Geospatial Gender Balance - My Two Cents

The gender imbalance in the STEM world is, according to **Niall Conway**, no secret; we only need to look at the industry's past to try understand why this is the case.

The geospatial industry, is to a certain degree, tied to its traditional male-dominated roots. From the early exploration and conquering days, to the resources, utilities, and military industries, maps were created and used for the purposes of acquiring and maintaining power. This perhaps explains why the technical subject which is map-making appears to have, before now at least, neither appealed to, nor been as accessible to women as it has to men.

While I'm not an expert on the workplace gender balance issue, I do feel optimistic that, based on some research results, the geospatial industry could be in for some positive change. Following on from the April edition's 'Women in GIS Leadership' article by Josie Hawkey, now seems like a good time to reflect on some additional gender considerations.

Spatial Tasks Vs Social Tasks

In 2016, research from the University of California, Santa Barbara revealed some interesting insights into the relationship between maps, gender and spatial cognition abilities. During the investigations, test participants were presented with two specific tasks. In the first, participants were shown a picture of a scene which included various different objects. They were subsequently asked to imagine themselves standing in the scene - at a certain landmark facing a certain object - and to create a mark on the diagram indicating the relative direction to another object. For example, this might involve drawing directions to a stop-sign while facing a cat. In another task, participants were presented with a map of a route, and, in a similar manner, asked to imagine themselves navigating it and marking the direction (i.e. right or left) at each of the turns which they made. What both results revealed was that by framing the tests as 'social tests' rather than 'spatial tests' the performance gap in spatial tasks between women and men was eliminated. As an example, by placing a known human figure in the scene of objects or at a route corner rather than say a generic postbox, women were better able to imagine navigating that environment.

What This Means

Essentially, what the above results prove is that most men and women think differently about landmarks and routes, and that 'socialised', as opposed to purely logical, spatial approaches are better suited to females. The above research findings could also help to explain why the consumer mapping market is beginning to embrace more personalised maps such as Snapchat's 'Snapmap' - a map which is designed to be more relevant to the specific user - such as the location of friends and contacts. Although the personalised aspect of mapping (through location-sharing) is one which is subject to significant data-privacy regulatory scrutiny, what is certain is that, in 2018, mapping is undergoing a process of re-conceptualisation and socialisation. If this isn't a powerful enough motivation for changing the industry then consider the possibility that women may actually make better geospatial professionals than men.

An article entitled "Men are better at map reading, but women are superior at remembering routes" refers to research conducted in 2010 by the National Autonomous University of Mexico. In the study, a group of men and women (all fitted with GPS and heart rate monitors) were tracked while sent to gather mushrooms in a rural area. While both genders returned with roughly the same amount of mushrooms, the women had used some 70% less energy than the men in doing so. According to the study, the women were better at remembering productive patches of land than their male counterparts, which resulted in them making more stops but travelling less distance. Interestingly, as many will agree, this is a trait which women are said to possess and use to great effect in urban settings.

What the above studies seem to indicate is that in an increasingly complex, data-driven, and urbanised social world, the mapping of our environment, along with the design of it, requires an approach which can be considered more feminine than masculine. Thankfully, this thinking is also being championed by the likes of the voluntary and mapping project OpenStreetMap, which is challenging the fact that maps all too often reflect the world from a male perspective rather than from a female perspective. In a more democratic manner, OSM is attempting to ensure that, by increasing awareness of unconscious gender worldview bias among its contributors, the free and open map will include features which are relevant to both males and females. Perhaps with the help of 'personalised mapping algorithms', in the future, female map users will no longer have to navigate landmarks such as sports stadiums or bars, when what they really need to see prioritised are features such as childcare facilities and women's health clinics.

Conclusion

If the geospatial industry is to meet the needs of a growing market, then it needs to attract top female talent. While obviously there are a number of factors (i.e. cultural, legislative, corporate governance) which will determine the industry's future gender balance, maybe the first step is to recognise that women have distinct spatial-thinking abilities which are, based on the research findings mentioned above, best engaged through less abstract, more humanised approaches. Advances in the industry will require that it encourages a less-restrained, more creative thinking approach by all professionals. This approach will need to be grounded in a deep understanding of how maps are designed and interpreted, as well as an appreciation of the idea that the female way of thinking is more in tune with the rhythm of the world.

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