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Does Gamified Training Increase Job Performance? A Systematic Review and Meta-analysis

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Introduction

- Gamification can be categorized as the use of game elements in non-game context (Groh, 2012). In contrast to serious game where the goal is to create a complete games suited for a specific purpose, gamification utilizes game elements such as badges, leaderboard, level, narrative, ... to create a game-like experience.
- There has been a major adaptation of gamification design in corporate environment: the European Central Bank is using gamification to facilitate training on financial advisor, Deloitte has a gamified leadership training program, L'Oreal employs gamification in its recruitment process, ... (Larson, 2019). However, the current literature reports mix result on the effectiveness of gamified training on performance. In order to examine this link, we conducted a systematic review and meta-analysis. Furthermore, in light of the result, we also outline some of the best practices for conducting research in gamified training.

Methods

- A systematic review and meta-analysis was conducted through PsychInfo, PubMed, Proquest to identify relevant articles from 2000 to April 2020. Additionally, we collected grey literature through Google Scholar for the same time period. The following search terms were used: Gamif* AND training.
- Criteria for inclusion are as follow:
 - Study must be randomized between-subject experiment with treatment groups and a control groups.
 - The control group must receive non-gamified training
 - Gamification elements must be presented in the training session
 - Participants must be employees from an organization
 - The studies must provide enough data so that effect size can be calculated.
- Statistical analysis was done using random-effects meta-analysis through *dmeta* and *meta* packages through R.

