

Comparing the Development of Intragroup Trust and Performance Feedback Influence in
Interdisciplinary and Homogenous Teams

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(ABSTRACT)

The present study seeks to advance understanding of intragroup trust and team diversity. The dynamic interrelationships between intragroup trust, information sharing, and performance were examined over feedback cycles in interdisciplinary and homogeneous teams. In a three-hour lab session, participants completed a management simulation task in teams of four. Performance feedback was administered and process variables were measured periodically throughout the task. Several hypotheses were posed predicting differences between team type as well as the dynamic influence of performance feedback on the nature of trust. Findings both add to knowledge about the development of trust as well as point to future research directions. Although trust displayed an overall positive linear trend independent of team type, Cycle 1 performance feedback contributed to the trust trajectory. Additionally, considerations for operationalizations of information sharing and team performance are discussed in light of findings.

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Introduction

The whole is greater than the sum of its parts”; a cliché often used in reference to teams conveys Salas, Rose, Burke and Goodwin’s (2009) notion of “the wisdom of collectives” (p. 40). Because the desired outcome is beyond individual reach, team members rely on each other to contribute diverse knowledge, skill and/or abilities (KSAs) toward attaining a shared goal. The process by which these individual KSAs aggregate to produce superior performance is referred to as “teamwork” (Salas et al., 2009).

Teamwork processes are at the core of what makes a team effective. This raises questions about what differentiates ineffective teams from teams that are able to reach superior performance standards.

Salas and colleagues (2009) distinguished effective teams from ineffective teams with The Big Five of Teamwork and coordinating mechanisms. The five components represent a comprehensive framework derived from an extensive review of the variables most influential on team effectiveness. They are: Team Leadership, Adaptability, Mutual Performance Monitoring, Backup Behavior and Team Orientation. Although the importance of each factor varies in context and throughout the stages of team development, all are necessary for successful team functioning. These components are facilitated by three coordinating mechanisms, one being mutual trust. They identified mutual trust as the shared perception that team members will carry out their duties while promoting the team’s interest over personal interests (Salas, Sims & Burke, 2005; Salas et al., 2009).

Trust affords capitalization on collectivism. Salas et al. (2009) suggested mutual trust prevents members from wasting resources; rather than devoting time, attention and

communication on monitoring and double-checking one another, members freely trust each other's abilities and intentions. This facilitates the occurrence of ideal team processes. Jones and George (1998) made a similar argument in their model of unconditional trust. They posited trust has both direct and indirect effects on team outcomes. The indirect effects influence team outcomes by impacting the team relationship, specifically, through the development of communal relationships, broad role definitions, free exchange of knowledge and information and subjugation of personal needs and ego for the greater common good (Jones & George, 1998). Several studies have looked at positive impacts of trust, although the majority of studies are in the context of leadership. Performance, communication, satisfaction, organizational citizenship behaviors and conflict resolution are improved as a result of trust (Burke, Sims, Lazzara & Salas, 2007; Simons & Peterson, 2000).

As the workforce grows more horizontal and more diverse, trust becomes not only beneficial, but essential. Organizations are increasingly employing interdisciplinary teams, teams comprised of members who span disciplinary boundaries. These especially diverse teams are noted for surpassing homogenous teams in terms of creativity and decision-making quality, yet fall behind in terms of social group dynamics (Mannix & Neale, 2005; Phillips, 2003; Phillips & Loyd, 2006). Van Der Vegt and Bunderson (2005) argued researchers do not advance understanding when they acknowledge diversity can be helpful or harmful to team performance; they urged researchers to instead examine the conditions under which interdisciplinary teams thrive and underperform.

For these reasons, more empirical studies are needed to advance understanding of intragroup trust and its influencing factors. In process models of teams, an input impacts a state that leads to some outcome. As an emergent state, trust does not occur in a vacuum. Its effects are dynamic and impacted by other processes and outcomes. As depicted in Mayer, Davis and Schoorman's model of trust (1995), team outcomes will influence future perceptions of trustworthiness. Studies, however, continue to neglect the impact of performance feedback cycles on trust. The present study answered the call for more research that examines teamwork as a process providing a more dynamic view of trust (Marks, Mathieu & Zaccaro, 2001; Salas et al., 2009). The study also endeavored to shed light on trust as an intragroup condition that bolsters interdisciplinary initiatives.

Literature Review

In a review of the trust literature, Burke et al. (2007) presented an extensive list of definitions. Commonalities across all definitions of trust include risk, dependence, and vulnerability. The most widely accepted definition comes from Mayer, Davis and Schoorman (1995); they defined trust as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other party will perform a particular action important to the trustor, irrespective of the ability to monitor or control the other party” (p.712). Simply put, trust is a willingness to be vulnerable.

Mayer et al. (1995) distinguished between trust, risk, and vulnerability. When people trust, they make themselves vulnerable to losing something of importance. Mayer et al.’s model (1995) proposed trust facilitates risk-taking behavior. Therefore, trust is operationalized as a self-reported willingness to take risk; for example, “I would be comfortable giving my coworker a task or problem which is critical to me” (Mayer & Davis, 1999, p. 14). Additionally, theorists distinguished between cognitive and affective aspects of trust. The cognitive aspect of trust refers to forming beliefs about another based on information about that person’s trustworthiness. On the other hand, the affective component reflects the emotions in the trusting process (Burke et al., 2007; McAllister, 1995).

Trust has also been conceptualized in terms of three facets: ability, benevolence, and integrity. These facets are considered the components that characterize the trustworthiness of a trustee. Mayer et al. (1995) argued trust is the voluntary willingness to be vulnerable, stemming from judgments of ability, benevolence and integrity. Ability is defined as the “group of skills, competencies, and characteristics that enable a party to

have influence with some specific domain” (Mayer et al., 1995, p. 717). Aptitude, training, experience and skill level are considered when judging ability. Benevolence is defined as the, “extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive” (Mayer et al., 1995, p. 718). Care or concern, loyalty and openness are considered. Integrity is defined as the “trustor's perception the trustee adheres to a set of principles the trustor finds acceptable” (Mayer et al., 1995, p. 719). Factors such as values, promise fulfillment and justice are weighed. People use information regarding the three facets to determine whether or not they will trust someone or something. The higher a trustee is perceived on ability, benevolence, and integrity, the more likely he or she will be perceived as trustworthy, therefore the more likely he or she will be trusted (Mayer et al., 1995). There is empirical support for these claims.

Gill, Boies, Finegan and McNally (2005, Study 1) tested the facets of trust in an experimental study. Participants read a scenario describing a hypothetical co-worker they had to partner with to complete a project. In one condition, Gill et al. presented the co-worker as high on ability, benevolence, and integrity; participants were told that she had an MBA, organized a mentorship program to help new employees adjust, and was always honest. In a second condition, the co-worker was presented as low on ability, benevolence, and integrity; they were told she had a high school diploma, refused to participate in a mentorship program, and displayed dishonest behavior. They measured perceived trustworthiness and intention to trust using shortened versions of Mayer et al.’s (1999) trustworthiness and trust scales. Results showed participants in the high condition rated the co-worker higher on trustworthiness than those in the low condition on all three

facets: ability, benevolence, and integrity. In addition, participants in the high condition trusted the hypothetical co-worker more than those participants in the low condition.

These findings are consistent with Mayer's (1995) propositions on the facets of trust.

Mayer et al. (1995) and Gill et al. (2005) measured trustworthiness and trust as two distinct constructs. They argued the three facets are antecedents of trust. As an antecedent, trustworthiness predicts one's intention to trust. Trustworthiness and trust measures, however, fall short in their ability to distinguish between the two constructs. The two measures lack discriminant validity across studies. In one study, Mayer and Davis (1995) measured trustworthiness and trust of management in a work sample at two different time points. Findings revealed auto-correlations for trust and trustworthiness facets ranging from .40 to .55 with intercorrelations between trust and trustworthiness ranging from .58 to .66. These results suggest the two scales may be measuring the same construct. For this reason, the present study used the trustworthiness scale as a measure of trust. The trustworthiness scale is noted for producing higher alpha levels than the trust scale and may provide more information about the nature of the trusting relationship in reference to ability, benevolence, and integrity.

Intragroup Trust

Although most research focuses on interpersonal trust, trust may be person-to-team, team-to-team, person-to-organization, or person-to-something (e.g. a technology).

Team trust can be trust within a team or a team's trust toward another referent.

Intragroup is a type of team trust. Intragroup trust is trust among members within a team.

The facets of trust can be considered in the intragroup context. Ability refers to members' concern with each other's competence in fulfilling duties. Benevolence entails

the belief that team interests overshadow individual interests. Integrity regards how members evaluate morals with respect to whether or not the team is consistent and fair.

Intragroup trust is most often considered a shared construct. That is, individual's shared perception of trust among members constitutes team trust as a group-level construct (Chan, 1998; Klein & Kozlowski, 2000). It is measured at the individual level; however, the referent is at the group level. Each member is asked about his or her individual perceptions of trust within the group usually in the form of a survey. For example, an item would read: "We count on each other to fully live up to our word" (Simons & Peterson, 2000, p. 5). It is analyzed at the group level. Each member's responses are averaged; then all responses are aggregated to create a group-level average of team trust contingent on within-group agreement (Chan, 1998; Klein & Kozlowski, 2000). Intragroup trust was measured and analyzed in this manner for the present study.

Team Diversity

Beliefs about trustworthiness are often associated with social group membership (Williams, 2001). The similarity–attraction paradigm refers to the cognitive process of self-categorization, social categorization and biases. Social categorization and self-categorization are defined as grouping others and the self into contrasting social categories and sub-categories based on the fit between an individual's attributes with characteristics of a category (Williams, 2001). In essence, people assign themselves and others into subgroups based on differences and similarities in diversity.

Research has shown categorizing activates differential expectations for in-group and out-group members. A person classified within the same subgroup is considered similar, while a person in a different subgroup is considered dissimilar. This distinction

facilitates bias through which out-group members are judged less favorably than in-group members (Mannix & Neale, 2005; Williams, 2001). Theorists attributed the desire to distinguish groups to self-esteem motives. Positive group identity enhances self-esteem. Therefore, in-group members are regarded above out-group members in efforts to maintain a positive self-image (Turner, Brown & Tajfel, 1979).

In reference to trust, the similarity-attraction paradigm extends to the similarity-trust dissimilarity-distrust paradigm. The premise is people are more likely to trust similar others and less likely to trust dissimilar others. Williams (2001) presented a model of intragroup trust for dissimilar members. The model depicted how cognition and affect may influence category-driven processing in trust development within diverse teams. People make judgments based on beliefs about other people's social group memberships. While people tend to perceive members of their own group as more trustworthy, dissimilar groups do not necessarily equate to distrust; associated beliefs or affect with dissimilar groups may be positive, negative or neutral (Williams, 2001).

The similarity-trust, dissimilarity-distrust paradigm may be extended to various aspects of team diversity. Diversity can be characterized into deep-level or surface-level features. Deep-level diversity encompasses underlying attributes that are not immediately apparent such as values, education, culture and discipline, while surface-level diversity encompasses characteristics that are more immediately noticeable such as race, gender, and, age. (Phillips & Loyd, 2006). People may categorize team members as similar or dissimilar based on any dimension of surface-level or deep-level diversity. No studies to date have empirically tested the similarity-trust dissimilarity-distrust paradigm in the intragroup context. The present study assessed the effects of deep-level diversity

on intragroup trust in order to test the similarity-trust dissimilarity-distrust paradigm within groups at the team level. Educational discipline served as deep-level diversity.

In the trust literature, Spector and Jones (2004) examined the influences of group membership on trust in an experimental study conducted with a work sample. The researchers constructed paper scenarios in which they described a new co-worker as male or female and as an internal or external employee. Participants read the scenarios and rated their trust in the hypothetical co-worker. They found no effects for the organizational affiliation manipulation. However, findings showed men rated their co-worker higher on trust when the co-worker was male versus female. They asserted this finding illustrated how perceptions of trustworthiness are based on cognitive shortcuts. They attributed their inability to detect more robust findings to the design's lack of realism.

Gillespie and Mann (2004) examined how similarity of values impacted trust in leader and follower relationships. In their regression model, common values were one of three predictors that contributed significantly to the prediction of team members' trust in their leader. Persons were more likely to trust those with whom they shared values due to similarity; on the other hand, persons who did not share values were less likely to trust due to dissimilarity (Jones & George, 1998; Mannix & Neale, 2005). Findings demonstrated any distinction may trigger social categorization and in-group preference (Turner et al., 1979).

Interdisciplinary Teams

Interdisciplinary teams are distinct in that they are teams strategically comprised of individuals from different disciplinary backgrounds. Interdisciplinary team members

are diverse in terms of expertise. Expertise diversity refers to diversity in specialized knowledge and skill domains resulting from work experience and education; expertise has been conceptualized as educational specialization or discipline, major, or field in which one's highest degree was earned. (Shin & Zhou, 2007; Van Der Vegt & Bunderson, 2005).

Interdisciplinary teams have become increasingly popular, as societal and organizational initiatives grow broader than any single discipline can tackle (The National Academy of Sciences, National Academy of Engineering & Institute of Medicine of the National Academies, 2004). Businesses are assembling a wide-ranging team of professionals around their round tables; for example, automotive design may incorporate engineers, ergonomic specialists, marketing executives, environmentalists, and financial representatives. At universities, professors and students collaborate on research across departments; sustainability research, for example, may encompass agriculture, urban development, environmentalism, behaviorism, and economy. With such boundary-spanning issues, interdisciplinary teams are ideal if not necessary. Group members, diverse in field-specific expertise, interface to resolve a common problem.

Deep-level diversity characterizes interdisciplinary teams. Members are even more interdependent and diverse than traditional teams due to distributed expertise. An article in *GradPsych*, pointed out deep-level diversity characteristics unique to interdisciplinary teams. Members will view problems differently and approach problems in different ways. Training within a discipline may prime individuals to view and approach problems a certain way (Meyers, 2008). Additionally, every discipline has its own language or “lingo” (Meyers, 2008). Capitalizing on diversity, superior performance

is achieved when interdisciplinary members integrate distributed expertise and diverse perspectives to reach more creative solutions and comprehensive decisions. Although deep-level diversity is the advantage that enables interdisciplinary teams to outperform homogenous teams, deep-level differences may make cohesion and collaboration a more difficult process (Mannix & Neale, 2005; Shin & Zhou, 2007; Van Der Vegt & Bunderson, 2005).

Research has shown interdisciplinary teams often outperform homogenous teams (Phillips, 2003; Phillips & Loyd, 2006). This gain in performance has been attributed to a range of diversity types to include expertise, ethnicity, and personality which may enhance information processing (Mannix & Neale, 2005). Diversity has been linked to increased creativity, information sharing, and problem solving (Mannix & Neale, 2005; Phillips, 2003; Phillips & Loyd, 2006). Although diversity is noted for the aforementioned benefits, diversity within a group can be harmful. The dark side of diversity essentially boils down to the similarity–attraction paradigm. These negative effects of diversity include an increase in miscommunication and conflict as well as a decrease in cohesion (Mannix & Neale, 2005).

Researchers have studied the impact of deep-level diversity on performance in interdisciplinary teams. Empirical findings revealed inconsistent findings in which deep-level diversity enhanced performance in some instances and impaired performance in other instances (Mannix & Neale, 2005; Shin & Zhou, 2007; Van Der Vegt & Bunderson, 2005). Shin and Zhou (2007) and Van Der Vegt and Bunderson (2005) emphasized intragroup factors are important for understanding under which conditions deep-level diversity promotes team performance.

Van Der Vegt and Bunderson (2005) examined collective team identification as a moderator of the relationship between expertise diversity and team performance in multidisciplinary teams working in oil and gas companies in the Netherlands. Expertise diversity referred to diversity in specialized knowledge and skill domains resulting from work experience and education. Collective team identification was defined as “the emotional significance that members of a given group attach to their membership in that group” (Van Der Vegt & Bunderson, 2005, p. 533). They found expertise diversity was positively related to team performance in teams high on collective team identification. The relationship was negative in teams low on collective team identification.

