Association Between Students' Knowledge and Attitudes Regarding Sustainable Development and the Preservation of Autochthonous Varieties

Povezanost znanja i stavova učenika o održivom razvoju i očuvanju autohtonih sorti

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Introduction

The preservation of autochthonous varieties and plant diversity is an important element of sustainable development. Children's understanding of these concepts during elementary school age forms the basis for developing a responsible attitude toward the environment and local agricultural heritage. Although sustainable development is increasingly addressed in education, it remains unclear how well elementary school students actually understand these concepts, and whether this knowledge relates to their sustainability-related attitudes and intentions.

Aim: to examine students' knowledge of sustainable development and autochthonous varieties, and to determine whether the level of knowledge is associated with their attitudes and behavioral intentions related to biodiversity conservation.

Materials and Methods

A cross-sectional survey was conducted among 180 elementary school students (grades 5–8) in Osijek-Baranja County, Croatia. The sample comprised 52.8% females, 44.4% males, and 2.8% students who did not report their gender. Knowledge questions were coded as correct or incorrect, with "I don't know" responses treated as incorrect. Attitudes and behavioural intentions were assessed using a five-point Likert scale. Data were analysed using descriptive statistics, χ^2 and Kruskal–Wallis tests, and Mann–Whitney U tests with Holm correction for multiple comparisons. Statistical significance was set at $p < 0.05$.

Results

Most students correctly identified the meaning of sustainable development (61.1%) and autochthonous varieties (63.9%) (Figure 1). Preserving autochthonous seeds received the highest attitude rating (M = 4.07), while reflecting on the environmental impact of personal habits received the lowest (M = 3.23) (Table 1). No significant differences in knowledge or attitudes were found among grade levels ($p > 0.05$) (Table 2). Students who correctly identified autochthonous varieties more frequently reflected on the environmental impact of their habits and placed greater importance on preserving autochthonous seeds. No significant associations were found between knowledge of sustainable development and attitude indicators after correction for multiple comparisons (Table 3).

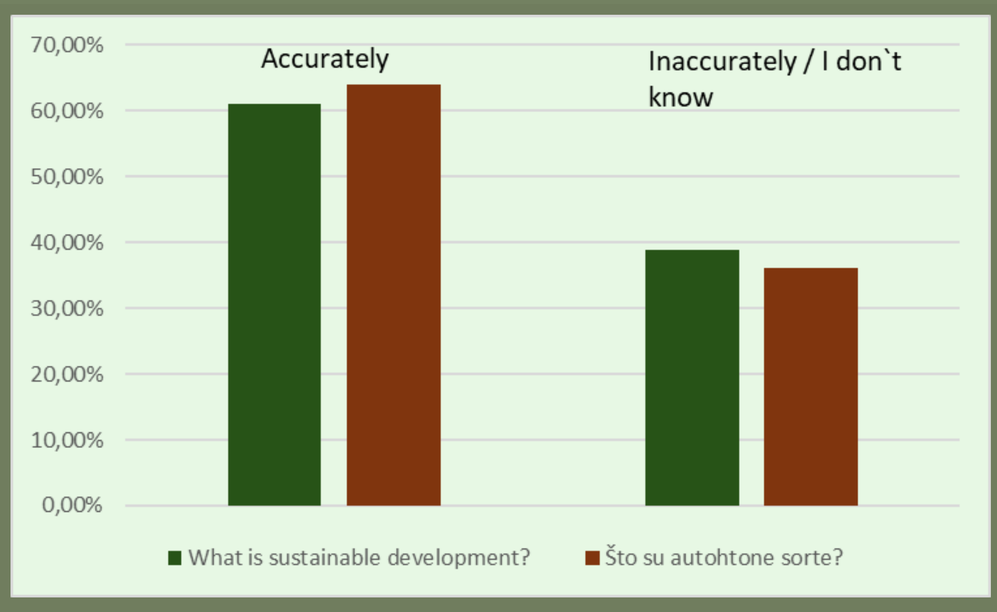


Figure 1. Accuracy of students' responses to questions on sustainable development and autochthonous varieties.

Table 1. Descriptive statistics of students' attitudes toward sustainability and the preservation of autochthonous seeds.

Question	M	Median	IQR
Concern for the environment and nature	3,71	4	3–4
Consideration of the impact of one's own habits	3,23	3	3–4
Importance of preserving autochthonous seeds	4,07	4	4–5
Willingness to change one's own habits	3,54	4	2–5
Need for greater governmental support for the protection of autochthonous seeds	3,60	4	3–5

Responses were coded on a scale from 1 to 5, where higher values indicate a more positive attitude toward the observed aspect of sustainability. M = arithmetic mean; IQR = interquartile range.

Table 2. Differences in attitudes toward sustainability and the preservation of autochthonous seeds according to students' grade level.

Indicator	H	p
Concern for the environment and nature	0,23	0,972
Consideration of the impact of one's own habits	1,74	0,628
Importance of preserving autochthonous seeds	1,67	0,644
Willingness to change one's own habits	6,81	0,078
Need for greater governmental support for the protection of autochthonous seeds	3,58	0,31

Differences between grade levels were examined using the Kruskal–Wallis test. H = Kruskal–Wallis test statistic.

Table 3. Differences in attitudes toward sustainability according to students' knowledge of sustainable development and autochthonous varieties.

Indicator	Sustainable Development Knowledge U	p (Holm)	Knowledge of Autochthonous Varieties U	p (Holm)
Concern for the environment and nature	3945	1	3497	1
Consideration of the impact of one's own habits	3628,5	1	**2658**	**0,006**
Importance of preserving autochthonous seeds	3541,5	1	**2858**	**0,038**
Willingness to change one's own habits	4354	0,758	3652	1
Need for greater governmental support for the protection of autochthonous seeds	3183,5	0,303	2959,5	0,133

Discussion

The absence of differences between grades suggests that students' knowledge of these topics remains relatively stable from grades 5 to 8. On the other hand, students on average show a positive attitude toward sustainability, with particularly high value placed on preserving autochthonous seeds. However, the lower level of personal reflection on one's own environmental impact points to a gap between declarative attitudes and actual consideration of one's own behavior.

The association between accurately identifying autochthonous varieties and greater reflection on personal environmental impact, as well as greater value placed on seed preservation, suggests that concrete, applied knowledge (such as knowledge of autochthonous varieties) may be more strongly linked to attitude and behavior change than more abstract knowledge of the concept of sustainable development.

Conclusion

Elementary school students show a moderate level of knowledge about sustainable development and autochthonous varieties, with no significant differences between grades. More accurate recognition of autochthonous varieties is associated with greater reflection on personal environmental impact and a higher value placed on the preservation of autochthonous seeds by students.

The findings highlight the need for early and systematic integration of educational content on the preservation of plant and cultural diversity (agrobiodiversity) into the elementary school curriculum, with an emphasis on linking knowledge to concrete, applicable behavior.