

Contextualising map use: linking affordances to human agency

David Fairbairn ^{a,*}, Georg Gartner ^b, Michael Peterson ^c

^a Newcastle University, UK – david.fairbairn@newcastle.ac.uk

^b TU Wien, Austria – georg.gartner@tuwien.ac.at

^c University of Nebraska Omaha, USA – mpeterson@unomaha.edu

* Corresponding author

Keywords: map use, affordances, context

Abstract:

In order to obtain further insight into the purpose and role of cartography in human society, this presentation looks in detail at the interaction between map and human, considering the nature of maps as objects which enable successful and valuable engagement. We propose that the success of maps as artefacts and mapping as a human activity is due to a number of factors, including the range of human cognitive abilities, along with the inherent possibilities brought by the map itself.

Such ‘action possibilities’ are called ‘affordances’ - non-normative, relational properties (between human and environment), offering possibilities for action (Fairbairn et al., 2023). Affordances have been defined as what the map *allows* a user to do, based on the interaction between its properties and the user’s abilities. Map affordances *enable* activities to take place when humans engage with them, allowing a wide range of possible human behaviours: they are thus intimately associated with *use*, rather than being focussed on *purpose*. If we believe that the range of human engagement with a map is boundless, not uniquely directed by any purpose of the maps, but instead governed by the ability to go beyond a specific fixed function, then it is this set of action possibilities which should be examined in our quest to determine the success of maps.

We present and discuss a possible catalogue of generic affordances brought to the human interaction with a map. These include aspects such as ‘structuring thought’, ‘guiding actions’, ‘enabling communication’, and ‘representing the world’. Further reflection on affordances considers whether they are equally accessible to every human user, and the role of human experience; whether some affordances are passive or hidden; the role of, and need for, cues to signify the existence of affordances; and the interpretation of affordances as either intrinsic and stable characteristics of maps, or mutable—reconstituted in each context of production and use.

Some affordances are tied to relatively durable features of maps as representational artifacts (e.g., their capacity to spatialize relationships, to simplify and select, to scale and generalize), while others are activated—or even created—through specific social practices and technological platforms (e.g., interactivity, personalization, surveillance, participatory editing). In other words, an affordance is not simply “in the map”; it becomes real in the moment a map is taken up within a particular set of expectations, skills, and power relations: the true value of the concept is only manifest when ‘affordances are contextualized in unfolding activities and emerge in concrete interaction’ (Kaptelinin and Nardi, 2012) i.e. when human actions such as engagement are considered.

When a human being interacts with a map, when a map is used, affordances become salient and humans become ‘agents’. The expression of the human agency derived from that engagement can be developed and become manifest in varying ways. However we identify, distinguish, classify and reflect on the affordances of a map – the potential actions it offers to a user – each has its own way of acting as a bridge between perception and action: they allow actors to interact with their environment, and a human which uses its capacity to perceive, select, and use these affordances is acting as an agent. Agency is the ability which a human has to effect intentional behaviour, and this is solely based on engagement with affordances. “Actions are not caused by the environment or elicited by stimuli, but are [a human’s] means to utilise the affordances in their environment” (Withagen et al., 2012). We can also consider the view that, during human-map interaction, the map becomes an agent itself, with independent possibilities for acting in the tasks and situations of map use.

The engagement of humans with maps is driven by the *contexts* of map use: the connections between the offerings (affordances) of the map, the agency which they invite in both the map object and the human interacting with a map, the

context within which such agency is effected, and the discourses which drive map use contexts. The primacy of the human being is important here – the context of map use is determined by the relationship of humans with maps and with the activity of mapping. The paper concludes with reflections on the possibilities and success of map use, and the influence of context, in its widest sense on this human activity.

References

- Fairbairn, D., Gartner, G. and Peterson, M. (2023) Engagement, communication and context: the success of the human map nexus, *International Journal of Cartography*, DOI: 10.1080/23729333.2023.2251751
- Withagen, R. et al. (2012) Affordances can invite behavior, *New Ideas in Psychology*, doi:10.1016/j.newideapsych.2011.12.003
- Kaptelinin, V. and Nardi, B. (2012). Affordances in HCI: Toward a mediated action perspective. In J. Konstan, E. Chi, and K. Hook (eds.), *CHI'12 Proceedings* (pp. 967–976). ACM.