Van Der Vegt and Bunderson argued researchers view diversity and performance in a manner that is more simplistic than practical; they referred to the problem as the “diversity-affects-performance model” (2005). The model conveys two opposing and simplistic views of diversity: diversity helps performance or diversity hurts performance. They urged researchers to examine how and under what conditions deep-level diversity inhibits or enhances performance. Previous studies on interdisciplinary teams acknowledged and demonstrated the negative effects of deep-level diversity are a threat to interdisciplinary teams; however, positive intragroup factors may mitigate this threat (Shin & Zhou, 2007; Van Der Vegt & Bunderson, 2005). Given prior research has demonstrated trust allows teams to effectively work through conflict and miscommunications, it is beneficial to examine the impact of intragroup trust on the performance of interdisciplinary teams (Burke, Sims, Lazzara & Salas, 2007; Simons & Peterson, 2000).

The Trust-to-Performance Link

Dirks and Ferrin (2001) and Kiffin-Peterson (2004) reviewed the role of interpersonal and team trust in the workplace. They summarized findings across studies to explain how trust enacts on workplace processes and outcomes via the moderator model and the direct/mediator model. The moderator model suggests trust helps performance by facilitating conditions that promote positive attitudes and behaviors and/or buffering conditions that cultivate negative attitudes and behaviors.

Peters and Karren (2009) empirically demonstrated the role of intragroup trust as a moderator in the relationship between functional diversity and project team performance. The effect was significant for manager-rated performance. While greater functional diversity led to decreased performance, higher trust levels weakened this relationship. In other words, trust reduced performance decrements in teams high on functional diversity. A study conducted by Simons and Peterson (2000) showed intragroup trust negatively moderated the relationship between task conflict and relationship conflict in top management teams. Members within low-trust teams misattributed task conflict as personal and perceived higher levels of relationship conflict while high-trust teams experienced less relationship conflict as a result of task conflict.

The main-effect/mediator model explicates a direct relationship between trust and workplace behaviors or performance wherein gains in trust result in process and performance gains (Dirks & Ferrin, 2001). Greater levels of trust facilitate greater risk taking which manifests as increased commitment, information sharing, organizational citizenship behavior, effort, and group performance (Dirks and Ferrin, 2001). Dirks and Ferrin (2001) envisioned the main-effect model as a direct relationship between trust and any workplace behavior or outcome. Kiffin-Peterson (2004), however, distinguished

between the main-effect model and mediator model. Based on Kiffin-Peterson's conceptualizations, the main-effect model conveys trust directly impacts performance while the mediator model conveys trust indirectly impacts performance through a process variable.

Overall, findings for the direct effect of trust on group performance have been described as inconsistent (Dirks and Ferrin, 2001); however, the effect has been detected across several studies (Costa, 2003; Chou, Wang, Wang, Huang & Cheng, 2008; Webber, 2008; Shen & Chen, 2007; Davis, Schoorman, Mayer & Tan, 2000; Dirks, 2000).

Findings for the direct effect of trust on process variables such as information sharing (Lee, Gillespie, Mann & Wearing, 2010; Littlepage & Woller, 2010; Butler, 1999; Zand, 1972) and OCBs (McAllister, 1995; Pillai, Schriesheim & Williams, 1999; Podsakoff, MacKenzie, Moorman & Fetter, 1990; Robinson, 1996) have been more robust.

Information Sharing

In light of teamwork and interdisciplinarity, information sharing is one of the most important gains of trust. Information sharing refers to the exchange and utilization of members' knowledge for the team's benefit (Mesmer-Magnus & DeChurch, 2010). Information sharing is the process by which individual knowledge becomes the collective wisdom that enables teams to achieve that which is beyond individual reach. Information sharing is the key process variable in the link between trust and performance. When trust is defined as a willingness to be vulnerable, information sharing is the act of vulnerability. When team members share ideas they risk someone taking credit. When members ask questions they risk casting doubt on their competence. Members also risk being attacked or punished for expressing opinions. Trust facilitates information

exchange because members have faith in one another's competence, integrity and benevolence. Without trust, one cannot unlock the cumulative potential of the team.

Group performance is dependent on members' willingness and ability to communicate and integrate common and distinctive knowledge sets. Meta-analysis results showed information sharing was "a clear driver of team performance" maintaining a positive relationship across various levels of all moderators such as task type, discussion structure and team performance criterion (Mesmer-Magnus & DeChurch, 2010, p. 541).

The more information members share the greater their pool of knowledge. Expanding the pool of knowledge increases members' accessibility of information for processing; this is believed to increase team task performance (Mesmer-Magnus & DeChurch, 2010). In teams, information may be shared or unshared. Shared information refers to information known by all group members while unshared information refers to information unique to group members (Mesmer-Magnus & DeChurch, 2010). When team members are truly interdependent, sharing individual expertise becomes a prerequisite to success.

Information sharing has been conceptualized and operationalized in various forms (Mesmer-Magnus & DeChurch, 2010). Researchers measured information sharing via self-report scales at the individual- or team- level assessing individual perceptions of information sharing or perceptions of collective information exchange. Additionally, information sharing may be coded from recordings or transcriptions of group discussions. Prior studies have assessed the construct in terms of frequency counts or percentage calculations, content analysis for quality, and more. In the present study, information

sharing was measured with a survey and coded from video recordings. Conceptualized as a configural construct, the group-level construct is a summation of individual-level units in accordance with the additive composition model (Chan, 1998; Klein & Kozlowski, 2000). Each member's survey responses were averaged; then all responses were aggregated to create a group-level sum of information sharing irrespective of intragroup agreement (Klein & Kozlowski, 2000; Chan, 1998).

Emergent States vs. Processes

Several studies focused on how trust impacts performance; however, little research is devoted to how performance impacts trust. Shifting focus from trust-to-performance effects to performance-to-trust effects evokes the importance of trust as an emergent state. As an emergent state, trust is considered an attitude that can develop quickly and change over time (Burke et al., 2007). Emergent states, what teams think and feel, are distinguished from team processes, what teams do (Salas & Wildman, 2009). Marks et al. (2001) defined team processes as behavioral and verbal interaction between members' and their task environment that coordinate work toward achieving group goals, while emergent states represent members' attitudes, cognitions, and motivations rather than interaction processes (Marks et al., 2001). Fundamentally, emergent states are the intrinsic elements of a team. Emergent states reflect members' internal states, which may vary as a function of team context, inputs, processes or outcomes; therefore, they are considered team inputs or proximal outcomes (Marks et al., 2001). For example, cohesion, trust, and efficacy may impact or be impacted by various aspects of the team and task environment. Team processes, on the other hand, are actions members perform in order to complete the task; therefore, they are considered the

“transformative” link between team inputs and both proximal or distal team outcomes (Marks et al., 2001, p.357-358). Aside from the internal states versus external actions distinction, the transformative component is a major distinction between emergent states and processes (Kozlowski & Ilgen, 2000; Marks et al., 2001). Emergent states may facilitate team outcomes; however, processes are the mechanism by which value is created from resources. For example, an innovative outcome may be produced through the acts of information sharing, task conflict, and problem solving.

In the context of the present study, trust was an emergent state while information sharing was a process. These conceptualizations implied trust influenced, and was influenced by, team processes and outcomes. Kiffin-Peterson (2004) explicated Zands (1972) spiral-reinforcement model of trust through the lens of emergent states. For example, in low-trust teams members were unwilling to share information, which hindered information sharing and further diminished trust; this depicts a downward trust spiral. On the other hand, a high-trust team depicts an upward trust spiral; members openly shared information, which facilitated even higher levels of trust (Kiffin-Peterson, 2004; Zands, 1972). Despite these conceptualizations, most studies measured trust at one time point and projected how trust developed and operated in relation to other variables.

Dyer (1984) denoted “one of the largest measurement problems in team research is the failure to examine the sequence of team behavior and the related outcome of that sequence of behaviors” (as cited in Salas et al., 2005, p. 587). This pitfall prevents advances in knowledge of teamwork processes and emergent states as developing and dynamic. Thus, efforts to understand intragroup trust as an emergent state are best examined over multiple task cycles or time points.

Webber (2008) conducted a longitudinal study on intragroup trust in student project teams over the course of three months. In efforts to gain a fuller picture of how trust develops, she measured trust at three different time points in addition to variables such as OCBs and performance. One of the study's greatest contributions was the demonstration that early trust manifested in later stages of trust as well as other processes throughout the team's lifespan. Interaction analyses showed high levels of early trust and perceptions of reliable performance facilitated higher trust in later stages of the team's lifespan.

Levin, Whitener and Cross' (2006) study also provided novel findings that demonstrate temporal or situational elements of trust, depicting the variable as more dynamic than static. They posited the bases of trust change over the course of relationships. Demographic similarity, trustworthy behavior, and shared perspective were identified as the bases of trust. They argued in "brand-new" relationships, observable features (e.g, gender) are the most salient and are therefore used to form expectations of someone using existing knowledge of these categories. As the relationship progresses, people rely less on heuristics and base inferences on behavioral observations or "general representations" (i.e, perceptions formed from behavioral observation). To test these notions, the researchers surveyed employees asking them to recall a person who was helpful in completing a project in order to capture "brand-new", "in-between" and "mature" moments in the relationship. Findings supported their notions. Relationship length significantly moderated the association between perceptions of trustworthiness and the decision bases of trust. Trustworthiness was associated with demographic similarity in newer relationships, behaviors in "in-between" relationships,

and shared perspectives in mature relationships.

Considering these findings in view of the similarity-trust dissimilarity-distrust paradigm, trustworthiness perceptions based on diversity variables are likely to change. Over the course of teamwork, team members are less likely to rely on cognitive shortcuts based on group membership when more information is available to them (Festinger, Pepitone & Newcomb, 1952). This may be promising for diverse teams as the biases against out-group members may diminish.

The Performance-to-Trust Link: Performance Feedback

An additional shortcoming in the existing intragroup trust research is that it does not account for performance feedback (Salas et al., 2009). Teamwork does not end with outcome variables because outcomes cycle back in as inputs for future episodes (Marks et al., 2001; Salas et al., 2009). Feedback loops impart a cycle framework. Marks et al. proposed a temporally based framework of team processes suggesting team performance over time should be conceptualized as a series or sequence of related task work episodes (2001). Episodes are defined as “distinguishable periods of time over which performance accrues and [performance] feedback is available” (Marks et al., 2001, p. 359). Each episode encompasses action phases and transition phases. Action phases occur when the team is engaged in actual task work that advances progression toward the goal; whereas transition phases occur when the team engages in evaluation of the previous episode and planning for the upcoming episode. The conclusion of one episode usually marks the beginning of another whilst outcomes from prior episodes become inputs for the following (Marks et al., 2001). Collapsing the series of episodes into one episode does not adequately capture team processes and emergent states nor does it allow for

examining their interrelationships with team outcomes.

Teamwork, intragroup trust, and performance are dynamic because of performance feedback. In transition phases, team members take inventory of how they performed. Prior performance influences attitudes and behaviors in subsequent action phases (Marks et al., 2001). Further, prior performance provides information that is used to plan for subsequent episodes. Applying these notions to trust, performance feedback discloses trustworthiness information. Mayer et al.'s (1995) multidimensional model of trust depicted a feedback loop suggesting team outcomes influence future perceptions of intragroup trust. When one accounts for performance feedback, members are able to collect information on team members' acts of ability, benevolence, and integrity from previous episodes and use it to guide their decisions to trust in future episodes. As team members gauge their performance, they will adjust their assessments of trustworthiness in one another's abilities. Although performance feedback is built in Mayer et al.'s (1995) model, empirical studies continue to neglect the impact of performance feedback.

Peterson and Behfar (2003) examined the dynamic relationships between performance feedback, trust, and conflict in groups. The researchers posited measuring these relationships over time might reveal group performance feedback impacts future conflict. They hypothesized negative initial performance feedback increased the likelihood of subsequent relationship and task conflict. They also hypothesized intragroup trust established before negative performance feedback moderated these relationships. They surveyed first-year MBA students working on course-required assignments in teams at two time points. Trust was only measured at Time 1. They found negative initial performance feedback triggered relationship and task conflict at

Time 2. For teams low on intragroup trust, task and relationship conflict significantly increased over time; however, intragroup trust mitigated conflict for teams reporting high, initial levels of intragroup trust. This study empirically demonstrated the concept of feedback loops between performance and conflict. It also demonstrated how intragroup trust was able to mitigate negative team outcomes. An empirical study with greater focus on intragroup trust over feedback cycles is warranted.

Present Study

The present research examined how team diversity impacts the dynamic interrelationships between intragroup trust, information sharing, and performance over feedback cycles. First, the study seeks to further the literature on intragroup trust by comparing intragroup processes and performance in interdisciplinary and homogenous teams. In the intragroup context, the similarity-trust dissimilarity-distrust paradigm remains untested at the team level. Second, the current study answers the call for more research examining teamwork phenomena as emergent states and processes (Marks et al., 2001; Salas et al., 2009). The current study expounds on theory by examining relationships between trust, information sharing and performance over multiple task cycles. Trust is the focal variable as it has been linked to numerous positive team outcomes and empirically shown to moderate negative intragroup conditions.

In the context of diversity, the similarity-trust dissimilarity-distrust paradigm suggests decisions to trust stem from heuristic judgments and biases employed when limited information is available (Levins et al, 2006; Spector & Jones, 2004). This category-driven processing facilitates biases; people are more likely to trust those they view more similar than those they view as dissimilar (Mannix & Neale, 2005). Based on

this paradigm, diverse teams are more likely to report lower levels of initial trust than homogenous teams. The paradigm, however, does not account for performance feedback. Although prior studies have not examined the impact of trust over time or performance cycles, findings suggest the nature of trust may vary as a function of time or context (Levin et al, 2006). Given the posited impact of performance feedback on trust, relationships between similar and dissimilar members are likely to change. Performance feedback discloses information about members' abilities and intentions. Therefore, members are less likely to rely on heuristic biases once performance-relevant information is available.

Trust is critical to team processes and performance. In light of the moderator model, trust helps performance by facilitating positive attitudes and behaviors and/or buffering negative attitudes or behaviors (Dirks & Ferrin, 2001; Kiffin-Peterson, 2004). Der Veegt and Bunderson (2005) argued intragroup factors are necessary for understanding under which conditions deep-level diversity will promote team performance. When intragroup conditions are positive, diverse teams are more likely to outperform homogeneous teams. In the context of interdisciplinary teams, trust affords superior performance by enabling diverse members to effectively approach the problem from diverse perspectives.

In light of the main-effect/mediator model, trust contributes to team effectiveness by improving performance directly and/or indirectly through team processes such as information sharing (Dirks & Ferrin, 2001; Kiffin-Peterson, 2004). Based on these bodies of research, it is possible trust and information sharing impact performance via a mediation framework. Information sharing was tested as a mediator in the relationship

between intragroup trust and performance. These relationships were examined over multiple performance cycles to assess whether performance impacts subsequent levels of trust via feedback loops. Based on Mayer, Davis, and Schoorman's (1995) accounts of how outcomes guide future judgments of trustworthiness, trust in one another's abilities is likely to increase if a team performs well whereas poor performance may diminish trust in one another's abilities.

The present study employed a quasi-experimental, time-series design. The between-groups independent variable was team type: homogeneous or interdisciplinary. The measured variables were intragroup trust, information sharing, and team performance. The study consisted of one three-hour experimental session in which participants worked in teams of four to complete a management simulation task. Participants completed three task cycles in the simulation. Performance feedback was provided after each cycle.

Hypotheses

Two sets of hypotheses were posed to address the study's two-fold purpose. The first set of hypotheses assessed the impact of team diversity on intragroup trust and performance. Team diversity can be considered an input variable that influences intragroup trust and performance. The similarity-trust dissimilarity-distrust paradigm suggests trustworthiness judgments will evoke biases resulting from heuristic processes employed when individuals initially encounter a team setting (Gill et al., 2005; Williams, 2001). The cognitive categorization process facilitates a more favorable view of in-group members than out-group members. Based on past findings, the following hypothesis was proposed:

H1: Interdisciplinary teams will report lower levels of intragroup trust than homogenous teams prior to receiving performance feedback.

