Critical Review: Exploring Interactions with Physically Dynamic Bar Charts

Scientific studies investigating how data can be effectively presented to, explored and interpreted by users forms the core part of Information Visualisation ('InfoVis'). This research is under the guise of supporting users in the decision-making process. This review will present a summary and critical analysis of Taher et al. [2015] whose paper explores the use of physically dynamic bar chart as a device for exploring user interactions with visualisations of data, as well as putting forward a set of suggestions for future work in this domain of Information Visualisation.

Summary of Contributions

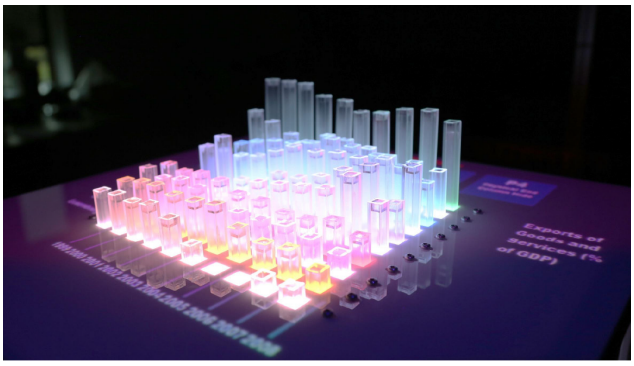

Figure 1: EMERGE: Exploring Interactions with Physically Dynamic Bar Charts using actuating physical rods and RGB LEDs to display international export data.

Table 1: Task-sets and interaction techniques explored during the user study.

Task	Overview	Interaction Techniques
Annotation ***(Process & provenance)***	Selecting and marking individual data points.	Point, pull, press.
Filtering ***(Data view & specification)***	Hiding and refining data for enhanced perception and comparison.	Swipe away, manual press, assisted press, press shortcut, and press to compare.
Organization ***(View manipulation)***	Data arrangement by moving rows and columns.	Drag and drop with immediate transition and hide-all with transition, press with instant transition and hide-all with transition.
Navigation ***(View manipulation)***	Controlling the view of large data sets.	Scroll, directional arrows, directional press, and paging.

Justifications for Conclusions

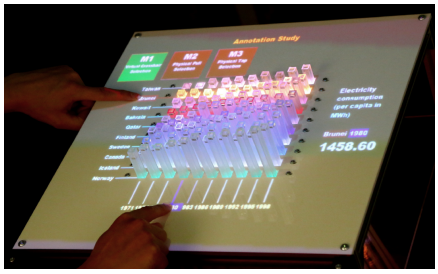

Figure 2: Annotation (Point technique).

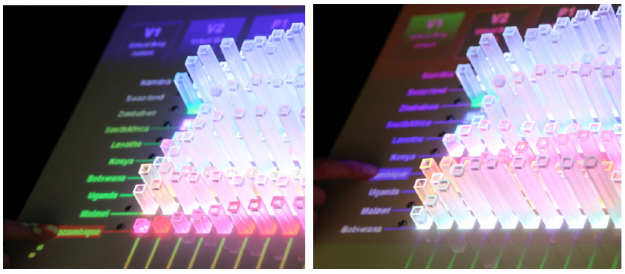

Figure 3: Organisation (Drag and Drop technique).

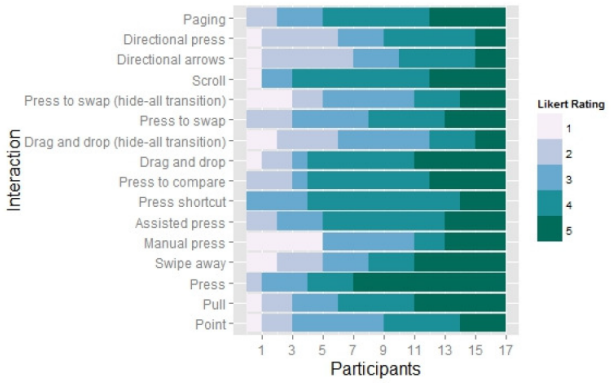

Figure 4: Likert scale ratings for helpfulness of interaction techniques. Range = 1: Strongly Disagree, 5: Strongly Agree.

Limitations and Suggested Further Work

Conclusion

Word count: 0 words

References

Faisal Taher, John Hardy, Abhijit Karnik, Christian Weichel, Yvonne Jansen, Kasper Hornbæk, and Jason Alexander. Exploring interactions with physically dynamic bar charts. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*, CHI '15, pages 3237–3246, New York, NY, USA, 2015. ACM. ISBN 978-1-4503-3145-6. doi: 10.1145/2702123.2702604. URL `http://doi.acm.org/10.1145/2702123.2702604`.