ANY GIVEN SUNDAY: INTERVENTION IN PURSUIT OF SIMULATION TEAM PARITY

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ABSTRACT

This paper examines the problem of disparity in performance among teams, which negatively impacts the competitive dynamics of business strategy simulation games. A typology of teams is used to illustrate the disparity gap and interventions are proposed. The analysis of results from a very small sample suggests the very tentative conclusion that academic major is related to simulation performance. Additional data from the Fall 2005 Term will double the current sample size and yield results in time for the 2006 ABSEL Conference. Since this is a perpetual study that was only recently initiated, the authors seek to attain valuable feedback from the ABSEL community to improve this effort and achieve the goal of team parity.

INTRODUCTION

In an effort to prove that any team can beat any other team on any given Sunday, the National Football League has taken great strides toward achieving rough equality among its teams. Although the league maintains that salary caps and free agency rules are the reasons for success, some critics suggest that more competitive teams stem from coaching changes, draft picks, and better business plans (Agule, 2004). Regardless of viewpoint, it is clear that interventions change team composition and impact future performance. This perspective has implications for the methods used when establishing teams to conduct competitive ventures. In particular, our concern is with leveling the playing field for teams playing business simulation games.

THE DISPARITY PROBLEM

Modern business simulations not only yield an abundance of information, but also a variety of performance feedback indicating relative standing among a group of teams with measures such as EPS, ROE, Stock Price, Credit Rating, Image Rating and overall rank (Thompson, Stappenbeck, & Reidenbach, 2005). Although such feedback is a critical determinant of team effectiveness (Lewin, 1948), our classroom experience indicates significant disparities in performance among teams.

While the goal of the simulation process is to establish a challenging competitive environment, the lack of team parity can subvert the process. Because poorly performing teams fail to respond appropriately to game feedback, these teams behave mindlessly in regard to future decision inputs. As the cycle repeats itself, teams lose sight of their objectives and become de-motivated (Kayes, Kayes & Kolb, 2005a). In turn, the existence of even a few de-motivated teams negatively impacts the competitive dynamic of the game, which is the primary reason for using the game. Not only do the poor performers suffer, but the better teams are no longer challenged because they begin to achieve or sustain excellent results with little or no additional effort. In short, the lack of team parity can ruin the effectiveness of the simulation as an experiential learning tool.

A TEAM PERFORMANCE TYPOLOGY

Figure 1 illustrates performance over time and the resulting competitive disparity among team types. Performance at time zero (T^0) indicates that all teams start at the same performance point. At time T^i, Figure 1 illustrates four different levels of performance for each of the team types, as well as the competitive disparity that occurs over time as strong teams continue to outperform weak teams.