Changes in interdisciplinary and homogenous team trust levels are likely when accounting for performance feedback loops. Although interdisciplinary team members may initially report lower levels of trust than their counterparts, the negative effects of diversity may diminish over performance feedback cycles. As performance-relevant information becomes available to team members, social categorization (employed as a heuristic in ambiguous situations) may no longer impair trust. The following hypotheses were proposed:

H2: Performance feedback will increase intragroup trust to a greater extent in interdisciplinary teams. There will be an interaction between team type and intragroup trust such that interdisciplinary teams will reach levels of trust comparable to those of homogeneous teams.

H3: There will be an interaction between intragroup trust and team diversity on performance such that interdisciplinary teams high on intragroup trust will outperform homogenous teams.

The second set of hypotheses examined the dynamic interrelationships between trust, information sharing, and performance across task cycles. Intragroup trust impacts intragroup processes and performance. Prior studies revealed significant relationships between trust and information sharing as well as trust and performance (Dirks & Ferrin, 2001). Additionally, information sharing is espoused as a team process that increases performance (Mesmer-Magnus & Dechurch, 2010). Based on past findings, the

following hypothesis was proposed regarding the interrelationships for each of the three task cycles:

H4: Information-sharing will mediate the relationship between intragroup trust and team performance.

Team task cycles do not occur in a vacuum; team outcome feedback serves as input for future episodes (Salas et al., 2009; Marks et al., 2001). Therefore, performance feedback will influence judgments of trustworthiness in the next cycle (Marks et al., 2001). Based on this notion, the following hypothesis was proposed regarding performance feedback influence:

H5: Performance feedback will impact intragroup trust such that teams who perform well will experience higher gains in trust than teams who under-perform.

Method

Participants

Participants were male and female students at Virginia Tech. Students were at least 18 years of age. All participants received three research credits and ten dollars in exchange for their participation in the three-hour lab session. An added incentive of \$100 cash prize was provided to the top two performing teams. The sample was restricted to students enrolled in Psychology courses as well as the Management Theory and Leadership Practice course (Management 3304). This allotted a more diverse sample of students, necessary for arranging interdisciplinary teams consisting of both male and female members. The sample consisted of 160 students representing 35 different declared majors. Students worked in teams of four for a total sample size of 40 teams. The sample was 50% female. Of the total sample, 73.8% ranged between the ages of 18 to 34 with a mean age of 19.97; 26.3% were unknown.

Independent Variable

Team type was manipulated based on participants' majors. Students' gender, race, major, and availability were collected prior to the session. This information was used to assign participants into interdisciplinary and homogenous teams. Findings from Holland and Holland's study (1977) on distributions of interests within fields of study were used to ensure diversity was achieved in assembling interdisciplinary teams. The Holland and Holland study compared the interests of students in six different fields of study: mathematics, biology, medical technology, management/business, sociology, and nursing. They found differences in interests corresponded to different majors. With the exception of sociology and nursing majors, students in these disciplines were empirically

shown to differ in interests. Based on these findings, interdisciplinary teams contained at least two majors from fields empirically shown to have different interests in efforts to maximize team diversity.

Each interdisciplinary team was assembled with a combination of at least two of the different majors specified in the Holland and Holland study (1977). In some instances, similar majors were substituted for the majors in Holland and Holland's study such as psychology for sociology and chemistry for biology. Most homogenous teams consisted of members with the same major. For example, these teams were comprised of all psychology majors, all management majors, and all accounting majors; however, in some instances homogeneous teams were comprised of finance and accounting majors.

To make diversity salient, each student wrote their major on their number tents. In addition, members were introduced to one another as similar or dissimilar based on academic interests. Research assistants highlighted members of homogeneous teams represented the same major and therefore had similar interests while reading Tinsel Town instructions; for interdisciplinary teams, the researcher highlighted members represented different majors and therefore had different interests (See Appendix A for Tinsel Town Instructions). To control for surface-level effects, all teams contained two male and two female members. Additionally, teams were comprised of either all white ($n = 30$) or all minority members ($n = 10$).

Team Task

Creators of Tinsel Town, Devine et al. described the team task as a "top management simulation involving distributed expertise" (2004, p. 94). An adapted version which evenly distributed unique information was employed for the present

endeavor. Participants in groups of four role-play a top management team of a movie studio. Although common information is available to the entire group, each member has access to unique role-specific information that will assist the group in achieving its goal (Devine et al., 2004). The common information was delivered as a general memo available to all members of the team while the role-specific information was delivered as an additional table consisting of a unique set of ratings. For example, screenplays and marketing information were common information; they were provided to all members of the team. The role-specific information included director ratings, script ratings, content appeal ratings, and star appeal ratings. Only one member of the team received the unique set of ratings. Each member received the same role-specific information for each of the three simulated years in the task; that is, Member #4 always received the director ratings. Together they selected which screenplays to produce at various marketing levels with the goal of maximizing the studio's profit over three simulated years. The task was selected because it was moderately challenging, engaging, and produced an objective performance score. Additionally, the distributed knowledge component made it ideal for studying and simulating teamwork. The adapted Tinsel Town Simulation Packet included role information packets for each participant, Screenplay Profile packets for three simulated years, Final Recommendations Sheets, Scoring Sheet and Revenue, and Profit Sheets (See Appendix B for the adapted version of the Complete Tinsel Town Simulation Packet).

Performance Feedback

Veridical performance feedback was delivered at the end of each cycle in the form of the Revenue and Profit Sheet. The Final Recommendation Sheet completed by

the team listed the screenplays the team decided to produce and the marketing level they selected for each screenplay. Research assistants used the Scoring Sheet to calculate the team's profit based on their selection of screenplays and marketing levels. The Revenue and Profit Sheet provided a dollar amount for total profit earned and a percentage score of maximum profit earned. The percentage score enabled participants to gauge their performance for each cycle by determining how much they earned out of the maximum possible profit. The Revenue and Profit Sheet also listed the total earned on each selected screenplay at the chosen marketing level as well as the total earned on each screenplay not produced at a default marketing level. This enabled participants to see how much the screenplays they chose earned compared to screenplays they did not choose.

In addition to the performance feedback, standardized process feedback was provided. The goal of the process feedback and allotted five-minute review period after receiving feedback was to reduce ambiguity around the task. The distributed expertise component of the task required team members to share their unique role-specific information in order for the team to be successful. The process feedback directed members to reflect on how the information they shared influenced the team's decision during the five minutes devoted to discussing feedback for each cycle. Before handing out the Revenue and Profit Sheet, research assistants read a script stating, "Examine the profit earned on the screenplays you selected as well as the screenplays you did not select. Think of what guided your choices to select certain movies and marketing levels over others. Base your discussion on the information in your packet and the results below."

Measures

Intragroup Trust (See Appendix C for survey). Mayer and Davis (1999) developed this survey to assess participants' trust in their team on the three facets of trust: Ability, Benevolence, and Integrity. The 17-item measure taps into the three factors by asking participants to rate their level of agreement with several statements about a group-level referent on a 5-point Likert scale. In the present study, survey items referred to the group-level referent as "my team" or "my teammates". Additionally, the scale was extended to a 7-point Likert scale to allow for greater variability in responses, one being "Strongly Agree" and seven being "Strongly Disagree".

Intercorrelations between the facets and composite trust revealed a lack of discriminant validity. Unable to distinguish the facets as three distinct constructs, a composite trust was calculated. Conceptualized as an emergent state, intragroup trust was measured as a shared construct. Individual ratings of trust were averaged across raters and aggregated for a group-level rating of intragroup trust. Intraclass Correlation Coefficients (*ICCs*) were calculated and supported aggregation of responses to the team level (Cycle 1: $ICC(1) = .14$, $F(39, 159) = 1.67$, $p < .05$; Cycle 2: $ICC(1) = .19$, $F(39, 159) = 1.94$, $p < .01$; Cycle 3: $ICC(1) = .21$, $F(39, 159) = 2.06$, $p < .01$).

Information Sharing (See Appendix D for survey). This measure is a three-item survey developed by Irmer (2002) as cited in (Grice, Gallois, Jones, Paulsen & Callan, 2006). The survey assessed the extent to which individuals share information with their team members in order to complete the team task. Participants rated their level of agreement on a 7-point Likert scale, one being "Strongly Agree" and seven being "Strongly Disagree". Information sharing was measured as a configural construct in the context of the Tinsel Town task, meaning team performance reflects the sum of

individual team members' contributions; therefore, consensus and agreement were not necessary (Klein & Kozlowski, 2000; Chan, 1998). Individual ratings of information sharing were averaged across raters and summed for a group-level rating of intragroup trust.

Information sharing was also coded (See Appendix E for coding sheets). Percentage of unique information was coded from video recordings to assess the extent to which team members' shared role-specific information with one another. Each team member received 11 unique pieces of information. This totals 44 unique pieces of information for the group in each performance cycle. Research assistants used checklists to code the amount of unique information revealed in each cycle. The amount of unique information revealed was divided by the total (i.e., 44) to obtain the team's percentage of unique information sharing. Coding was conducted by two research assistants. Coders were trained and demonstrated good inter-rater agreement after initial training ($K = .82$). Ongoing training was provided to maintain inter-rater agreement. The research assistants and author coded twenty percent of the videos twice for periodic reliability checks. Kappas are presented in Table 1.

Team Diversity. This measure was created as a manipulation check for the present study. The measure consisted of two items assessing individuals' perceptions of team diversity in reference to their majors. The items state, "Members of my team represent a very broad range of disciplines at Virginia Tech" and "Members of my team are very different in terms of our academic backgrounds at Virginia Tech." Participants rated their level of agreement on a 7-point Likert scale. Coefficient alpha for the 2-item scales was .79. T-test results showed interdisciplinary teams ($n = 26, M = 5.84$)

perceived more discipline diversity than homogeneous teams ($n = 14, M = 3.69$) indicating successful manipulation ($t(38) = 7.46, p = .001$).

All measures demonstrated excellent to acceptable reliability. See Table 1 for correlations, means, alphas, and agreement indices. Taking construct validity into consideration, the correlations between coded information sharing and the information sharing survey were examined. The two operationalizations of information sharing were significantly correlated in Cycles 1 and 3, but not in Cycle 2. These findings are not surprising given that prior research has shown self-assessment via surveys and behavioral measures commonly do not correspond (Dunning, Heath, & Suls, 2004). The lack of convergence may also be due to differences in operationalization. Coded data operationalized information sharing as the percentage of unique information shared while survey data did not necessarily exclude individual's information sharing to that of unique information.

Procedure

The study consisted of one experimental session lasting three hours. The session entailed completion of the three performance cycles of the team task. The session was video-recorded enabling research assistants to code for information sharing. Informed consent was obtained from all participants prior to collecting any data.

Upon arrival, participants were assembled in their assigned groups. The lab space was setup to include identification/number tents, writing pads and pencils for each team member. Participants wrote their majors on their identification/number tents. The researcher passed out instructions and folders to each member containing information packets and Screenplay Profile packets for Cycle 1. Research assistants read Tinsel

Town Instructions aloud while participants followed along. The instructions elaborated on what the consent form specified about the \$100 cash incentive to motivate participants' performance on the task. The performance scores obtained from the three cycles were averaged to calculate one total team performance score used to determine the top two performing teams. The cash prize was not mentioned again until debriefing.

After reading instructions, Cycle 1 of the team task began. Surveys were administered periodically. See Figure 1 for a timeline of survey administration. Participants had 15 minutes to independently review information. After independent review, participants had 20 minutes for group discussion. Following group discussion, the researcher provided the team with their Final Recommendation Sheet. The team had five minutes to make a unanimous decision. The research assistant then collected the Final Recommendation Sheet and used the Scoring Sheet to calculate the team's performance score. This performance score was recorded on the Revenue and Profit Sheet. While the researcher calculated the score, participants completed the Post-Task Measure: Intragroup Trust and Information Sharing. Once the measures and scoring were complete, research assistants presented the team with feedback via the Revenue and Profit Sheet. The team had five minutes to review and discuss performance feedback. This concluded Cycle 1.

Cycles 2 and 3 followed the same procedure as Cycle 1. Following Cycle 2, participants completed the Post-Task Measures: Intragroup Trust and Information Sharing. Because Cycle 3 is the last simulated year of the activity, participants completed the Final Measures: Intragroup Trust, Information Sharing, and Team Diversity. Afterwards, participants were debriefed on the activity and study. Step-by-

step instructions assisted the researcher and assistants in following the procedure (See Appendix F for Step-by-Step Instructions on Tinsel Town Administration). All data was compiled, coded, and analyzed using statistical software at the conclusion of data collection.

Experimental control was exercised throughout the study. Research assistants strictly adhered to the procedure, task instructions, and scripts to ensure all participants received the same treatment. Participants received the same instructions and surveys. Although the structure of the task requires team members to receive unique information, all teams were provided with the same information. To prevent any advantage of one team over another, researchers refrained from answering questions or providing any feedback that might provide insight on the task or performance. All participants were provided with ample time to complete all surveys.

Results

All analyses were conducted at the team level. Refer to Table 1 for descriptives and correlations of all study variables. Intercorrelations between trust and information sharing were positive and significant. Intercorrelations with performance were problematic, displaying non-significant relationships with trust and information sharing. Planned analyses proceeded despite the pattern of intercorrelations. Possible issues with operationalization of study variables as well as plausible alternatives are discussed in the discussion section.

The first set of hypotheses addressed the impact of team diversity on intragroup trust and performance. Hypotheses 1-3 were tested with Analyses of Variance (ANOVAs) and regressions.

Analysis of H1: Interdisciplinary teams will report lower levels of intragroup trust than homogenous teams prior to receiving performance feedback.

To test the similarity-trust dissimilarity-distrust paradigm, a one-way ANOVA was conducted for Team Type on pre-feedback trust ratings at Time 1. There was no significant effect for Team Type on initial trust suggesting interdisciplinary teams do not report less initial trust than homogeneous teams despite perceiving themselves as more diverse, $F(1, 38) = .10, p < .75$. Therefore, Hypothesis 1 was not supported. See Table 2 for all group means.

Analysis of H2: Performance feedback will increase intragroup trust to a greater extent in interdisciplinary teams. There will be an interaction between team type and intragroup trust such that, interdisciplinary teams will reach levels of trust comparable to those of homogeneous teams.

To test this hypothesis, a repeated-measures ANOVA was conducted entering Team Type as the between-groups factor and Trust at Times 1, 2, and 3 as the dependent variable; refer to Table 3. Mauchly's test revealed no violation of the sphericity assumption ($\chi^2(2) = .80, p = .67$). The repeated measures factor for trust demonstrated a significant main effect meaning trust increased in a positive linear fashion for all teams ($F(2, 76) = 199.42, p < .001, \eta^2 = .84$). There were no significant effects for Team Type or the Team Type X Trust interaction. Therefore, expectations were not supported. Although no group differences in trust in Cycles 2 and 3 were expected, predicted differences did not occur in Cycle 1. Interdisciplinary teams reported levels of trust comparable to interdisciplinary teams across all cycles. Interpretation of the overall trend revealed teams reported higher levels of trust across all performance cycles independent of team type. Figure 2 graphically represents these effects.

Analysis of H3: There will be an interaction between intragroup trust and team diversity on performance such that interdisciplinary teams high on intragroup trust will outperform homogenous teams.

This hypothesis was tested using hierarchical regression analysis; Refer to Table 4 for hierarchical regression results. All continuous variables were centered to guard against multicollinearity. The categorical variable, team type, was dummy coded. In Step 1, Trust in Cycles 1 and 2 in addition to Information Sharing in Cycles 1, 2, and 3 were entered as control variables. In Step 2, the main effects variables were entered; these included the dummy code for Team Type and Trust in Cycle 3. For Step 3, the interaction term was created and entered for Team Type X Trust in Cycle 3. None of the

predictor terms in the regression model were significant. Trust did not moderate the relationship between team diversity and performance. Hypothesis 3 was not supported.

