Will "Talented Outliers" Help Improve Team Performance? The Significance of Feedback Learning

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Extended Abstract

The effect of personality heterogeneity on team performance is an important topic in organization studies [*Neuman et. al, 1999; Mohammed and Angell, 2003; Molleman, 2005*]. Typically, an opposite pair of personality could be identified in a team: on one hand, most people are disciplined and rule-followers, whose performance displays a great extent of conformity and is highly predictable; on the other hand, in many working groups, a minority of people have great talents but an unruly behavior: they often behave as outliers in the team, who can sometimes make extraordinary good performance but display high ego and often greater turnover rate [*Wagner and Moch, 1986*]. Their unforeseen talents could often help the team at risk, but their overall performance is less satisfactory. In this paper, we refer to the first personal type as "normal players" and the second as "talented outliers" [*Gladwell, 2008*].

In most professional teams, the majority team members are disciplined and only a few are outliers, although the extent of ego and willingness to conformity varies person by person [*Eby and Dobbins, 1997*]. Those "talented outliers" frequently appear in sports teams: one great fun of following sports games is to see some heroic figure suddenly bursts out his talents and saves the team from a difficult situation. It is then even more heart-beating and dramatic if this hero is mediocre or even disappointing at ordinary times, and with a set of brandingly unruly and egocentric characters.

One well-known example is the superstar of NBA team San Antonio Spurs, Manu Ginobili. He is by any means a crazy outlier who often does not follow team tactics and plays in his own whimsical way, while all his teammates are known to be good executives of teamwork among NBA. However, most Spurs fans believe that Manu is indispensable for their team [*Colas, 2015*]. Although having an overall high turnover rate compared to his teammates, Manu can always save the game single-handedly when Spurs are at risk. Moreover, once his crazy moves succeed, the whole court goes wild and the whole team's guts are greatly inspired. Players of such heroic features are far from scarce in generally all kinds of sports teams [*Zhang et. al, 2016*] and the group dynamics in sports team is extensively studied [*Carron and Brawley, 2008*].

How do those "talented outliers" help improve team performance, if they do so? One plausible idea is, their extraordinary talented moves could bring about tremendous surprise, which vastly boost the morale of the entire team, and thus the teamwork is improved in subsequent rounds. Specifically, when the team is at difficult situations and many team members have lost faith, the outliers' impossible performance could bring back hope, and the team is greatly inspired.

On the opposite side, in other professional teams besides sports teams, especially in industrial organizations, the existence of such "talented outliers" are always considered as being detrimental to the team. Although many organizations encourage open conflicts or individualistic thinking, unexpected conflicts and pure individualism is often not supported at all [*Ilies et. al, 2007*]. How to design good managerial strategies so as to constrain the positivity in favor of the existence of unruly "talented outliers" in organizational teams is potentially an important issue for administrators [*Gundlach et. al, 2006; Katzenbach and Smith, 2015; Kiffin-Petersen and Cordery, 2003*].

We developed a model to study "talented outliers"'s performance in teamwork. Essentially, we try to answer the question: does the existence of "talented outliers" in a disciplined team help improve the team's performance? Intuitively, this is not always true, so a better way of addressing the question is: under what condition is having talented outliers positive for the team, and when it is not? Does the outlier-existence

positivity condition depend on the nature of the team, or in a further sense, the nature of the game the team is playing?

As mentioned above, one advantage of having outliers on the team could be that their impossible performance is highly contagious and will bring positive effects to teammates. This is a type of feedback learning mechanism in a multiple-round game. We apply this idea in our model. Using a simple feedback structure, we successfully modeled the positivity condition in favor of the existence of talented outliers. Our model is succinct in form and easy-interpretable, with a minimum set of assumptions. However, given its simplicity, our model bears rich contents. First, we show that, in a multiple-round game, under certain conditions, the existence of talented outliers, who has a worse average performance but a larger maximum performance, could be beneficial to the team. The benefit is achieved through a feedback learning process: outlier's infrequent extraordinary performance will nevertheless be learned by, and thus greatly inspire his teammates' performance in subsequent rounds.

Second, we also demonstrate that, different types of game have different favorability levels towards the existence of talented outliers. Games that highlight the assistance performance between players are more favorable to the existence of outliers than games that highlight "active competition" of team members [*Astin, 1997*]. This is consistent with the common observation that many such outliers appear in sports game that signifies assistance, rather than in organizations that often encourage competitions within the team. This result might be indicative for managerial practices. It suggest that the low-outlier-tolerance atmosphere, that are often sought by industrial organizations instead of sports teams, could probably be maintained by introducing active competition within the team.

The feedback learning mechanism is the core idea of this model. We demonstrate in our model that the existence of this feedback is a necessary condition for the outlier-existence positivity. Without feedback learning, outliers will not help improve team performance. To incorporate this feedback mechanism In our model, we applies the idea of "anchor and adjustment" in formulating team members' performance, and we adopt a form similar to the Kalman Filter [e.g. *Grewal, 2011*]. Besides the Kalman Filter, this idea of "anchor and adjustment" is widely known and applied in many fields. People argue that this mechanism is a natural algorithm adopted by our brain and neural system [*Frank et. al, 2007; Van de Vijver et. al, 2011*], and thus becomes one important psychological heuristics that men use when making decisions [*Tversky and Kahneman*, 1974]. Many other fields learn from this mechanism and it has triggered a lot of applications, including engineering [e.g, *Lo and Yang, 1999*] and management [e.g, *Sterman et. al, 2007*].

In our model, we assume that people learn from their past interactions with other teammates. Effectively, each person's performance will influence all the team members that he interacts with. This could be seen as the "technology spillover" effect [*Watanabe et. al, 2001*] on the individual scale. It is through this channel that the outliers' extraordinary performance has a chance to boost his peers, and thus improve the teamwork as a whole. It is then expected that our model could be applied in a more general setting, for example, in international relations, where now each "player" is a party or a nation that plays the dynamic game of regional interactions.

Our model highlights the significance of feedback learning and technology spillover in teamwork, which might have further implications in organization studies [*Hounsell, 2003*]. Although many people argue that the two ideas are both positive for the team's overall performance, it should be pointed out that these two channels are essentially neutral in nature, since bad peer performance could also be promoted and learned through this mechanism, which is detrimental to the teamwork. Moreover, organizations might be interested in designing effective administrative strategies that either encourage or discourage the existence of such talented outliers in working group, on which our model suggests a potential direction.

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