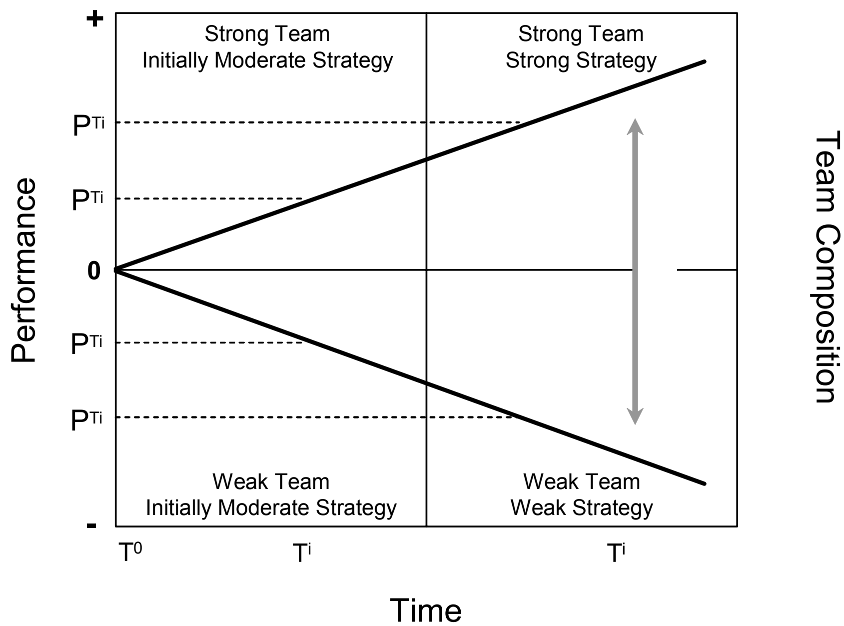

Figure 1. **Team types, performance over time, and competitive disparity.**

Strong teams with initially moderate strategies (STMS) possess the capacity to learn and perform better over time. Although their initial strategy does not put them in first place, it is adequate to offer competition in the industry and serve as a motivating force for the team members to aggressively pursue strategic options in future decision inputs. The feedback associated with positive relative performance serves to motivate the team (Kayes et al., 2005a) toward the analysis of industry information reports. STMS teams have the potential to become strong teams with strong strategies.

Strong teams with strong strategies (STSS) possess the capacity to learn and achieve initially strong performance. Their opening success motivates team members to aggressively pursue information and the strategic options necessary to sustain their competitive advantage. The competitive disparity between STSS teams and other teams causes the STSS team to perceive a cost-benefit relationship between effort and performance, so they continue to perform well.

Weak teams with initially moderate strategies (WTMS) lack the capacity to learn and perform better over time. Their initial strategy keeps them in the game competitively, but the disparity between their performance and that of strong players de-motivates the team and they fail to aggressively pursue strategic options. In addition to motivation, the team lacks the functional expertise, leadership, or academic performance background needed to adequately make sense of the information offered in industry reports. WTMS teams achieve performance levels that align with expectations based upon the academic history of members, and so they lack an aggressive posture. WTMS teams have the potential to become weak teams with weak strategies.

Weak teams with weak strategies (WTWS) lack the capacity to learn and recover from initially poor performance. Not only does the feedback reveal a significant disparity between their performance and that of most other teams, the inability to interpret industry information reports makes the competitive disparity gap seem insurmountable. WTWS teams do not perceive a cost-benefit relationship between effort and performance, so they avoid a competitive posture. Overtime WTWS teams effectively withdraw from the game because their inputs do not respond to the competitive dynamics.

ACHIEVING PARITY

We believe that the key to resolving the issue of competitive disparity is early intervention in the process of establishing teams. Although past ABSEL studies suggest that instructor involvement in the simulation improves performance (Biggs, 1975; Scherier, 1977, Nulsen & Faria, 1977), in our case, involvement during the simulation would change the competitive dynamic. The instructor can control the learning experience up through the first decision input in the *Business Strategy Game* (Thompson & Stappenbeck, 2005) and games like it, but these simulations embody a process akin to double-loop learning (Morgan, 1997) in which the game changes in response to each team's strategic decisions. Thus, the game simulates the competitive environment of a live industry. Once the game has begun, the instructor's ability to intervene is mitigated for at least two reasons. First, to effectively assist a team the instructor must learn the team's strategy, and the time investment makes this prohibitive if all terms are treated equally. Second, since the teams are in a competitive position, interventions during the game result in unfair advantages to the team or teams being helped. Thus we conclude that parity among teams must be established at the start of the game.

Faria's (2000) review of simulation research effectively communicates the findings of correlates of simulation performance. Numerous studies achieved mixed results, while other studies (Gosenpud, 1987) pointed toward team characteristics as slightly better predictors than individual participant traits. Since these studies have adequately covered the terrain of performance correlates, our focus is not upon extending that analysis, but upon the determinants of parity among teams. Parity impacts the competitive dynamic of the simulation by maintaining a challenging environment, which enhances the potential for a better learning experience.

In order to achieve parity, the instructor must proactively assign members to teams in order to influence team performance (Schellenberger, Eckstein, & Tomkiewicz, 1990). Since the research conclusions regarding participant characteristics and performance are mixed (Gosenpud, 1987), the difficulty of effectively achieving parity cannot be overstated. In addition to the unpredictable aspects associated with participants, team interaction, and situational variables, the instructor cannot control the composition of a particular class in any given term. Class size impacts team size when the simulation requires minimum numbers of teams for effectiveness. While academic ability (Wolfe & Box, 1986; Lynch & Michael, 1989), participant motivation (Gosen & Washburn, 1998), thinking ability (Anderson & Lawton, 1991), and leadership (Wolfe & Box, 1986) correlate with performance, individuals with these assets might be in short supply. Such limitations should not deter the effort to level the playing field because small classes and narrow assets serve to exacerbate the problem.