The second set of hypotheses addressed the interrelationships between trust, information sharing and performance across the three task cycles. Structural equation modeling (SEM) was used to test Hypotheses 4 and 5. The proposed model, presented in Figure 3, depicts a model to test mediating relationships between trust, information sharing, and performance across all task cycles. Baron and Kenny's conditions for full mediation (1986) state a variable serves as a mediator when the predictor has a direct effect on mediator, the mediator has a direct effect on the criterion controlling for the predictor, and the predictor has a direct effect on the criterion controlling for the mediator. Based on these conditions, the model depicts trust will have a direct effect on both information sharing and performance as well as the direct effect of information sharing on performance across all cycles. Based on theory, the three performance cycles are linked with pathways wherein performance impacts subsequent levels of trust. Additionally, autoregressive paths for trust and information sharing are included. Consistent with the notion of team processes and emergent states, trust and information sharing should be related over task cycles (Webber, 2008).

Prelis 2.80 and Lisrel 8.80 were used to analyze the path model. Prior to testing the hypothesized structural model, the measurement model was estimated using both multiple and single indicators to represent the latent variables. Parcels were used to reduce the number of indicators for the 17-item trust measure. Additionally, measurement errors for corresponding repeated-measures parcels were correlated to capture method variance (Kline, 2005; Pitts, West & Tein, 1996). As suggested by Hu

and Bentler (1999), comparative fit index (CFI), incremental fit index (IFI), and root mean square error of approximation (RMSEA) were used in addition to Chi-square to evaluate the goodness of fit; the following criteria were used: non-significant χ^2 , $CFI > .95$, $IFI > .95$, and $RMSEA < .08$. Results for the measurement model indicated the model fit the reasonably data well: $\chi^2(138) = 171.32$, $p = .03$, $CFI = .96$, $IFI = .96$, $RMSEA = .07$ (See Figure 4 for the diagram and standardized factor loadings of the Measurement Model.)

Means, standard deviations, skewness, kurtosis, and multivariate normality of the team-level data were examined using Prelis. Using cutoff criteria of $|2|$, no assumptions of normality were violated. Maximum likelihood estimation was used and data were input to LISREL in the form of covariance matrices produced by the PRELIS 2.80S program. Based on the same criteria, the hypothesized model did not fit well: $\chi^2(21) = 26.32$, $p = .19$; $CFI = .97$; $IFI = .97$; $RMSEA = .08$. (See Figure 5 for the path diagram and standardized path coefficients of the Hypothesized Model.)

Guided by theory, modification indices were used to improve upon the model. Adding a single pathway linking Trust in Cycle 1 to Trust in Cycle 3 improved model fit. Consistent with theory and prior findings, initial trust can have lasting effects on subsequent team processes and outcomes (Peterson & Behfar, 2003; Webber, 2008). Using the same criteria, the modified model fit well: $\chi^2(20) = 21.05$, $p = .39$; $CFI = .99$; $IFI = .99$; $RMSEA = .04$. (See Figure 6 for the path diagram and standardized path coefficients of the Modified Model). The variance explained in each endogenous variable in the modified model was as follows: 82% in Trust 2, 85% in Trust 3, 14% in

Information Sharing 1, 38% in Information Sharing 2, 52% in Information Sharing 3 and less than 1% in Performance 1, Performance 2, and Performance 3.

Analysis of H4: Information-sharing will mediate the relationship between intragroup trust and team performance.

The final SEM path model was used to test this hypothesis across all three task cycles; refer to Figure 6 for the standardized path coefficients. To test both the direct and indirect effect of trust on performance, the paths depicting full mediation in each task cycle were examined: Trust to Information Sharing, Information Sharing to Performance, and Trust to Performance.

Results displayed the same pattern across all task cycles. The path from Trust to Information Sharing was significant. Trust positively impacts information sharing in Cycles 1, 2, and 3. Mediation, however, was not supported. The other two paths failed to reach significance. Neither trust nor information sharing displayed a significant direct effect on performance in Cycles 1, 2, and 3. Therefore, Hypothesis 4 was not supported across task cycles.

Analysis of H5: Performance feedback will impact intragroup trust such that teams who perform well will experience higher gains in trust than teams who under-perform.

The final SEM path model was also used to test this hypothesis; refer to Figure 6 for standardized path coefficients. To test the impact of performance feedback on subsequent levels of trust, the paths depicting a feedback loop linking Cycles 1 to 2 and Cycles 2 to 3 were examined: Performance in Cycle 1 to Trust in Cycle 2 and Performance in Cycle 2 to Trust in Cycle 3. The path linking Cycle 1 to 2 was

significantly positive suggesting prior performance influenced team members' future judgments of trust; trust increased for teams who performed well and decreased for teams who under-performed. This provided support for the role of feedback loops in the development of trust. However, the path linking Cycle 2 to 3 failed to reach significance. Therefore, Hypothesis 5 was partially supported.

Discussion

Although the study provides some novel findings, it generates more inquiries for future research than answers. The impact of diversity is discussed in the context of the Tinsel Town task. Additionally, considerations for operationalizations of information sharing and team performance are discussed in light of the findings.

Diverse teams were expected to trust less at the onset of teamwork but reach levels of trust comparable to those of homogeneous teams over task cycles; however, interdisciplinary teams did not report lower trust at any point despite perceiving themselves as more diverse. Therefore, there was no evidence to support the similarity-trust dissimilarity-distrust paradigm. In light of the study's sample and task, perhaps students in interdisciplinary teams perceived each other as different, however, did not see differences as a detriment in respect to how their group functioned, particularly in a social aspect. In other words, major was not salient in the context of the task.

One might argue the results are more aligned with the notions explicated in William's model of intragroup trust for dissimilar members (2001). Cognitions or affect for dissimilar members may not necessarily be negative; they could be positive or neutral. Therefore, difference doesn't equate distrust. For example, in the context of the study, a sociology major may have been happy with the prospect of working with a math major as the Tinsel Town task required some grappling with algorithms. In this case, the difference could potentially activate positive cognitions or affect rather than negative. Further research is needed to support this alternative, as the present study does not afford testing these assertions.

Additionally, interdisciplinary teams with high levels of trust were expected to outperform all other teams. High-trust interdisciplinary teams would be teams that had the advantage of information processing coupled with supportive intragroup conditions. However, these speculations were not supported. Trust did not act as a moderator in the relationship between diversity and performance. Interdisciplinary teams did not significantly outperform homogeneous teams regardless of trust. This may also be attributed to the issue concerning saliency of major to the task. Students in interdisciplinary teams may not have perceived their majors as strategically diverse in the context of Tinsel Town.

The study provides insight on trust as an emergent state. The interrelationships between trust, information sharing, and performance were examined in a mediation framework. Although results did not support mediation, a positive relationship between trust and information sharing was detected across all task cycles. Consistent with past findings, teams who trust more shared more information. One of the study's most interesting findings regards the impact of performance feedback on trust.

Prior studies have shown trust and other processes impact performance; few examine the reverse. Results showed performance feedback influenced trust in the second task cycle. While an overall positive trend in trust was detected across all cycles, performance contributed to the trajectory, with teams who performed well experiencing greater gains in trust. Thus, better performance instilled greater confidence in members' abilities and motives. The author, however, acknowledges causal inference here is weak. Trust was not measured immediately after administering performance feedback so the effect on subsequent trust may also be attributed to prior information sharing.

Predictions regarding the positive impact of trust on performance were not supported. Further, some correlations between trust and performance were negative, although not significant. This may be attributed to the use of a single-item measure of objective performance. Objective performance measures are regarded for being less contaminated with bias and non-performance related content over subjective performance scores. On the downside, objective performance is noted for deficiency in representing the full domain of team performance in comparison to subjective performance measures (Mesmer-Magnus & DeChurch, 2009). Therefore, the objective performance score may have been deficient in capturing the aspects of team performance expected to correlate with trust, especially considering the benevolence and integrity components. Therefore, the ability facet may be viewed as most relevant to the task and outcome feedback employed in the study. Further, more information may be gained concerning diversity's impact on intragroup trust by looking more closely into specific items of the ability component. For example, items such as "My team has specialized capabilities that can increase our performance" appear to link with diversity more so than items such as "My team is very capable of performing its job."

A similar pattern was found for the relationship between information sharing and performance. Correlations were not significant in all cases and even negative in some cases. Descriptive data showed teams performed better overall across task cycles; performance means increase while standard deviations decrease. The nature of the Tinsel Town task requires team members share unique information to perform well. While the task design and operationalization of information sharing focused on quantity of unique information shared, findings suggest quality of unique information shared is more relevant

to performance. Therefore, information sharing coded as percentage of unique information shared and assessed by aggregation of survey data does not explain performance because not all information is created equal. Operationalizations that account for the value of unique information as it relates to team decisions may better capture information sharing.

The purpose of the present endeavor was to gain a fuller and more realistic representation of intragroup trust as an emergent state. The study's time-series design contributed findings novel in both the team and trust literature. It essentially simulated the series of performance episodes proposed in Marks et al.'s conceptualizations of temporally based framework of team processes (2001). Additionally, the use of the Tinsel Town task and a team performance bonus added realism and invested interest for participants beyond the hypothetical paper scenarios employed in prior studies.

Limitations

Findings must also be considered in light of the study's limitations. The present research endeavor was an experiment with limited sample size and scope in terms of the team task. Although the lab setting affords more experimental control and manipulation, it limits the generalizability to real-world settings. In applied settings, interdisciplinary teams are strategically assembled so diverse expertise facilitates solving some multifaceted problem. The Tinsel Town task is considered more complex and integrative than typical tasks employed in experimental studies (e.g. desert survival tasks); however, it may not be enough to elicit the evidenced advantages of interdisciplinarity. Non-significant interactions on trust and performance may be attributed to these limitations.

An additional limitation concerns the design's lack of control groups. This relates to another one of the study's weaknesses: sample size. The nature of the study required the availability of four participants and a 3-hour commitment from each participant in order to run an experimental session. This posed difficulties with recruitment and scheduling. In addition, resources for monetary compensation as well as research assistance were considered. Nonetheless, the author acknowledges having homogenous and interdisciplinary teams who received no performance feedback would have strengthened the design. This would afford testing the degree to which performance feedback influenced members' trust over and above social interaction or increasing familiarity with one another as the task progressed. When designing the study, the desire for understanding how interdisciplinarity versus homogeneity impacts team processes outweighed the desire for assessing the impacts of performance feedback versus non-performance feedback on team processes.

Another limitation concerns the sequence of measurement. The mediation framework assumes temporal precedence. Because the predictor is causally antecedent to the mediator, measurement of the predictor should precede measurement of the mediator (Baron & Kenny, 1976). The timing of measurement in the study, however, may not adequately capture mediation effects. Trust and information sharing surveys were administered at the same time. Coded information sharing preceded survey assessments of trust in each cycle.

A final limitation is the lack of explicit measurement of underlying cognitive or affective units inferred to influence trustworthiness perceptions (Mischel, 2009). In other words, the bases of trust, as Levin et al. (2006) puts it, were not measured over the course

of teamwork. While the successful manipulation of diversity affords testing the impacts of diversity on trust, adding such measures would more directly address inferences of social categorization.

Implications & Future Directions

Despite the study's limitations, the study provides insight on the trajectory of intragroup trust in both interdisciplinary and homogenous teams given there are few studies examining the impact of feedback loops on such team phenomena. As organizations become more horizontal in structure, understanding how to capitalize on collectivism is imperative. The study shows trust can facilitate increased information sharing, a critical team process. Further, findings suggest quality of information sharing be considered above quantity of information sharing in examining its relationship to team performance. Although quantity of information shared was linked to trust, there was no link with performance.

Many researchers have suggested practitioners invest in teambuilding exercises to increase trust. Based on the study's results, trust may be increased as a means of performance feedback and possibly familiarity or interaction over the course of teamwork. Given this finding, a practical and less costly alternative is to provide team members with performance-relevant information on which they can assess members' contributions. One matter for consideration is the possibility that team performance is poor; in this case, other interventions may be necessary to prevent members from doubting one another's abilities and trusting less.

Further research is needed on intragroup trust to provide more practical advice. To be more assured in the inferences made about the performance-to-trust link, more

studies are needed that examine the influence of performance feedback on trustworthiness perceptions. Additionally, studies that explicitly measure cognitive and affective units as the bases of trust would possibly advance our understanding of how social group membership impacts trust beyond that proposed by the similarity-trust dissimilarity-distrust paradigm.

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Table 1

Descriptives, Intercorrelations, Alphas and Kappas for Intragroup Trust, Information Sharing, & Performance
(N=40)

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Trust 1	5.35	.44	(.92)											
2. Trust 2	5.66	.48	.90**	(.93)										
3. Trust 3	5.89	.46	.88**	.91**	(.94)									
4. Info-Sharing 1 (Survey)	25.22	1.45	.38*	.32*	.31	(.86)								
5. Info-Sharing 2 (Survey)	25.53	1.71	.44**	.45**	.48**	.54**	(.87)							
6. Info-Sharing 3 (Survey)	26.21	1.21	.55**	.48**	.63**	.57**	.63**	(.89)						
7. Info-Sharing 1 (Coded)	59.22	20.03	.42**	.36**	.07	.48**	.39*	.32	(.80)					
8. Info-Sharing 2 (Coded)	67.02	18.88	.11	.16	.18	.21	.26	.34*	.34*	(.90)				
9. Info-Sharing 3 (Coded)	55.98	25.85	.07	.18	.14	.13	.42**	.34*	.37*	.67**	(.83)			
10. Performance/Feedback1	72.24	15.47	-.10	.06	.01	-.26	-.27	-.20	.04	.15	.01	—		
11. Performance/Feedback2	80.27	13.73	.09	.02	.16	.05	.17	.22	.09	-.14	.16	-.24	—	
12. Performance/Feedback3	89.38	9.56	-.19	-.15	.27	-.11	-.07	.04	.11	.21	.27	.13	.18	—

Note. Values in parentheses indicate the reliability score for the scale. * $p < .05$. ** $p < .01$. Alphas are presented for Trust and Info-Sharing (Survey) variables. Kappas are presented for Info-Sharing (Coded) variables. Kappas are based on varied sample sizes: $N_1=23$, $N_2=24$, $N_3=25$.

Table 2
Group Means for Intragroup Trust, Information Sharing, & Performance

Cycles	Group	
	Interdisciplinary	Homogeneous
	Trust	
1	5.34 (.43)	5.31 (.42)
2	5.71 (.44)	5.53 (.49)
3	5.90 (.41)	5.82 (.51)
<i>n</i> =	27	13
	Information Sharing (Survey)	
1	25.42 (1.43)	24.79 (1.45)
2	25.67 (1.85)	25.26 (1.40)
3	26.35 (1.29)	25.92 (1.00)
<i>n</i> =	27	13
	Information Sharing (Coded)	
1	56.92 (17.52)	59.10 (23.07)
2	70.20 (20.36)	59.86 (13.06)
3	58.52 (27.20)	46.02 (19.55)
<i>n</i> =	25-27	11-13
	Performance Feedback (Percentage)	
1	73.26 (16.35)	69.97 (15.30)
2	79.74 (14.45)	81.40 (12.28)
3	89.84 (9.45)	89.27 (9.81)
<i>n</i> =	27	13

Table 3

Repeated Measures ANOVA for Intragroup Trust as a Function of Team Type
(N=40)

Source	<i>df</i>	<i>F</i>	η^2	<i>p</i>
Within-Subjects				
Trust	2	113.98**	.75	.000
Trust X Team Type	2	2.10	.05	.13
Error	76			
Between Subjects				
Team Type	1	.59	.02	.45
Error	38			

Note. * $p < .05$. ** $p < .01$.

Table 4

Hierarchical Regression Analysis for Team Type by Trust Interaction on Cycle 3 Performance (N=40)

Variable	Step 1	Step 2	Step 3
Step 1: Control Variables			
Trust 1	-.41	-.38	-.33
Trust 2	.15	.33	.32
Information Sharing 1	-.15	-.17	-.18
Information Sharing 2	-.08	-.09	-.08
Information Sharing 3	.33	.41	.44
Step 2: Main Effects Variables			
Team Type		.03	.04
Trust 3		-.25	-.41
Step 3: Moderated Model			
Team Type X Trust 3			.16
Total $R^2=$.09	.10	.11
$\Delta R^2=$.01	.01
$F=$.68	.49	.86

Note. Team Type was dummy coded. Standardized regression coefficients are reported.

