CSC2552: Review 3, Paper 2

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Paper 2

This fascinating paper by Salganik (author of BitByBit), Dodds and Watts is a *controlled digital field experiment* examining the impact of social influence on the inequality and unpredictability of song popularity. The main results of this paper are unsettling as they show that the inequality and unpredictability of song success increases with increasing social influence, hence musical charts are only partly determined by quality.

One significant weakness of this paper is that it is vulnerable to the problem of *heterogeneity*, as explained in BitByBit [1]. By selecting users from a teen-interest website, the paper's conclusions can be interpreted as measuring an average effect, but the effect is probably not the same for everyone. Another related experimental design weakness is that the paper initialised all statistics of each world to 0, allowing for a disproportionate first-come bias. An alternative to this approach could be initialising the worlds differently using a 2^k *full factorial* experiment design [2]. However, it seems that both of these limitations are due to a trade-off with the strong underlying ethical protocol used. The protocol used was the Replace, Refine, Reduce strategy which limits the type of trial used, the impact of each trial on the test subjects and amount of subject-trial exposure allowed respectively.

In a contrast, a major strength of this paper is its rigorous design methodology. The controlled nature of this experiment ensures that *confounders* are limited since the "Independent Condition" participants act as a control. In addition, MusicLab was designed to be *zero variable cost*, allowing the experiment to scale to 14,341 participants. However, this comes at the cost of a truly randomised selection process as participants were taken from volunteers on a teen-interest website, resulting in a biased population sample. This non-random selection, while theoretically sub-optimal [1], is a trade-off compared to the less ethical alternative approach of picking candidates truly at random, thus without their consent. Another limitation of this *do-it-yourself* approach is that it took six months to design with the help of a professional web developer, while a *partner-with-the-powerful* approach would have been cheaper and faster. Some other notable strengths of this paper include the identification of a *mechanism*, known here as social influence theory, as well as the detailed and easily accessible supplementary material.

The implications of the paper's results are significant as they explain the social influence mechanism that underlies the unpredictability of judges in the cultural market of music. Different interpretations of these results could help educate the decisions of marketing firms worldwide when it comes to content promotion. The conclusions are stated clearly, with cautious language and very little compromise required, using strong evidence to back up each claim. Nevertheless, the authors could perhaps have attempted to further consolidate their results with some existing benchmarks or other studies [3] examining the same phenomenon of social impact in the online music industry. This could have helped situate the research better among existing *ready-made* data.

[1] Salganik, M. J. (2017). Bit by bit: social research in the digital age. Princeton University Press.

[2] Fisher, R. (1926). The Arrangement of Field Experiments.Journal of the Ministry of Agriculture of Great Britain, 33, 503513.

[3] Hughes, J., & Lang, K. R. (2003). If I had a song: The culture of digital community networks and its impact on the music industry. International Journal on Media Management, 5(3), 180-189.