Employment experience, functional background, age, academic major, perceived strengths, learning style, and prior academic performance are some of the participant characteristic variables that have been researched to determine their impact upon simulation performance. In addition to academic ability and personal motivation, a review of most likely predictors by Gosen and Washbush (1998) includes the following team characteristics: cohesion, degree of organization, goal setting, degree of competitiveness, perceptions about the particular simulation, and the use of such games as learning tools.

Many of these variables cannot be controlled by the instructor, but at least two can: (a) the assignment of members to teams and (b) the introductory training offered in conjunction with the simulation process. The variety of participant factors correlated with performance (Faria, 2000) leaves the instructor with numerous options for determining team composition. In addition, some evidence suggests that training and preparation impact student confidence (Snow, Gehlen & Green, 2002) and subsequent performance (Faria & Nulsen, 1975; Faria, 1986).

Finally, the issue of learning versus performance is important. As well as establishing a strategy, while teams progress through the game they are required to respond to industry changes resulting from competitive dynamics. Ideally, teams should learn the demands of the environment (Druskat & Kayes, 2002) and align members to meet those demands according to their role preferences (Kayes et al., 2005). This is critical because unless they exert effort toward performing well, they will not learn well because a lack of effort subdues the competitive dynamic. Because of this it is critical that interventions be made at the beginning of the game. Research reveals that teams are unlikely to significantly change their relative performance during the game (Wellington & Faria, 1995).

INTERVENTIONS: PARTICIPANTS AND TRAINING

The two major categories of intervention available in our situation are the assignment of participants to teams and participant training regarding the simulation. While we agree that interventions like the Kolb Team Learning Experience (KTLE) (Kayes, Kayes & Kolb, 2005b) are optimal, our time and resource constraints preclude the use of this approach. Further, when students conduct the *Business Strategy Game* (BSG) in our classes, they are in the senior capstone experience. Thus, we believe that the purpose of the simulation is not only experiential learning, but learning about the challenges posed by competition in a dynamic industry. In turn, our approach is oriented toward driving performance, as opposed to learning about the group experience. Finally, the variance in our classes does not normally allow for balanced teams according to the KTLE Learning Space (Kayes et al., 2005b). Thus, given existing operating constraints our pragmatic approach suggests focusing upon participants and training.

A PRELIMINARY INVESTIGATION

Since our research effort is applied, at the beginning of each semester we collect and quickly analyze participant data for the following items: learning style, GPA, academic major, a personal assessment of strength among business disciplines, and years of work experience. We also collect information about types of work experience, but the variance in replies, as well as the level of employment experience among our predominantly traditional undergraduate student population does not yield useful data.

Although the Kolb Learning Style Inventory (Kolb, 1999) is popular among the ABSEL community, we currently use the Grasha-Riechmann Style Learning Style Scales (Grasha & Riechmann-Hruska, 1994). The Grasha-Reichmann approach measures six learning styles, including a competitive dimension (Grasha, 2002), which is germane to our study. The other five styles are collaborative, avoidant, participant, dependent and independent.

The advent of the online version of the BSG also allows us to assess the knowledge of a variety of facets of the game through a quiz about game processes and content. Since the students take the game online, the scored results are reported directly back to the instructor. The intent is to measure the impact of prior training about the game.

RESULTS TO DATE

Our current results are limited by a woefully small sample size; however, toward the end of the Fall 2005 semester our sample size will be doubled and available for the ABSEL Proceedings and subsequent reporting at the 2006 ABSEL Conference. Since this project is perpetual, the data set will increase with each passing semester. Our goal of submitting this project now is to attain valuable criticism and feedback from the ABSEL community in order to improve our efforts and achieve the goal of team parity.

Prior to conducting our analysis we developed the following relevant hypotheses. Regarding learning styles, we expect competitive, collaborative, and participant learning styles to be positively correlated with performance, while avoidant, dependent, and independent styles to show no relationship or a negative relationship to performance. This belief is based upon the literature suggesting that cohesive teams perform better (Biggs, 1975; Etnyre & Wolf, 1975; Schellenberger et al., 1990; Wolfe & Box, 1986).