CYCLE 1	<i>Time 1: Pre-Feedback</i>
	Post-Task Measures: Trust & Information Sharing *Objective Performance Score obtained from Cycle 1
CYCLE 2	<i>Time 2: Performance Feedback 1</i>
	Post-Task Measures: Trust & Information Sharing *Objective Performance Score obtained from Cycle 2
CYCLE 3	<i>Time 3: Performance Feedback 2</i>
	Final Measures: Trust, Information Sharing, & Diversity *Objective Performance Score obtained from Cycle 3

Figure 1. Timeline of Survey Administration

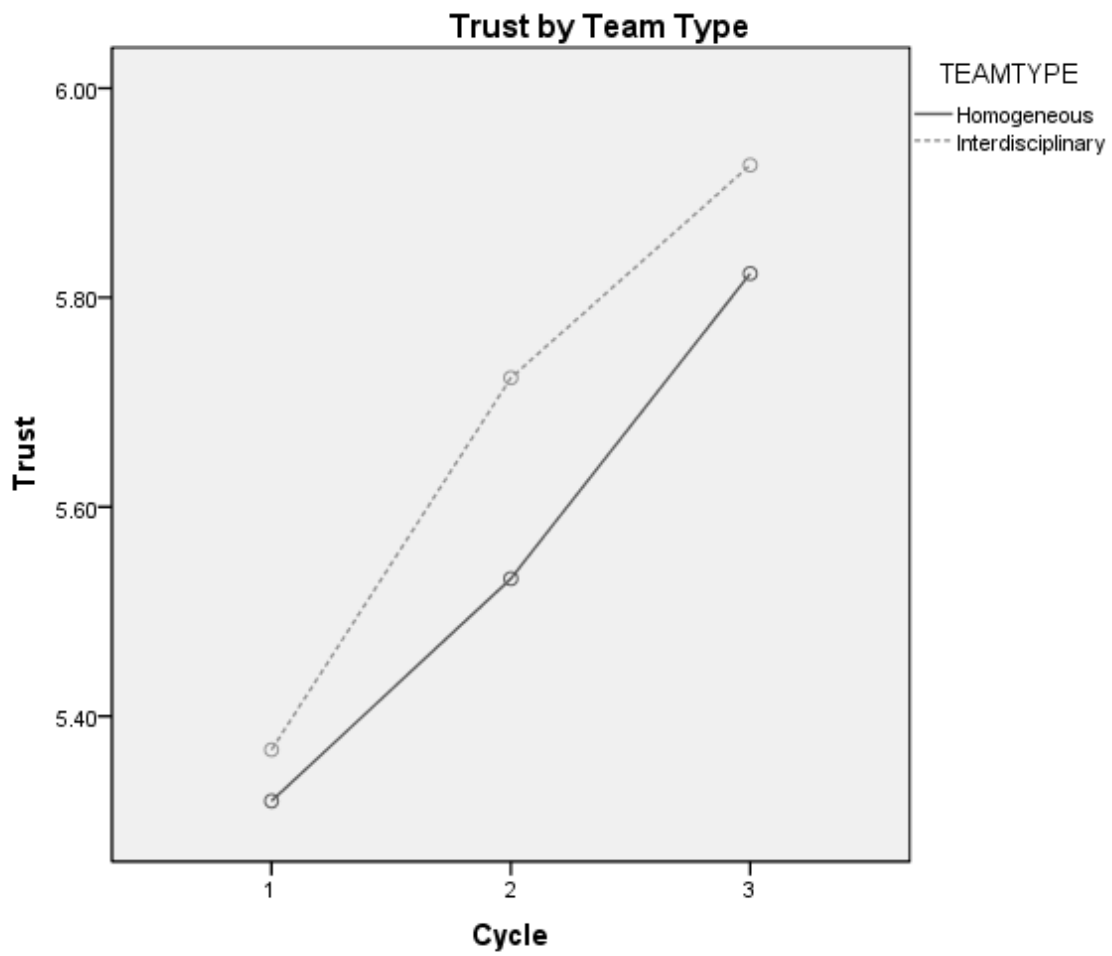


Figure 2. Graph for Repeated Measures ANOVA on Intragroup Trust as a Function of Team Type

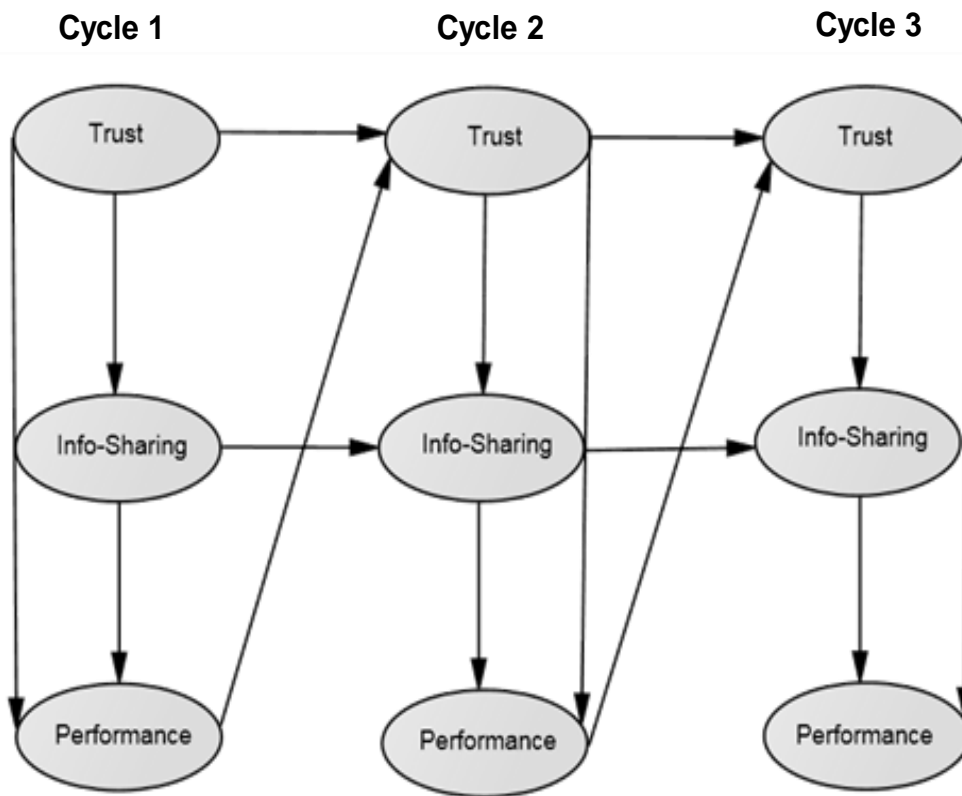


Figure 3. Hypothesized Model for Relationships between Trust, Information Sharing, and Performance.

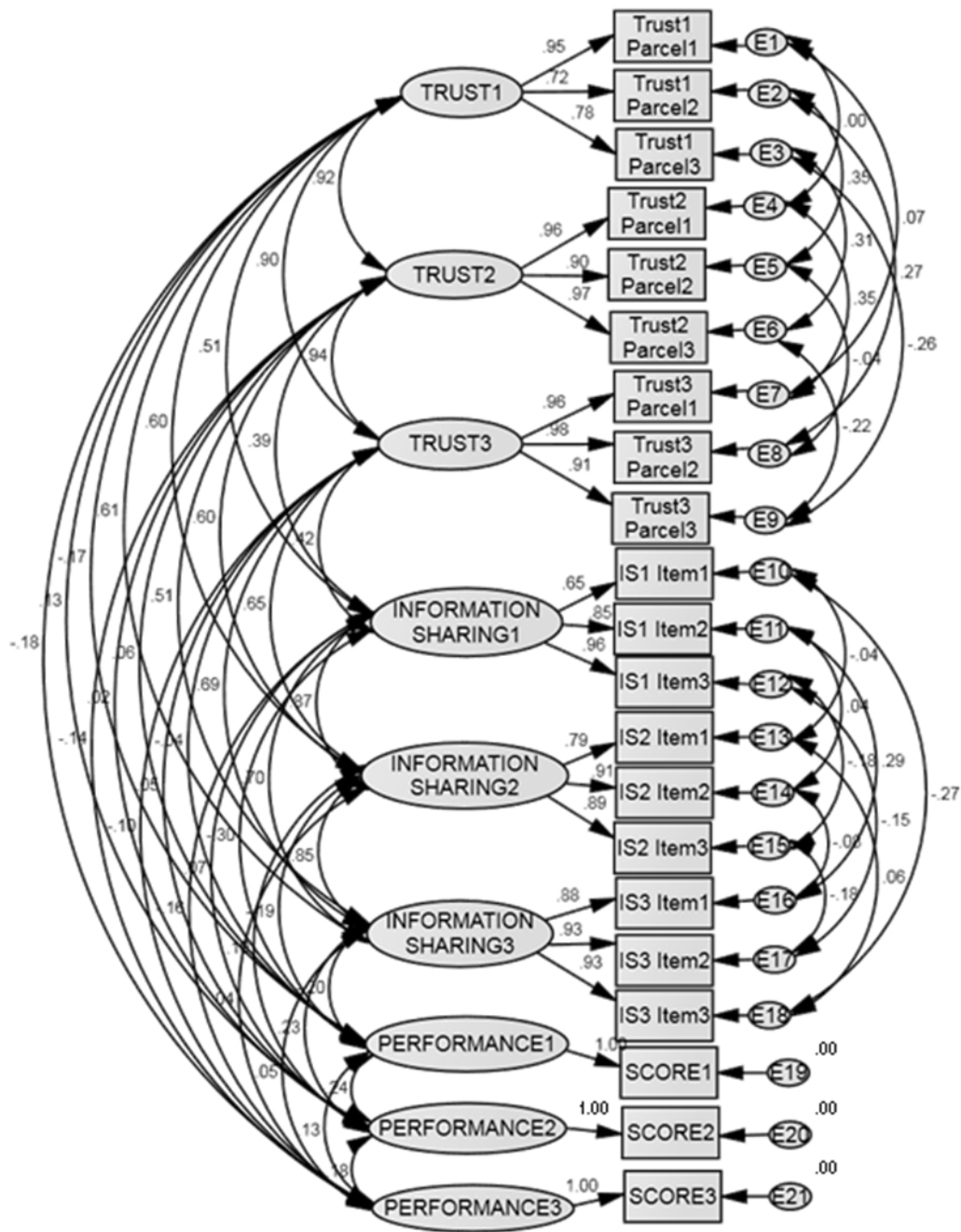


Figure 4. Measurement Model for Trust, Information Sharing, and Performance. $\chi^2(138)=171.32, p=.03, CFI=.96, IFI=.96, RMSEA=.07$.

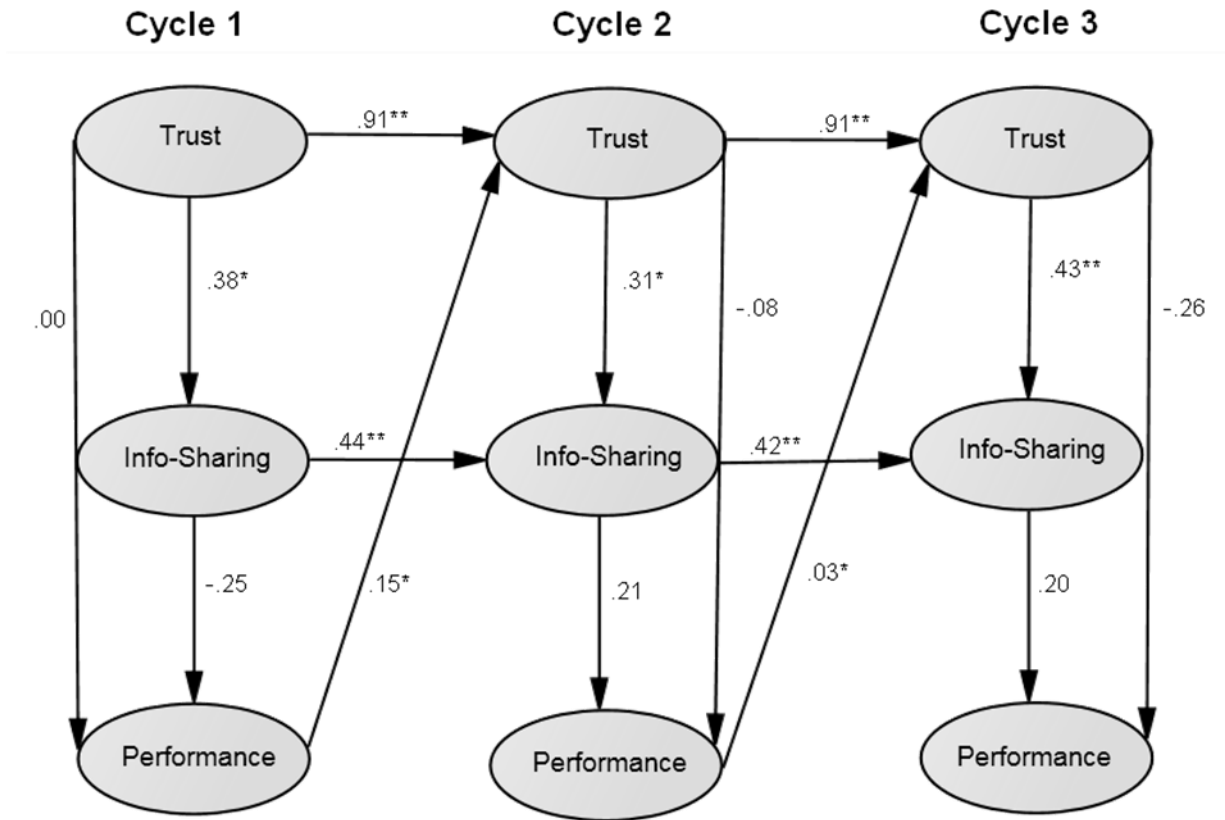


Figure 5. Path Model for Relationships between Trust, Information Sharing, and Performance. $\chi^2 (21) = 26.32, p = .19; CFI = .97; IFI = .97; RMSEA = .081$

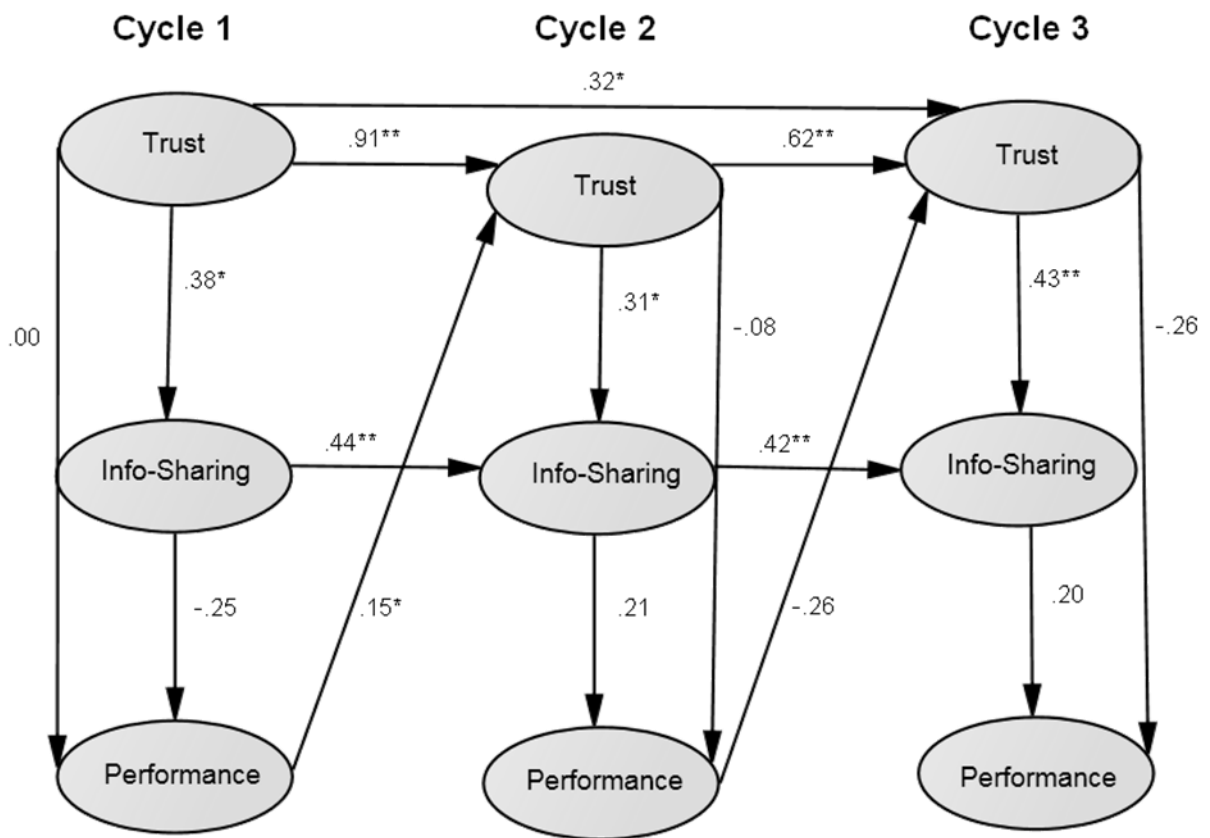


Figure 6. Modified Path Model for Relationships between Trust, Information Sharing, and Performance. $\chi^2 (20) = 21.05, p = .39; CFI = .99; IFI = .99; RMSEA = .04$

Appendix A

Tinsel Town Instructions

As a team, you will complete the Tinsel Town top management simulation in which participants play the role of a Vice President in a fictional Hollywood movie studio. The four Vice President positions consist of: VP Marketing, VP Industry Research, VP Talent Appraisal, and VP Script Evaluation.

