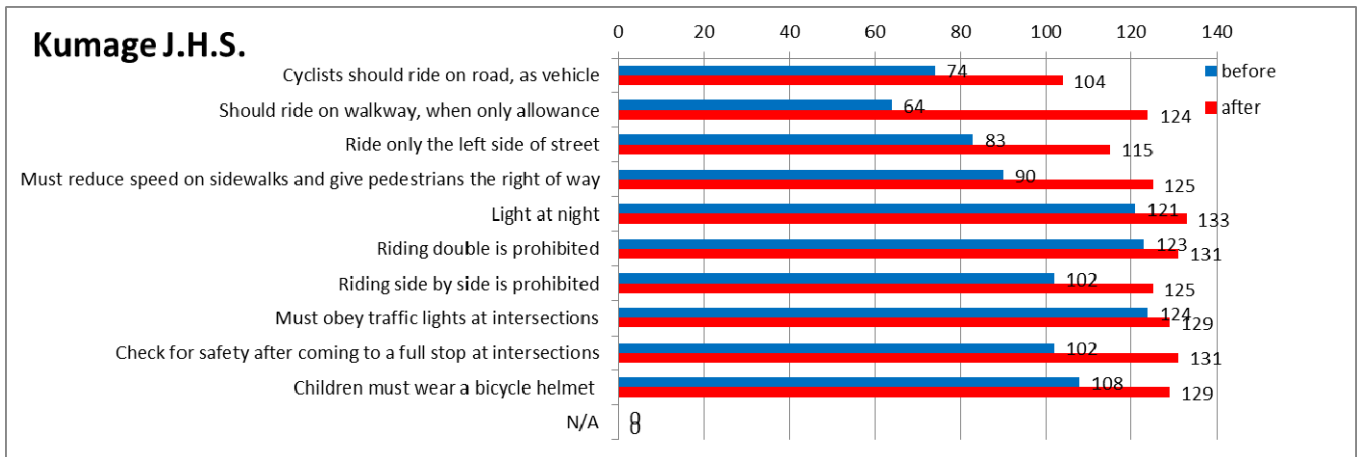


Figure 7. Compliance Intention of Five Rules for Safe Use of Bicycle, Kumage Junior High School (Kumage J.H.S)

6. CONCLUSIONS

From the results of research, following were clarified:

The higher grade students had higher risk awareness of the route to and from school. However, it is often observed that when they proceeded to junior high school, their risk awareness fell.

The lecture on the seven road safety rules and the five rules for safe bicycle use provided to students of primary school and junior high school could make their traffic behavior safer.

Their risk awareness maintained the same level into the next grade year.

To conclude, it was confirmed that in order to encourage compliance with the rules of the road, the implementation of road safety education to both primary school and junior high school is beneficial.

The author would like to deploy the same method to other areas of Shunan City, Yamaguchi Prefecture and continuously conduct research.

7 ACKNOWLEDGEMENTS

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CITATIONS

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