Examining the validity in the clinical version of Iowa Gambling Task

Ching-Hung Lin1,2,3, Tzu-Jiun Song2, Ying-Ying Chen2, and, Yao-Chu Chiu 2,*

1 Brain Research Center, National Yang-Ming University; 2Department of Psychology, Soochow University; 3Laboratory of Integrated Brain Research, Department of Medical Research & Education, Taipei Veterans General Hospital, Taipei Taiwan.

*Correspondence at: yaochu@mail2000.com.tw

Introduction
For more than a decade, the Iowa gambling task (IGT) [1, 2] has been utilized to test numerous mental deficits induced by neurological damage or psychiatric disorders [3]. The IGT has recently been standardized for testing 13 different neuropsychological disorders. Moreover, the IGT is now published and sold by the PAR, Inc., as a neuropsychological test (http://www3.parinc.com/products/product.aspx?Productid=IGT). However, this test has many problems that must be resolved. The “prominent deck B phenomenon” may be the most serious problems associated with the IGT [4, 5]. This phenomenon in growing number of IGT studies indicates that normal decision-makers prefer bad deck B. Choice behavior in the IGT can be interpreted by gain-loss frequency rather than inferring future consequences. However, no experiment evidence has demonstrated that the “prominent deck B phenomenon” exists in the clinical version of IGT.

Method
In total, 72 participants (35 males and 37 females) performed the clinical version of IGT (2006). Each subject performed the computerized clinical-version 3 runs; that is, 300 trials (3 runs x 100 trials) were run to assess the extended preference of subjects in the clinical version of IGT.

Results
Long-term outcome (decks C and D vs. A and B) ($F(1,71)=30.97$, $P<.01$) and gain-loss frequency (decks B and D vs. A and C) ($F(1,71)=31.35$, $P<.01$) were significant. However, the “prominent deck B phenomenon” was observed during each run of the clinical version. Bad deck B was chosen nearly as frequently as good decks C and D, and significantly more than A, even during the third run (Figure 1, 2, 3).

Discussion
Using the 300 trials for statistical testing, the effects of long-term outcome and gain-loss frequency were both supported. However, using the stage by stage analysis for each deck, we found that the disadvantageous deck A was chosen less gradually from 1st stage to 3rd stage. The significant difference was observed particularly between 1st stage and 2nd stage. The descending learning-curve of deck B was observed between each two stages. In contrast, the ascending learning-curves of decks C and D were revealed in each two stages. The basic assumption of clinical version IGT proposed that normal controls can hunch the final benefit in the standard administration of IGT (100 trials, within only 1st stage). However, the present result indicated that the most subject is difficult to hunch the final-outcome completely in the 1st stage, even in the 3rd stage of IGT (Figure 4, 5, 6).

Conclusion
Experimental results suggest that the “prominent deck B phenomenon” existed in the clinical version of IGT. The existence of the “prominent deck B phenomenon” means that gain-loss frequency was the primary guiding factor for decision-makers, not long-term outcome. Therefore, those using the IGT should be very careful when interpreting patient results during assessment.

References

Acknowledgements
The authors would like to thank Ministry of Education & Soochow University and National Science Council, Taiwan for financially supporting this research under Contract No. MOE-SCU97A13304. and NSC96-2413-H-031-002-MY2. Ted Knoy is appreciated for his editorial assistance.