Your task is to decide which movies to produce across three simulated business years. Your overall goal is to achieve the highest possible profit across these three years. Each of you has received a folder containing a general memo from the CEO that provides information about how to determine the movies with the best profit potential and summaries of 11 screenplays that you can choose to purchase and turn into a movie. In addition, you each have received some information specific to your individual role. Your team should use this information to make decisions about what movies to produce and how much to spend marketing each one. You may draw on personal knowledge and experience to fill in the gaps.

Notice that your team was formed based on your majors. You all have different majors and therefore very different academic interests.

OR

Notice that your team was based on your majors. You are all _____ majors and therefore have similar academic interests.

In the event that personal opinion conflicts with the information provided by the simulation, you should defer to the simulation.

Each simulated year will begin with a period of 15 minutes where each team member will have the opportunity to silently and individually review the information at their disposal. No discussion or interaction is permitted during this time. You may take notes on the scratch paper provided, but do not share this information with other participants. After the 15-minute individual review period, I will return to begin the discussion period.

You will then have 20 minutes to discuss the task and reach agreement concerning which movies to produce and how much money to spend on marketing them. You must all be in agreement regarding your choices, and each person will indicate their agreement by signing the form where your collective recommendations are made. After the group discussion, you will be asked to complete a survey.

You will then record your agreed-on recommendations on the provided form marked Final Recommendations by placing a check in the box next to a movie and circling a marketing amount (0, 5, 10, or 20 million dollars) to the right. The total cost of a movie is its production cost plus its marketing cost; sum these two values for each

movie and indicate the total in corresponding space. You may choose as many movies as you would like, subject to the constraint that you cannot spend more than 150 million dollars in any decision period. Therefore, the total at the bottom right of the Final Recommendations Sheet must be less than or equal to 150 million dollars.

At the end of each simulated year, I will collect your Final Recommendation sheet, calculate the total profit you generated, and provide performance feedback to your team. During this period, you will be directed to complete surveys. The scored Final Recommendation Sheet will show you the revenue and profit for the movies you selected as well as the revenue and profit of the movies you did not select. At the bottom of this sheet you will see your total profit and the percentage of the maximum profit that your team achieved. After you have had a brief chance to review this performance feedback, I will distribute the information for the second decision period, and we will complete the process again.

Are there any questions?

Appendix B

**TINSEL TOWN:
COMPLETE SIMULATION MATERIALS**

February 2006

Simulation Algorithms

(1) **Movie Profit** (in millions) = Movie Revenue – Movie Cost

.....

(2) **Movie Cost** (in millions) = Production Cost + Marketing Cost

(3) **Movie Revenue** (in millions) = Average Ticket Price * #Viewers

.....

(4) **#Viewers** (in millions) = Viewer Appeal* Movie Quality*MPAA Rating

.....

(5) **Viewer Appeal** = (Content Appeal + Star Appeal)*Marketing Level

(6) **Movie Quality**^a = Script Quality*Director Skill*Acting Quality^b

For a movie with 2 Lead Roles:

(6a) **Acting Quality** = (LR Acting Skill₁ * LR Acting Skill₂)^{.5}

For a movie with 3+ Lead Roles:

(6b) **Acting Quality** = $\Sigma(\text{LR Acting Skill})/\# \text{ Lead Roles}$

^aMovie Quality for Animated Films = Script Quality*Script Quality*Director Skill

^bThe Acting Skill of Supporting Actors is ALWAYS ignored for the purposes of calculating Acting Quality.

MEMO

To: The Executive Team
From: Stan Friedman, CEO

RE: Choosing films for production next year

Thanks for agreeing to meet on such short notice. As usual, the task in front of you is one of picking the movies that we will produce and release in the upcoming year. The fiscal solvency of our studio is riding on the decisions you make. Pick the best movies and we (as well as our stockholders) will be swimming in profit; pick the wrong ones and we may go belly up.

As you all know, profit from the movies we make is determined by taking the revenue earned by each film and subtracting its cost:

$$\text{Movie Profit} = \text{Movie Revenue} - \text{Movie Cost}$$

Movie cost is estimated by adding the production cost (which is fixed) to the marketing cost (which is under our control):

$$\text{Movie Cost} = \text{Production Cost} + \text{Marketing Cost}$$

Movie revenue is estimated by multiplying the number of viewers by the average ticket price for a particular film:

$$\text{Movie Revenue} = \# \text{ of Viewers} * \text{Average Ticket Price}$$

As you are well aware, the number of viewers for any given film depends on five main factors: (1) Viewer Appeal, (2) Movie Quality, (3) Marketing, (4) MPAA rating, and (5) Average Ticket Price. *Viewer Appeal* is basically a function of popular interest in the film's content (i.e., setting, plot, special effects), as well as the popularity of the talent involved (i.e., director and actors/actresses). *Movie quality* is a function of the script quality, director's skill, and actor/actress' skill. All of these things interact with one another, and each one is important. If a movie has a good script and good actors/actresses but a terrible director, the movie will not be very good. Similarly, if a movie has a good director and good stars but a poor script, it will also be bad. It probably goes without saying that a movie that is poor in all three categories will just plain stink. *Marketing* obviously increases public awareness of our movie, and the *MPAA rating* constrains the size of our audience base. The *average ticket price* reflects the age of the average viewer and, to a certain extent, the time of day that the typical viewer goes to see the movie. Movies with the highest average ticket prices draw mostly adults who go to see the movie in the evening; movies with lower average ticket prices attract younger viewers and

people who go when matinee prices are in effect. ***The point here is that all five factors must be considered when estimating how much revenue a film will bring in.***

Our spending allowance for this year is \$150 million. It's hard to tell from a brief summary how much a film is going to cost because it depends on many factors, including star salaries, shooting location and duration, and special effects. However, our screenplay reviewers are pretty good and the estimates they provide should be very close.

I would like you to examine the information at your disposal and figure out how to spend our \$150 million to maximize total profit for the year. As usual, I don't care if you spend the \$150 million on one blockbuster or divvy it up over 10 little art-house projects – just figure out the ones that will bring in the most profit. While a film's total revenue is important, keep in mind that it's return on investment that is critical. *In other words, the most important value to estimate is a potential film's profit divided by its cost (i.e., profit/cost, or profit ratio). Profit ratio reflects the number of dollars of profit we get for every dollar we spend.* A good film will end up making about twice as much as it cost (including marketing), and a great film may end up making three to four times as much.

And don't bother trying to save any money – it's there to be spent, so use as much as you can.

I know that picking movies isn't an easy task, but do the best you can. Our staff has provided you with a good deal of useful information, and I think our screening team has identified a good set of potential choices for you. Feel free to use your personal experiences and gut feelings, but let the hard numbers provided by our research team have the final say. I look forward to seeing your recommendations on my desk next week. Good luck!

Table 1.

Marketing Strategy Information.

Strategy	Cost (in millions)	Impact on Viewer Appeal
Word-of-Mouth	\$0	+0%
Print + Outdoor	\$5	+30%
Pre-Release TV	\$10	+55%
Saturation TV	\$20	+75%

As shown in Table 1, there are four feasible marketing strategies we can employ, each with a given cost and impact. Note that, as our marketing strategy gets more sophisticated, the costs and the positive change in viewers go up. Basically, the more expensive the strategy, the more effective it is. It is important to note, however, that marketing is most effective when there is a movie with high Viewer Appeal – marketing doesn’t help much if the content of the film isn’t all that intriguing or if there are no big-name stars. If we’re going to produce any “small” high-quality films, it’s probably better to just rely on word-of-mouth to spread the news. Overall, a good strategy is to spend money marketing a movie in proportion to its cost – cheap ones we can get away with little or no marketing; expensive ones can benefit from saturation TV marketing.

Table 2.

Impact of MPAA Movie Rating on Size of Potential Viewer Base.

Rating	Projected Impact
G	0%
PG	-10%
PG-13	-15%
R	-25%
NC-17	-40%

As you can see, “R” or “NC-17” movies take a big hit in that a good proportion of people who go to see movies are excluded from the start. Even if those movies are good, we won’t get as many people coming to see them simply because the potential viewer base is smaller! Obviously, “G” films give us the largest possible base, so we should keep an eye out for any of those.

Table 3. Acting Skill Ratings for Lead Actors (0-5 Stars).

Actor/Actress	Skill	Actor/Actress	Skill	Actor/Actress	Skill
Ben Affleck	3 ½	Josh Hartnett	3	Freddie Prinze, Jr.	3
Jessica Alba	3 ½	Ethan Hawke	3 ½	Dennis Quaid	3 ½
Kevin Bacon	4	Katie Holmes	3	Daniel Radcliffe	3 ½
Alec Baldwin	4 ½	Jeremy Irons	4 ½	Len Randall	4 ½
Tom Berenger	4	Samuel L. Jackson	4	Christina Ricci	5
Halle Berry	3 ½	Angelina Jolie	3	Denise Richards	2
Sandra Bullock	2 ½	Ashley Judd	4	Chris Rock	3
Steve Buscemi	4	Nastassia Kinski	4 ½	Keri Russell	3 ½
Nicholas Cage	3 ½	Eriq La Salle	3 ½	Kurt Russell	4
Hayden Christensen	3	Jude Law	4 ½	Elisabeth Shue	4
Jennifer Connelly	4 ½	Heath Ledger	3 ½	Gary Sinise	4 ½
Russell Crowe	5	Donal Logue	4	Tom Skelton	4 ½
Emily Cryton	5	Jennifer Lopez	3	Kevin Spacey	5
Matt Damon	4 ½	John Malkovich	4 ½	DeWayne Stevens	4
Keith David	4	Julianna Margulies	4	Sharon Stone	3
Daniel Day-Lewis	4 ½	James Marsden	3 ½	Madeline Stowe	4 ½
Vin Diesel	3 ½	Dylan McDermott	3	Kiefer Sutherland	3
Richard Dreyfuss	4	Rose McGowan	3 ½	Mena Suvari	3 ½
Eliza Dushku	4	Tobey McQuire	4 ½	Uma Thurman	4
Charles Dutton	3 ½	Teri Miller	4 ½	Amber Valletta	4 ½
Dakota Fanning	4 ½	Bill Murray	5	Mark Wahlberg	4
Will Ferrell	4	Liam Neeson	4 ½	Denzel Washington	5
Linda Fiorentino	4	Ronda Nelson	4	Damon Wayans	3
James Franco	3 ½	Edward Norton	5	Sigourney Weaver	5
Morgan Freeman	5	Chris O'Donnell	2 ½	Elijah Wood	4 ½
John Goodman	4	Haley Joel Osment	4	Michelle Yeoh	3 ½
Gene Hackman	5	Jason Owens	5	Catherine Zeta-Jones	3 ½
Tom Hanks	5	Anna Paquin	4 ½		
Ed Harris	4 ½	Natalie Portman	4 ½		

In Table 3, you will find Skill Ratings for Actors and Actresses. Basically, we surveyed a panel of movie critics and asked them to rate a list of actors and actresses for their professional skill. Skill consists of raw acting talent, intensity, emotional expressiveness, and range.

Acting Skill is primarily a function of an actor/actresses' ability to credibly display a range of emotions. Some actors/actresses are very good in limited roles, but the truly great ones can yearn, pine, lust, cry and rage with amazing ability. Actors and actresses are rated on a 5-point scale, with 1 indicating an actor/actress who would be challenged to do well on a soap opera and 5 indicating an actor/actress that can do any role with convincing authority.

With regard to how the Acting Skill of the various actors/actresses affects the overall Acting Quality of the movie, here is what our research seems to suggest:

- (1) The Acting Skill of supporting actors can pretty much be ignored – these people are usually not on screen long enough for their flaws to do much damage.
- (2) Acting Quality can be estimated by averaging the Acting Skill ratings for the Lead Roles. When there are only two lead roles, however, it's actually a little less than average if there is a large discrepancy in the Acting Skill values of the leads. In other words, the lesser actor weighs the film down.

Unique Information for Member #1

Table 4. Focus Group Research on Content Appeal of Potential Movies.

Movie Title	Content Appeal
Rikki-Tikki-Tavi	200.00
Light Years	185.00
Chosin Reservoir	150.00
Degeneration	130.00
Renegade	130.00
Rio	110.00
Sex Ed	80.00
Southern Accents	75.00
Fast Food	70.00
A Lifetime of Anger	65.00
On Campus	50.00

Table 4. Focus Group Research on Content Appeal of Potential Movies.

Movie Title	Content Appeal
The Reactor	190.00
We, The People	180.00
Oil & Water	170.00
Air Cav	160.00
Welcome to My Room	150.00
Line of Duty	140.00
Extrapolation	115.00
The Devil Made Me Do It	115.00
The Wolf's Lair	100.00
Hoover	95.00
A Good Day to Die	60.00

Table 4. Focus Group Research on Content Appeal of Potential Movies.

Movie Title	Content Appeal
The Colony	195.00
My Lai	180.00
Hybreed	110.00
1-900	110.00
Murder.com	100.00
Scranton	100.00
The Winner	95.00
Hearts & Minds	95.00
Malled	85.00
The Caddy	80.00
The Shysters	75.00

In Table 4, you will find the market research that you requested on potential movies for next year. We pulled together 10 focus groups as usual to get this data. Each focus group was led by someone on our staff and involved a roundtable discussion of the movie's premise, plus formal ratings of content by each member of the focus group. We gave the focus groups the same movie capsules that your committee is using to make your decisions. See Table 4 for a summary of the findings from the focus group research.

Table 4 contains estimates of a film's appeal based on its *content*. We asked people in the focus group to discuss (and rate) Content Appeal. **Content Appeal** concerns a movie's premise, plot, character development, and special effects; the film's genre and emergent themes play a role as well. Industry research suggests that stars are roughly half as important as movie content in determining who goes to see a movie, so we scaled Content Appeal values from 0-200. Basically, a Content Appeal score of 200 means that the movie should have a very broad demographic appeal and the focus group participants were dying to see the screenplay get turned into a movie. In contrast, a Content Appeal score of 0 means that no one was interested in seeing the movie get made based solely on its subject matter.