In accordance with the previously discussed literature on participant characteristics, we expect GPA (Wolfe, 1978; Wolfe & Box, 1986; Lynch & Michael, 1989) and years of work experience (Byrne & Wolfe, 1979) to be positively correlated with performance. We also recognize that the opposite results are possible (Faria, 2000; Glomnes, 2004).

Regarding academic major and business strength, we expect to see a positive relationship between the more quantitative majors and game performance. Since our school offers accounting, finance, marketing and management, we expect the accounting and finance majors to fare better than marketing and management majors because four of the five performance measures are stock price, ROE, EPS, and credit rating. The remaining measure is image rating for which we have no specific hypothesis, but suspect that marketing majors might have an advantage there.

We expect years of work experience to have no relationship to performance (Byrne & Wolfe, 1979) since the level of employment for our student population is limited; however, we wish to rule-out that factor because a small minority of our students have extensive experience.

Lastly, training interventions are expected to have an impact upon team performance (Green, McQuaid, & Snow, 2002). In addition to conducting practice sessions, participants take an online quiz to provide an assessment of their knowledge of the game as provided by their quiz score. We expect that quiz scores will be positively related to performance.

Table 1 presents the results of our preliminary analysis on a very small sample of 43 participants and 15 teams. Our approach allows for the future analysis of team-level factors, but no team analysis is done to this point due to the small sample size. The only significant correlations of interest are modest relationships between Academic Major and the following: BSG Rank ($r=-.34$, $p<.05$), EPS ($r=.36$, $p<.05$), Stock Price ($r=.37$, $p<.05$), and Image ($r=.34$, $p<.05$).

The negative coefficient for Academic Major and BSG Rank reflects a positive relationship between the quantitative disciplines of accounting and finance and overall performance in the game because these measures were reverse coded. Similarly, the positive correlation associated with image rating reflects a relationship between a successful image and marketing and management majors.

These scant results suggest that academic major could be a determinant of simulation performance; however, the

Table 1

Means, Standard Deviations, and Correlations

	Variables	*Mean*	*sd*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1	Quiz Score	28.62	10.07															
2	Independent	3.37	0.54	.07														
3	Avoidant	2.72	0.78	-.26	.27													
4	Collaborative	3.59	0.59	-.14	-.19	-.32												
5	Dependent	3.71	0.60	-.01	-.26	.06	.04											
6	Competitive	2.78	0.78	.18	-.19	-.15	.08	.35										
7	Participative	3.79	0.69	-.01	-.14	-.57	.35	.21	.44									
8	Work Experience	4.19	1.20	.02	.08	.17	-.29	-.01	-.11	-.20								
9	Major	2.05	1.15	.13	.10	-.41	-.09	-.19	-.28	.09	-.02							
10	BSG Rank	3.00	1.46	-.05	.02	.23	-.05	.24	.00	.07	-.04	-.34						
11	EPS	7.80	6.98	.10	-.14	-.30	.07	-.21	-.12	-.10	-.16	.36	-.81					
12	ROE	4.82	66.54	-.10	-.09	-.26	-.02	-.06	.00	.10	-.09	.15	-.40	.66				
13	Stock	155.04	146.50	.16	-.12	-.24	.10	-.24	-.16	-.17	-.17	.37	-.79	.92	.34			
14	Image	70.74	19.33	.14	-.01	-.15	-.01	-.24	-.07	-.13	.05	.33	-.85	.67	.22	.72		
15	Credit	1.51	1.75	.10	.01	.22	.05	.06	.10	-.06	.09	-.15	.24	-.59	-.96	-.27	-.07	
16	GPA	2.87	0.45	.25	-.08	-.46	-.05	.15	.22	.18	-.16	.24	-.28	.27	.27	.17	.10	-.24

n= 43
p<.05 for r>.30
p<.01 for r>.39

limited sample size and few teams will require further testing to establish that result. But if that relationship holds, this will be an interesting finding with implications for team parity. Since our teams to date were formed either randomly or by student selection, some teams were heavily weighted with accounting or finance majors and others with marketing or management majors. If accounting and finance majors have the upper hand due to four out of five performance measures being finance-related, then a simple solution is to ensure that teams are comprised of diverse majors. However, since we realize that the level of complexity far exceeds such a simple conclusion, we anxiously await the current term's results, which will serve to more than double our sample size.

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