

Relative number of teachers with the science and/or mathematics background at municipal primary schools in Osaka City, Japan

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The purpose of this study is to obtain relative number of teachers with science and/or mathematics (arithmetic) background at municipal primary schools in Osaka City, Japan, through a questionnaire survey. The background of teachers plays a vital role in developing and new teaching materials and methods in each school. Therefore, science and/or mathematics (arithmetic) teachers of schools should be able to communicate well with the researchers at universities and research organizations in order to obtain up-to-date knowledge related to their fields. In case of poor communication between those two parties, there is high chance that schoolteachers would be misunderstood and misled.

Moreover, in Japanese primary school, national curriculum standards reform was implemented from the school year 2002. The paragraph 'Primary schools will conduct more of outdoor observations and exploratory activities. Students are found naturally and does the observation, the experiment, which had a purpose' has been added to the conventional basic policy (The Ministry of Education, Culture, Sports, Science and Technology, 1998). According to this curriculum, outdoor observations become necessary in each school. Fulfilling this guideline, however, is difficult when the teachers do not have enough experiment in the outdoor experiments and observations. Thus, the teachers with strong background in the fields of geoscience and/or biology, which are closely related to outdoor science, become more necessary.

Therefore, this study investigates the relative number of teachers with science and/or mathematics (arithmetic) background in all 303 municipal primary schools (5015 teachers) in Osaka City, Japan, through a questionnaire survey that is based on the post's method. The percentage of the received responses of the questionnaire was about 29.4%.

The results of this study clearly show the critical conditions of science and mathematics background among primary school teachers. The relative number of teachers who have science and mathematics (arithmetic) background in municipal primary schools is found to be around 5.9%, and 2.3%, respectively. Among the different fields of science, the relative number of teachers who have physics, chemistry, biology, or geoscience background is found to be about 1.0%, 0.9%, 1.0%, and 0.6%, respectively. It can be noticed that the relative number is too low in all fields of science, with the geoscience field being the least. Therefore, the background of the applicants should be duly considered while employing new primary school teachers. Furthermore, when researchers communicate with primary school teachers, they should consider the level of understanding of more than 90% teachers who do not have enough background in the fields of science and/or mathematics (arithmetic).