Films with unusual situations tend to have more appeal to viewers. In particular, action/adventure, war, science-fiction, and suspense films tend to interest people more than dramas or comedies. Animated films almost always do well with families and often become blockbusters – they have a built-in audience if based on a book or story familiar to the audience. Horror movies do well with males (especially younger ones) and some pull in women as well. Comedies do well if the situation is right and the casting is good. Dramas are the most variable; they tend to draw discriminating viewers from all groups, but usually have much lower content appeal because their situations are more ordinary. More importantly, movies with lots of special effects are very attractive regardless of their genre – in part because of extensive repeat viewing.

To summarize, the Content Appeal values quantify the appeal of a film based on its subject matter, respectively. **Content Appeal contributes to Movie Quality.**

Unique Information for Member #2

Table 4. Focus Group Research on Star Appeal of Potential Movies.

Movie Title	Star Appeal
Rikki-Tikki-Tavi	75.00
Light Years	30.00
Chosin Reservoir	50.00
Degeneration	55.00
Renegade	80.00
Rio	45.00
Sex Ed	40.00
Southern Accents	30.00
Fast Food	70.00
A Lifetime of Anger	45.00
On Campus	0.00

Table 4. Focus Group Research on Star Appeal of Potential Movies.

Movie Title	Star Appeal
The Reactor	95.00
We, The People	80.00
Oil & Water	70.00
Air Cav	55.00
Welcome to My Room	50.00
Line of Duty	100.00
Extrapolation	35.00
The Devil Made Me Do It	25.00
The Wolf's Lair	65.00
Hoover	85.00
A Good Day to Die	85.00

Table 4. Focus Group Research on Star Appeal of Potential Movies.

Movie Title	Star Appeal
The Colony	100.00
My Lai	70.00
Hybreed	55.00
1-900	45.00
Murder.com	50.00
Scranton	35.00
The Winner	70.00
Hearts & Minds	50.00
Malled	60.00
The Caddy	55.00
The Shysters	65.00

In Table 4, you will find, the market research that you requested on potential movies for next year. We pulled together 10 focus groups as usual to get this data. Each focus group was led by someone on our staff and involved a roundtable discussion of the movie's cast, plus formal ratings of star appeal by each member of the focus group. We gave the focus groups the same movie capsules that your committee is using to make your decisions. See Table 4 for a summary of the findings from the focus group research.

Table 4 contains estimates of a film's appeal based on its *stars*. We asked people in the focus group to discuss (and rate) Star Appeal. **Star Appeal** has to do with the popularity of the actors/actresses as well as the director. Industry research suggests that content is roughly twice as important as stars in determining who goes to see a movie, so we scaled Star Appeal values from 0-100.

A Star Appeal score of 100 means that basically every role in the film has A-List stars that people want to see; a score of 0 means that the cast is essentially unknown to the audience. Star Appeal is based on physical attractiveness, charisma, and the success of recent films and has little to do with talent – it only reflects “popular demand.” Films with big-name stars tend to have more appeal to viewers.

To summarize, the Star Appeal values quantify the appeal of a film based on its subject matter, respectively. **Star Appeal contributes to the Viewer Appeal.**

Unique Information for Member #3

Here is the information you requested regarding the movie screenplays that were sent to us for evaluation. We generated quality ratings by having two of our most experienced readers go through each screenplay and assign a rating on a scale of 1 to 10, then we averaged the ratings.

When we made our ratings, as always, we paid attention to the quality of the dialogue, plot coherence, pacing, and factors appropriate to each type of movie. For example, for dramas we considered character development and plot twists, whereas for science fiction films we looked for a unique vision of the future and a realistic extrapolation from current society. In other words, we took into account that what makes one kind of movie good is not necessarily the same thing that makes another kind of movie good.

We don't have to tell you that Script Quality is very important to the success of a movie – everything is riding on it. We can have all the big-name stars we want but if the script is terrible, it's not going to make back the money needed to pay all those stars! Make sure the other execs realize this.

Table 4. Script Quality Ratings for Potential Movies.

Movie Title	Script Quality
Degeneration	10
On Campus	10
Southern Accents	10
Fast Food	9
Sex Ed	8
Rio	8
Chosin Reservoir	7
Light Years	7
Renegade	6
Rikki-Tikki-Tavi	5
A Lifetime of Anger	4

Here is the information you requested regarding the movie screenplays that were sent to us for evaluation. We generated quality ratings by having two of our most experienced readers go through each screenplay and assign a rating on a scale of 1 to 10, then we averaged the ratings.

When we made our ratings, as always, we paid attention to the quality of the dialogue, plot coherence, pacing, and factors appropriate to each type of movie. For example, for dramas we considered character development and plot twists, whereas for science fiction films we looked for a unique vision of the future and a realistic extrapolation from current society. In other words, we took into account that what makes one kind of movie good is not necessarily the same thing that makes another kind of movie good.

We don't have to tell you that Script Quality is very important to the success of a movie – everything is riding on it. We can have all the big-name stars we want but if the script is terrible, it's not going to make back the money needed to pay all those stars! Make sure the other execs realize this.

Table 4. Script Quality Ratings for Potential Movies.

Movie Title	Script Quality
The Wolf's Lair	10
Extrapolation	9
Welcome to My Room	9
The Devil Made Me Do It	8
We, The People	8
A Good Day to Die	7
Hoover	7
Line of Duty	6
The Reactor	6
Air Cav	5
Oil & Water	3

Here is the information you requested regarding the movie screenplays that were sent to us for evaluation. We generated quality ratings by having two of our most experienced readers go through each screenplay and assign a rating on a scale of 1 to 10, then we averaged the ratings.

When we made our ratings, as always, we paid attention to the quality of the dialogue, plot coherence, pacing, and factors appropriate to each type of movie. For example, for dramas we considered character development and plot twists, whereas for science fiction films we looked for a unique vision of the future and a realistic extrapolation from current society. In other words, we took into account that what makes one kind of movie good is not necessarily the same thing that makes another kind of movie good.

We don't have to tell you that Script Quality is very important to the success of a movie – everything is riding on it. We can have all the big-name stars we want but if the script is terrible, it's not going to make back the money needed to pay all those stars! Make sure the other execs realize this.

Table 4. Script Quality Ratings for Potential Movies.

Movie Title	Script Quality
The Shysters	10
The Colony	9
My Lai	8
Hearts & Minds	7
1-900	7
Murder.com	6
The Winner	6
The Caddy	5
Hybreed	4
Scranton	4
Malled	3

Unique Information for Member #4

We were finally able to compile the information regarding director skill values. It took quite a bit of work, but we now have the data you requested.

Basically, we surveyed a panel of movie critics and asked them to rate a list of directors for their professional skill. For directors, we asked the critics to consider things like artistic vision, ability to inspire actors and actresses, work ethic, and capturing the “feel” of situations.

Director Skill pertains to the ability of a director to create a unified artistic vision and get the most out of the actors and actresses. Director ratings were made on a scale of 1-10, with 1 indicating a true hack with no talent and 10 indicating a director who could make an Oscar-winner with volunteers from regional theater. Some of these ratings may surprise you.

Table 4. Director Skill Ratings

Movie Title	Director	Skill Rating (0-5 stars)
Degeneration	John Carpenter	3.5
Rikki-Tikki-Tavi	Stanley Eider	3
On Campus	Neil LaBute	4
Southern Accents	Mimi Leder	3.5
Sex Ed	Barry Levinson	4
Rio	Mike Nichols	4
Fast Food	Harold Ramis	3
Renegade	Joel Schumacher	1.5
Light Years	Ridley Scott	5
A Lifetime of Anger	Billy Bob Thornton	3.5
Chosin Reservoir	Simon West	2

We were finally able to compile the information regarding director skill values. It took quite a bit of work, but we now have the data you requested.

Basically, we surveyed a panel of movie critics and asked them to rate a list of directors for their professional skill. For directors, we asked the critics to consider things like artistic vision, ability to inspire actors and actresses, work ethic, and capturing the “feel” of situations.

Director Skill pertains to the ability of a director to create a unified artistic vision and get the most out of the actors and actresses. Director ratings were made on a scale of 1-10, with 1 indicating a true hack with no talent and 10 indicating a director who could make an Oscar-winner with volunteers from regional theater. Some of these ratings may surprise you.

Table 4. Director Skill Ratings

Movie Title	Director	Skill Rating (0-5 stars)
Oil and Water	Chris Columbus	2
Hoover	Milos Foreman	4.5
The Wolf’s Lair	William Friedkin	3
The Devil Made Me Do It	Jonathan Glazer	3.5
The Reactor	Ron Howard	4
Extrapolation	Stephen King	2.5
A Good Day to Die	Ang Lee	5
We, The People	Michael Mann	4
Air Cav	Wolfgang Peterson	3.5
Line of Duty	Brett Ratner	2
Welcome to My Room	Ivan Reitman	2.5

We were finally able to compile the information regarding director skill values. It took quite a bit of work, but we now have the data you requested.

Basically, we surveyed a panel of movie critics and asked them to rate a list of directors for their professional skill. For directors, we asked the critics to consider things like artistic vision, ability to inspire actors and actresses, work ethic, and capturing the “feel” of situations.

Director Skill pertains to the ability of a director to create a unified artistic vision and get the most out of the actors and actresses. Director ratings were made on a scale of 1-10, with 1 indicating a true hack with no talent and 10 indicating a director who could make an Oscar-winner with volunteers from regional theater. Some of these ratings may surprise you.

Table 4. Director Skill Ratings

Movie Title	Director	Skill Rating (0-5 stars)
The Winner	Nora Ephron	4
1-900	Jean Jacques-Annaud	3.5
Malled	Garry Marshall	3.5
The Colony	John McTiernan	4
The Caddy	Sam Mendes	3.5
Scranton	Sam Raimi	3
Hybreed	George Romero	3
Murder.com	Bryan Singer	2.5
Hearts & Minds	Steven Soderbergh	5
My Lai	Oliver Stone	5
The Shysters	Robert Zemeckis	4.5

Team Number: _____

Date: _____

FINAL RECOMMENDATION SHEET

1. You may only use the amount of money budgeted for this session, **\$150 million**. You cannot spend more than \$150 million; if a plan that involves overspending is mistakenly submitted, your group will not be eligible to receive the performance bonus. It is your responsibility to make sure that your plan is valid.
2. Any unused money will count towards your revenue.
3. All team members must sign the document; if any signatures are missing, the document will be returned.
4. You have 25 minutes to make your choices; if your team has not completed its selection process within the allotted time, only the valid choices you have selected will count and the unused portion of your budget will be counted as revenue.
5. TO CHOOSE A MOVIE FOR PRODUCTION, DO THE FOLLOWING:
 - a. Indicate your choice by checking the appropriate box below
 - b. Choose a dollar amount to spend on marketing (the default is \$0)

Title	Production \$	+	Marketing \$	=	Total \$
	<i>(All amounts are in millions of dollars)</i>				
<input type="checkbox"/> A Lifetime of Anger	<u> \$20 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Chosin Reservoir	<u> \$46 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Rikki-Tikki-Tavi	<u> \$65 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Degeneration	<u> \$51 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Fast Food	<u> \$25 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Light Years	<u> \$90 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> On Campus	<u> \$12 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Renegade	<u> \$38 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Rio	<u> \$40 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Sex Ed.	<u> \$29 </u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Southern Accents	<u> \$23 </u>	+	0 5 10 20	=	_____
Total:					<u> <150 </u>

Initials:

Member #1: _____

Member #2: _____

Member #3: _____

Member #4: _____

Team Number: _____

Date: _____

REVENUE & PROFIT SHEET

Below is the list of possible movie selections for the first year. The first column shows the cost for each movie as given on the initial sheet; the second column indicates the marketing value of the movies (assumed to be \$10 million for any movie your studio did not produce). The third column highlights profit generated from each movie based on the amount of marketing indicated. Please review and discuss this information with the rest of your team. (All amounts are in millions of dollars.)

Examine the profit earned on the screenplays you selected as well as the screenplays you did not select. Think of what guided your choices to select certain movies and marketing levels over others. Base your discussion on the information in your packet and the results below.

<u>Title</u>	<u>Production\$</u>	<u>Marketing</u>	<u>Revenue</u>	<u>Profit</u>
<input type="checkbox"/> A Lifetime of Anger	<u>\$20</u>	_____	_____	_____
<input type="checkbox"/> Chosin Reservoir	<u>\$46</u>	_____	_____	_____
<input type="checkbox"/> Rikki-Tikki-Tavi	<u>\$65</u>	_____	_____	_____
<input type="checkbox"/> Degeneration	<u>\$51</u>	_____	_____	_____
<input type="checkbox"/> Fast Food	<u>\$25</u>	_____	_____	_____
<input type="checkbox"/> Light Years	<u>\$90</u>	_____	_____	_____
<input type="checkbox"/> On Campus	<u>\$12</u>	_____	_____	_____
<input type="checkbox"/> Renegade	<u>\$38</u>	_____	_____	_____
<input type="checkbox"/> Rio	<u>\$40</u>	_____	_____	_____
<input type="checkbox"/> Sex Ed.	<u>\$29</u>	_____	_____	_____
<input type="checkbox"/> Southern Accents	<u>\$23</u>	_____	_____	_____

**A check mark in a box above indicates movies your studio produced.

+ _____
Unspent

Total Profit for this year: _____

Percentage of Maximum Profit: _____

Team Number: _____

Date: _____

FINAL RECOMMENDATION SHEET

6. You may only use the amount of money budgeted for this session, **\$150 million**. You cannot spend more than \$150 million; if a plan that involves overspending is mistakenly submitted, your group will not be eligible to receive the performance bonus. It is your responsibility to make sure that your plan is valid.
7. Any unused money will count towards your revenue.
8. All team members must sign the document; if any signatures are missing, the document will be returned.
9. You have 25 minutes to make your choices; if your team has not completed its selection process within the allotted time, only the valid choices you have selected will count and the unused portion of your budget will be counted as revenue.
10. TO CHOOSE A MOVIE FOR PRODUCTION, DO THE FOLLOWING:
 - a. Indicate your choice by checking the appropriate box below
 - b. Choose a dollar amount to spend on marketing (the default is \$0)

Title	Production \$	+	Marketing \$	=	Total \$
	<i>(All amounts are in millions of dollars)</i>				
<input type="checkbox"/> A Good Day to Die	<u>\$42</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Air Cav	<u>\$49</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Extrapolation	<u>\$27</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Hoover	<u>\$55</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Line of Duty	<u>\$46</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Oil & Water	<u>\$23</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> The Devil Made Me Do It	<u>\$25</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> The Reactor	<u>\$67</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> The Wolf's Lair	<u>\$44</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> Welcome to My Room	<u>\$31</u>	+	0 5 10 20	=	_____
<input type="checkbox"/> We, The People	<u>\$72</u>	+	0 5 10 20	=	_____
Total:					<u><150</u>

Signatures:

Member #1: _____

Member #2: _____

Member #3: _____

Member #4: _____

Team Number: _____

Date: _____

REVENUE & PROFIT SHEET

Below is the list of possible movie selections for the first year. The first column shows the cost for each movie as given on the initial sheet; the second column indicates the marketing value of the movies (assumed to be \$10 million for any movie your studio did not produce). The third column highlights profit generated from each movie based on the amount of marketing indicated. Please review and discuss this information with the rest of your team. (All amounts are in millions of dollars.)

Examine the profit earned on the screenplays you selected as well as the screenplays you did not select. Think of what guided your choices to select certain movies and marketing levels over others. Base your discussion on the information in your packet and the results below.

