IMMC 2019 Greater China Autumn Problem B

The Self-Control Mechanism in Online Gameplaying

In recent years, cyber-game addiction has been increasingly concerned by educators, parents and the public. Research in social science predicts that some players of online game have a degree of self-awareness that they have self-control problems when facing gameplay temptation, and those who identify themselves with self-control problems would take the initiative to restrict their gameplaying with voluntary commitment. Based on a casual online scrabble game, economists have designed a nudge* mechanism for incentivizing self-control and conducted a large-scale social experiment, which provides valuable data for analyzing the self-control's impact on gameplaying. Your team will have the opportunity to use this dataset to build your models in analyzing the behavioral change of online gameplaying influenced by the self-control devices, and propose your solution of self-restraint mechanism for anti-addiction of excessive online gameplaying.

The game in the experiment is a leisure-type repetitive online scrabble board game. Each round of game lasts for 3 minutes, with an interval of 45 seconds between two rounds. Two types of self-control commitment devices are built in the game: "ex-ante" self-control device and "in-game" self-control device. The "ex-ante" device sets the number of rounds of games the player voluntarily chooses before starting the game; the "in-game" device asks whether the player voluntarily chooses to play at most once during the game. When the limit set by the player him/herself via the device is reached, the player will be voluntarily blocked by the server from playing for a certain period of time. The time span of the experimental observation dataset provided here covers 30 months before the implementation of the self-control commitment device and 54 months after the establishment of such intervention device. Details of the game and self-control setting can be found on the game website www.wordsplay.net In order to understand the context of the problem, you may like to experience this online scrabble game by yourself. Experimental observation dataset can be downloaded from "News" column at www.istem.info .

1) Based upon the dataset of the observations, please establish your mathematical model for the online gameplaying behavior in this experiment, and use the data to analyze the impact of self-control device on the gameplaying. You will need to choose and define suitable variables to measure the behavioral change resulted by the self-control device.

2) With your modeling, please compare if there exist any differences between the two ways of self-control commitment on gameplaying in this experiment.

3) Gameplaying usually has a certain lifespan such that player would give up playing this game at the end. With your model, please analyze how the self-control device will influence the lifespan of gameplaying whereas restraining and reducing playing time. Also, please discuss the implications of self-control device on the choice between short-term behavior and long-term benefits for the gameplayers.

4) Your above modeling and analysis are based on the short and repetitive game with weak social networking function. For strong social networking and longer online games, the influence of self-control mechanism on gameplaying behavior would become complicated. Then how would you re-design the self-control device and adjust your analytical model?

5) Based on your above work, please write a letter of no more than two pages to the game production company to propose a design of self-control of gameplaying for a game that you are familiar with.

Your submission should include a 1-page Summary Sheet and a Proposal Letter of 1-2 pages. Your solution body cannot exceed 20 pages for a maximum of 23 pages with Summary Sheet and Letter inclusive. The appendices and references should appear at the end of the paper and do not count towards the 23 pages limit.

** A nudge is any aspect of choice architecture without mandates and forbidding freedom of choice that encourages people to make predictable and beneficial decision in solving the problem of lack of self-control. The term is coined by Professor Richard H. Thaler of the University of Chicago Booth School of Business. Please refer to (1) https://en.wikipedia.org/wiki/Nudge_theory (2) https://www.nobelprize.org/prizes/economic-sciences/2017/press-release/*