A sketch map tool for geography education

Barend Köbben [a]*, Matthias van den Brink [b]

[a] ITC, University of Twente, the Netherlands, b.j.kobben@utwente.nl
[b] Geonius, m.vandenbrink@geonius.nl

* Corresponding author

Keywords: Sketch map, Education, Design Research, Digital sketch map tool

Abstract:

Sketch maps, or 'croquis', can be defined as "free hand maps which are drawn from memory and help us to organize spatial information" Metz (1990). Various researchers, as far back as McNee (1955), and recently van der Schee et al. (2015, 2017) and Hátlová and Hanus (2020), have found that in geography secondary education in particular, sketch maps are helping the pupils to structure information, and to distinguish between main and side issues. This works most efficiently if the students are empowered to create their own sketch maps, because it trains their geographic thinking and helps them connect the knowledge and skills they acquired to the curriculum.

In this research, a web-based sketch map making tool was created, based on requirements from didacticians, teachers and pupils active in secondary school geography education in The Netherlands. The requirements were acquired from literature research, surveys and extensive focus group sessions.

A prototype tool was created using generic web application technology (HTML, Javascript and CSS). The tool was designed to offer basic drawing functionality for creating maps, based on a library of base maps, symbols and annotations. It should also provide flexibility to change and correct common mistakes. Also, the tool includes the possibility for teachers to create assignments, for different levels of pupils, each with their specific tool settings. It was tested in four sessions in different classroom settings. The prototype tool is available at `https://kartoweb.itc.nl/students/matthiasvandenbrink/prototype/`.

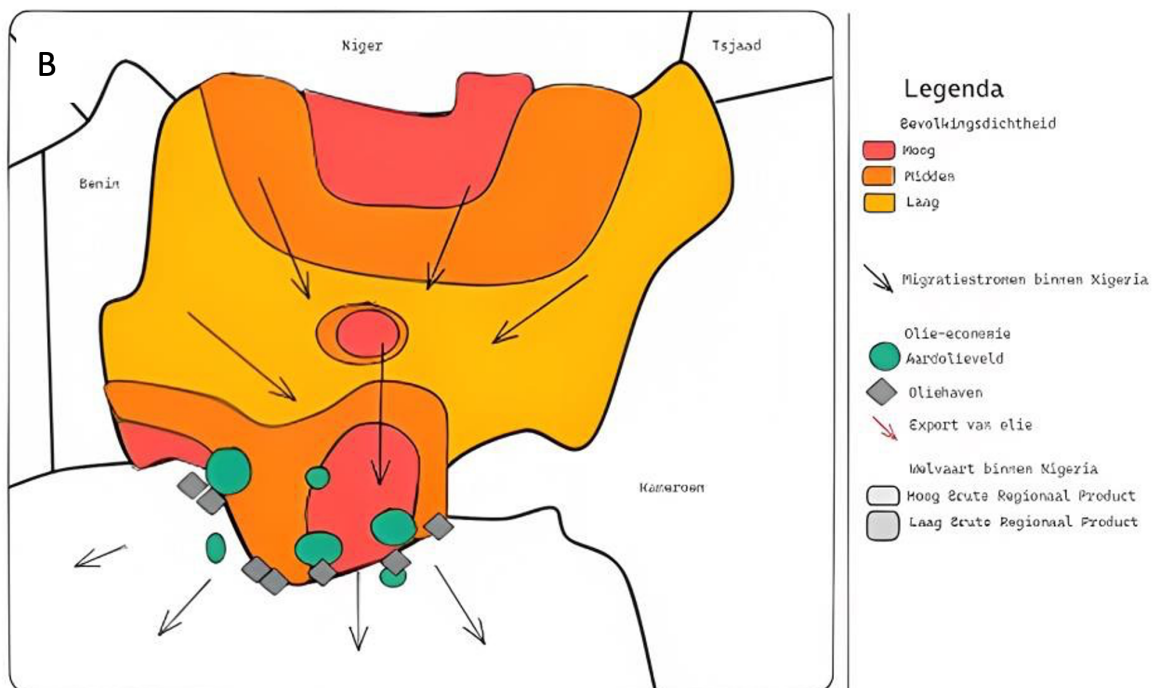In this paper we will present the design process of the tool and discuss its potential for geography education.

Figure 1. A screenshot of the tool, with a sketch map on "The economic function of the Niger delta", created by a 4th grade HAVO pupil.

References

Brink, M. v. d., 2023. Sketching the road to digital croquis making: Sketch map tools for geography education. Master's thesis, GIMA.

Hátlová, K. and Hanus, M., 2020. A systematic review into factors influencing sketch map quality. *ISPRS International Journal of Geo-Information* 9(4), pp. 271.

McNee, R. B., 1955. On the value of sketch maps. *Journal of Geography* 54(8), pp. 416–417.

Metz, H. M., 1990. Sketch maps: Helping students get the big picture. *Journal of Geography* 89(3), pp. 114–118.

van der Schee, J., Béneker, T., Verschuren, M. and Palings, H., 2017. *Geografisch leren denken met croquis [Learn to think geographically with sketch maps].* Landelijk Expertisecentrum Mens- en Maatschappijvakken - aardrijkskunde.

van der Schee, J., Trimp, H., Béneker, T. and Favier, T., 2015. Digital geography education in the twenty-first century: Needs and opportunities. In: O. Muñiz Solari, A. Demirci and J. Schee (eds), *Geospatial Technologies and Geography Education in a Changing World: Geospatial Practices and Lessons Learned*, Springer Japan, Tokyo, pp. 11–20.