

CURRENT STATUS OF STEM / STEAM EDUCATION IN JAPAN THROUGH GOVERNMENT-ACADEMIA-INDUSTRY CASES

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THEME:

STEM, STEAM, STEMM, STEM+C and STEM+ education

BACKGROUND AND AIMS

There is no doubt that STEM / STEAM education is a universal challenge. On the other hand, to enhance concrete efforts, it is important to promote it in the context of education in each country. Hence, this study aimed 1. to summarize the current situation of STEM / STEAM education in Japan and disseminate it overseas, and 2. to share the challenges of "Tokyo Gakugei Univ. Children's Institute for the Future (CIF)" to discuss further developments in the global context.

METHODOLOGY UNDERTAKEN

We reviewed 1) Japanese policy movements, 2) cases of Japanese universities, and 3) cases of private organizations and citizens in Japan, referring to official reports from each organization. Based on this summary, 4) cases of CIF that connect industry, government and academia are discussed to show 5) the current status and features of STEM / STEAM education in Japan.

RESULTS AND CONCLUSIONS

We summarized that 1) the Government of Japan (2021) claimed that to promote STEAM education as "Cross-disciplinary education to utilize learning in each subject such as Science, Technology, Engineering, Art(s), Mathematics, etc. for finding and solving problems in the real world". This approach was implemented in the new high school educational guidelines from FY2022, "to enhance learning activities to discover problems and solve problems in 'science and mathematics exploration' and 'time for comprehensive research'". 2) STEAM education has also begun in many universities. Also, 3) "STEAM Japan" was established and coordinates STEAM education with various companies and organizations. Unlike those movements in each sector, CIF collects university professors / research specialists / producers / instructors to bring different specialties together to provide total coordination for STEM / STEAM education. It is working on a wide range of targets from infants to educators who are responsible for STEAM education. For instance, it brings STEAM education into monthly magazines for young children or to wrapping papers for sweets. 5) It can be said as a feature of STEM / STEAM education in Japan that the broad view of "A" as art plus liberal arts, and not only the ministry for education but also that of economy and industry are actively involved.

REFERENCES

Government of Japan. (2021). 6th term of the Science, Technology, and Innovation Basic Plan. https://www8.cao.go.jp/cstp/english/sti_basic_plan.pdf

2022. J. Bobis & C. Preston (Eds.), Proceedings of the 7th International STEM in Education Conference (STEM 2022), University of Sydney, Sydney, Australia, November 23-26. University of Sydney.