Graph 1. PRISMA diagram of the literature search

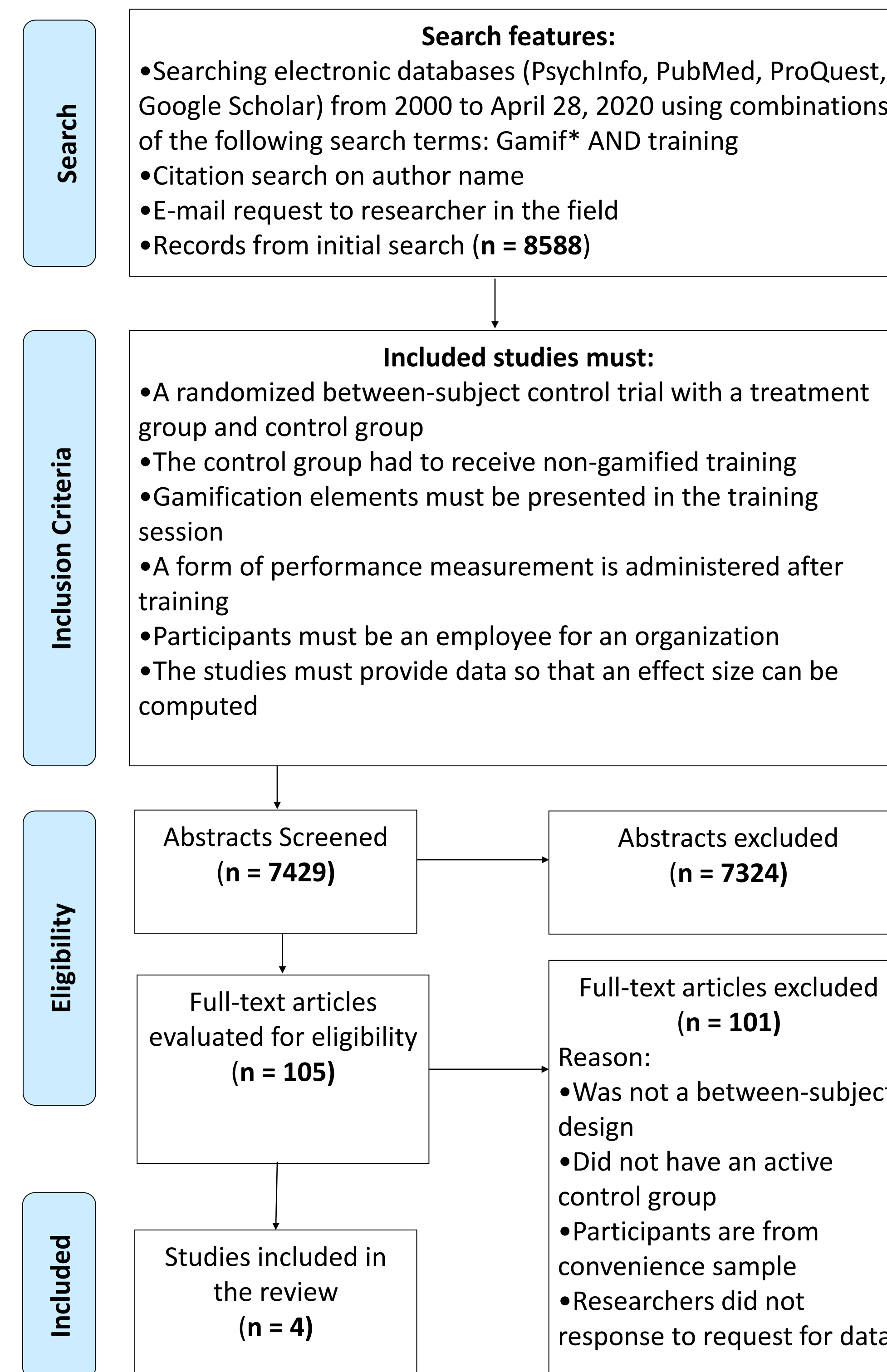


Figure 2. Forrest plot showing mean difference

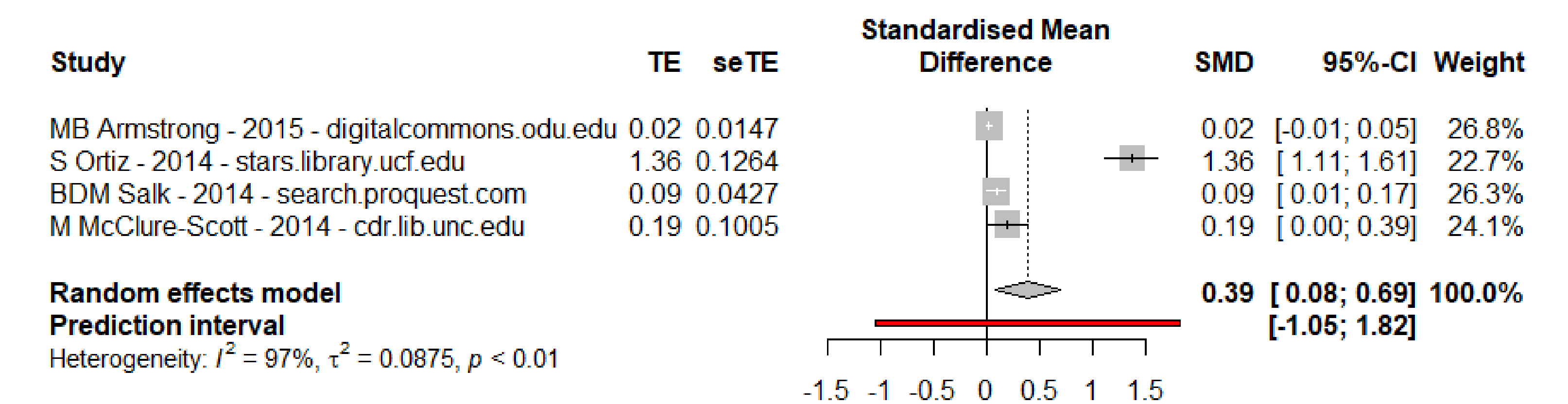
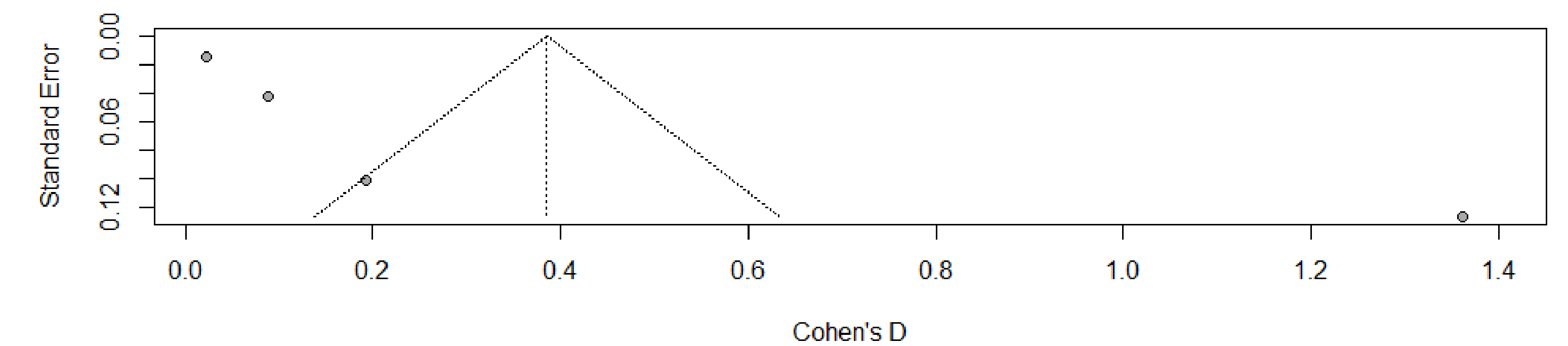


Figure 3. Funnel plot of data



Result and Discussion

- The confidence interval showed a range of 0.08 to 0.69, indicating that there is statistically significant evidence that gamified training led to an increase in performance measurement. However, by observing the funnel plot, we are cautious against such conclusion due to two factors:
 - Small sample size (n = 4)
 - Outlier presented in the data
- Through our study, we demonstrated the lack of rigorous studies in the gamified training literature. One common shortcoming observed was the use of convenience sampling which could not be generalizable to the employee's working environment. Another shortcoming was the lack of active control group.
- Due to the lack of studies, further researches are needed to examine the casual relationship between gamified training and performance measurement.

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