<u>Title</u>	<u>Production\$</u>	<u>Marketing</u>	<u>Revenue</u>	<u>Profit</u>
<input type="checkbox"/> A Good Day to Die	<u>\$42</u>	_____	_____	_____
<input type="checkbox"/> Air Cav	<u>\$49</u>	_____	_____	_____
<input type="checkbox"/> Extrapolation	<u>\$27</u>	_____	_____	_____
<input type="checkbox"/> Hoover	<u>\$55</u>	_____	_____	_____
<input type="checkbox"/> Line of Duty	<u>\$46</u>	_____	_____	_____
<input type="checkbox"/> Oil & Water	<u>\$23</u>	_____	_____	_____
<input type="checkbox"/> The Devil Made Me Do It	<u>\$25</u>	_____	_____	_____
<input type="checkbox"/> The Reactor	<u>\$67</u>	_____	_____	_____
<input type="checkbox"/> The Wolf's Lair	<u>\$44</u>	_____	_____	_____
<input type="checkbox"/> Welcome to My Room	<u>\$31</u>	_____	_____	_____
<input type="checkbox"/> We, The People	<u>\$72</u>	_____	_____	_____

**A check mark in a box above indicates movies your studio produced.

+_____

Unspent

Total Profit for this year: _____

Percentage of Maximum Profit: _____

Team Number: _____

Date: _____

FINAL RECOMMENDATION SHEET

11. You may only use the amount of money budgeted for this session, **\$150 million**. You cannot spend more than \$150 million; if a plan that involves overspending is mistakenly submitted, your group will not be eligible to receive the performance bonus. It is your responsibility to make sure that your plan is valid.
12. Any unused money will count towards your revenue.
13. All team members must sign the document; if any signatures are missing, the document will be returned.
14. You have 25 minutes to make your choices; if your team has not completed its selection process within the allotted time, only the valid choices you have selected will count and the unused portion of your budget will be counted as revenue.
15. TO CHOOSE A MOVIE FOR PRODUCTION, DO THE FOLLOWING:
 - a. Indicate your choice by checking the appropriate box below
 - b. Choose a dollar amount to spend on marketing (the default is \$0)

Title	Production \$	+	Marketing \$	=	Total \$
<i>(All amounts are in millions of dollars)</i>					
<input type="checkbox"/> 1-900	\$18	+	0 5 10 20	=	_____
<input type="checkbox"/> Hearts & Minds	\$32	+	0 5 10 20	=	_____
<input type="checkbox"/> Hybreed	\$16	+	0 5 10 20	=	_____
<input type="checkbox"/> Malled	\$20	+	0 5 10 20	=	_____
<input type="checkbox"/> Murder.com	\$26	+	0 5 10 20	=	_____
<input type="checkbox"/> My Lai	\$63	+	0 5 10 20	=	_____
<input type="checkbox"/> Scranton	\$45	+	0 5 10 20	=	_____
<input type="checkbox"/> The Caddy	\$26	+	0 5 10 20	=	_____
<input type="checkbox"/> The Colony	\$81	+	0 5 10 20	=	_____
<input type="checkbox"/> The Shysters	\$37	+	0 5 10 20	=	_____
<input type="checkbox"/> The Winner	\$32	+	0 5 10 20	=	_____
Total:				=	<u><150</u>

Signatures:

Member #1: _____

Member #2: _____

Member #3: _____

Member #4: _____

Team Number: _____

Date: _____

REVENUE & PROFIT SHEET

Below is the list of possible movie selections for the first year. The first column shows the cost for each movie as given on the initial sheet; the second column indicates the marketing value of the movies (assumed to be \$10 million for any movie your studio did not produce). The third column highlights profit generated from each movie based on the amount of marketing indicated. Please review and discuss this information with the rest of your team. (All amounts are in millions of dollars.)

Examine the profit earned on the screenplays you selected as well as the screenplays you did not select. Think of what guided your choices to select certain movies and marketing levels over others. Base your discussion on the information in your packet and the results below.

<u>Title</u>	<u>Production\$</u>	<u>Marketing</u>	<u>Revenue</u>	<u>Profit</u>
<input type="checkbox"/> 1-900	<u>\$18</u>	_____	_____	_____
<input type="checkbox"/> Hearts & Minds	<u>\$32</u>	_____	_____	_____
<input type="checkbox"/> Hybreed	<u>\$16</u>	_____	_____	_____
<input type="checkbox"/> Malled	<u>\$20</u>	_____	_____	_____
<input type="checkbox"/> Murder.com	<u>\$26</u>	_____	_____	_____
<input type="checkbox"/> My Lai	<u>\$63</u>	_____	_____	_____
<input type="checkbox"/> Scranton	<u>\$45</u>	_____	_____	_____
<input type="checkbox"/> The Caddy	<u>\$26</u>	_____	_____	_____
<input type="checkbox"/> The Colony	<u>\$81</u>	_____	_____	_____
<input type="checkbox"/> The Shysters	<u>\$37</u>	_____	_____	_____
<input type="checkbox"/> The Winner	<u>\$32</u>	_____	_____	_____

**A check mark in a box above indicates movies your studio produced.

+_____

Unspent

Total Profit for this year: _____

Percentage of Maximum Profit: _____

TINSEL TOWN FACILITATOR'S INFORMATION

Simulation Algorithms

(7) **Movie Profit** = Movie Revenue – Movie Cost

.....

(8) **Movie Cost** = Production Cost + Marketing Cost

(9) **Movie Revenue** = Average Ticket Price * #Viewers

.....

(10) **#Viewers (in millions)** = Viewer Appeal* Movie Quality*MPAA Rating

.....

(11) **Viewer Appeal** = (Content Appeal + Star Appeal)*Marketing Impact

(12) **Movie Quality^a** = Script Quality*Director Quality*Acting Quality^b

For a movie with 2 Lead Roles:

(6a) **Acting Quality** = (LR Acting Quality₁ * LR Acting Quality₂)⁵

For a movie with 3+ Lead Roles:

(6b) **Acting Quality** = $\Sigma(\text{LR Acting Quality})/N$

^aMovie Quality for Animated Films = Script Quality*Script Quality*Director Quality

^bNote: The Acting Quality of Supporting Actors is ALWAYS ignored for the purposes of calculating Acting Quality.

SCORING KEY

Film Name	Revenue: 0	Profit: 0	Total Cost: 0	Revenue: 5	Profit: 5	Total Cost: 5	Revenue: 10	Profit: 10	Total Cost: 10	Revenue: 20	Profit: 20	Total Cost: 20
A Lifetime of Anger	38.96	18.96	20	50.65	25.65	25	60.39	30.39	30	68.18	28.18	40
Chosin Reservoir	57.52	11.52	46	74.77	23.77	51	89.15	33.15	56	100.65	34.65	66
Curious George	123.75	58.75	65	160.88	90.88	70	191.81	116.81	75	216.56	131.56	85
Degeneration	154.11	103.11	51	200.34	144.34	56	238.86	177.86	61	269.68	198.68	71
Fast Food	77.40	52.40	25	100.61	70.61	30	119.96	84.96	35	135.44	90.44	45
Light Years	221.24	131.24	90	287.61	192.61	95	342.91	242.91	100	387.16	277.16	110
On Campus	47.25	35.25	12	61.43	44.43	17	73.24	51.24	22	82.69	50.69	32
Replicant	40.57	2.57	38	52.75	9.75	43	62.89	14.89	48	71.00	13.00	58
Rio	111.60	71.60	40	145.08	100.08	45	172.98	122.98	50	195.30	135.30	60
Sex Ed	100.64	71.64	29	130.83	96.83	34	155.99	116.99	39	176.11	127.11	49
Southern Accents	77.35	54.35	23	100.55	72.55	28	119.89	86.89	33	135.36	92.36	43
Max Profit = 426.17million												
A Good Day to Die	153.46	111.46	42	199.50	152.50	47	237.87	185.87	52	268.56	206.56	62
Air Cav	93.28	44.28	49	121.26	67.26	54	144.58	85.58	59	163.24	94.24	69
Extrapolation	62.75	35.75	27	81.58	49.58	32	97.27	60.27	37	109.82	62.82	47
Hoover	153.09	98.09	55	199.02	139.02	60	237.29	172.29	65	267.91	192.91	75
Line of Duty	49.57	3.57	46	64.44	13.44	51	76.84	20.84	56	86.75	20.75	66
Oil & Water	27.00	4.00	23	35.10	7.10	28	41.85	8.85	33	47.25	4.25	43
The Devil Made Me Do It	102.90	77.90	25	133.77	103.77	30	159.50	124.50	35	180.08	135.08	45
The Reactor	163.52	96.52	67	212.57	140.57	72	253.45	176.45	77	286.16	199.16	87
The Wolf's Lair	142.00	98.00	44	184.60	135.60	49	220.10	166.10	54	248.51	184.51	64
Welcome to My Room	105.30	74.30	31	136.89	100.89	36	163.22	122.22	41	184.28	133.28	51
We, The People	222.77	150.77	72	289.60	212.60	77	345.29	263.29	82	389.84	297.84	92
Max Profit = 489.17million			0			0			0			0
1-900	51.27	33.27	18	66.65	43.65	23	79.46	51.46	28	89.72	51.72	38
Hearts & Minds	109.52	77.52	32	142.37	105.37	37	169.75	127.75	42	191.65	139.65	52
Hybreed	43.76	27.76	16	56.89	35.89	21	67.82	41.82	26	76.58	40.58	36
Malled	21.82	1.82	20	28.36	3.36	25	33.82	3.82	30	38.18	-1.82	40
Murder.com	49.49	23.49	26	64.33	33.33	31	76.70	40.70	36	86.60	40.60	46
My Lai	224.30	161.30	63	291.59	223.59	68	347.66	274.66	73	392.52	309.52	83
Scranton	30.27	-14.73	45	39.36	-10.64	50	46.92	-8.08	55	52.98	-12.02	65
The Caddy	57.78	31.78	26	75.11	44.11	31	89.56	53.56	36	101.11	55.11	46
The Colony	236.96	155.96	81	308.05	222.05	86	367.29	276.29	91	414.68	313.68	101
The Shysters	148.44	111.44	37	192.98	150.98	42	230.09	183.09	47	259.78	202.78	57
The Winner	100.24	68.24	32	130.31	93.31	37	155.37	113.37	42	175.42	123.42	52
Max Profit = 527.88million												

Appendix C

Intragroup Trust

Think about your team as you answer the questions below. For each statement, circle the number that best describes how much you agree or disagree with each statement.

- 1- Strongly Disagree
- 2- Disagree
- 3- Somewhat disagree
- 4- Neither agree nor disagree
- 5- Somewhat agree
- 6- Agree
- 7- Agree strongly

Ability

1. My team is very capable of performing its job.
1-----2-----3-----4-----5-----6-----7
2. My team is known to be successful at the things it tries to do.
1-----2-----3-----4-----5-----6-----7
3. My team has much knowledge about the work that needs to be done.
1-----2-----3-----4-----5-----6-----7
4. I feel very confident about my team's skills.
1-----2-----3-----4-----5-----6-----7
5. My team has specialized capabilities that can increase our performance.
1-----2-----3-----4-----5-----6-----7
6. My team is well qualified.
1-----2-----3-----4-----5-----6-----7

Benevolence

7. My team is very concerned about my welfare.
1-----2-----3-----4-----5-----6-----7
8. My needs and desires are very important to my team.
1-----2-----3-----4-----5-----6-----7
9. My team would not knowingly do anything to hurt me.
1-----2-----3-----4-----5-----6-----7

10. My team really looks out for what is important to me.

1-----2-----3-----4-----5-----6-----7

11. My team will go out of its way to help me.

1-----2-----3-----4-----5-----6-----7

Integrity

12. My team has a strong sense of justice.

1-----2-----3-----4-----5-----6-----7

13. I never have to wonder whether my team will stick to its word.

1-----2-----3-----4-----5-----6-----7

14. My team tries hard to be fair in dealings with others.

1-----2-----3-----4-----5-----6-----7

15. My team's actions and behaviors are not very consistent.*

1-----2-----3-----4-----5-----6-----7

16. I like my team's values.

1-----2-----3-----4-----5-----6-----7

17. Sound principles seem to guide my team's behavior.

1-----2-----3-----4-----5-----6-----7

Appendix D

Information Sharing

Using the scale above, rate *yourself* on the items below. For each statement, circle the number that best describes how much you agree or disagree with each statement.

- 1- Strongly Disagree
- 2- Disagree
- 3- Somewhat disagree
- 4- Neither agree nor disagree
- 5- Somewhat agree
- 6- Agree
- 7- Agree strongly

1. I share my personal expertise and insight with team members.
1-----2-----3-----4-----5-----6-----7

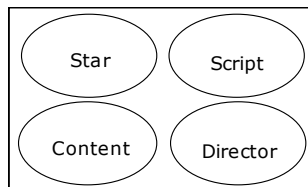
2. I inform team members of how my information may impact them.
1-----2-----3-----4-----5-----6-----7

3. I alert team members to information that may be relevant to the team's decision.
1-----2-----3-----4-----5-----6-----7

Appendix E

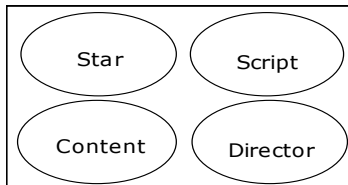
Cycle 1 Information Sharing Coding Sheet

UNIQUE	SHARED
CONTENT APPEAL	Actor Quality /MPAA/Ticket Price/Cost/Marketing/ Formulas/Screenplay
Chosin Reservoir	
Degeneration	
Fast Food	
Lifetime of Anger	
Light Years	
On Campus	
Renegade	
Rikki-Tikki-Tavi	
Rio	
Sex Ed	
Southern Accents	
STAR APPEAL	
Chosin Reservoir	
Degeneration	
Fast Food	
Lifetime of Anger	
Light Years	
On Campus	
Renegade	
Rikki-Tikki-Tavi	
Rio	
Sex Ed	
Southern Accents	
SCRIPT QUALITY	
Chosin Reservoir	
Degeneration	
Fast Food	
Lifetime of Anger	
Light Years	
On Campus	
Renegade	
Rikki-Tikki-Tavi	
Rio	
Sex Ed	
Southern Accents	
DIRECTOR QUALITY	
Chosin Reservoir	
Degeneration	
Fast Food	
Lifetime of Anger	
Light Years	
On Campus	
Renegade	
Rikki-Tikki-Tavi	
Rio	
Sex Ed	
Southern Accents	



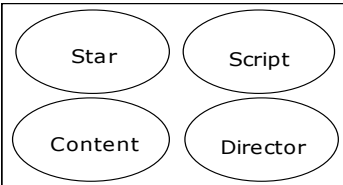
Cycle 2 Information Sharing Coding Sheet

UNIQUE CONTENT APPEAL	SHARED Actor Quality /MPAA/Ticket Price/ Cost/ Marketing/ Formulas/Screenplay
A Good Day to Die	
Air Cav	
Extrapolation	
Hoover	
Line of Duty	
Oil & Water	
The Devil Made Me	
The Reactor	
The Wolf's Lair	
Welcome to My Rc	
We, the People	
STAR APPEAL	
A Good Day to Die	
Air Cav	
Extrapolation	
Hoover	
Line of Duty	
Oil & Water	
The Devil Made Me	
The Reactor	
The Wolf's Lair	
Welcome to My Rc	
We, the People	
SCRIPT QUALITY	
A Good Day to Die	
Air Cav	
Extrapolation	
Hoover	
Line of Duty	
Oil & Water	
The Devil Made Me	
The Reactor	
The Wolf's Lair	
Welcome to My Rc	
We, the People	
DIRECTOR QUALITY	
A Good Day to Die	
Air Cav	
Extrapolation	
Hoover	
Line of Duty	
Oil & Water	
The Devil Made Me	
The Reactor	
The Wolf's Lair	
Welcome to My Rc	
We, the People	



Cycle 3 Information Sharing Coding Sheet

UNIQUE	SHARED	
CONTENT APPEAL	Actor Quality /MPAA/Ticket Price/Cost/Marketing/ Formulas/Screenplay	
1-900		
Hearts & Minds		
Hybreed		
Malled		
Murder.com		
My Lai		
Scranton		
The Caddy		
The Colony		
The Shysters		
The Winner		
STAR APPEAL		
1-900		
Hearts & Minds		
Hybreed		
Malled		
Murder.com		
My Lai		
Scranton		
The Caddy		
The Colony		
The Shysters		
The Winner		
SCRIPT QUALITY		
1-900		
Hearts & Minds		
Hybreed		
Malled		
Murder.com		
My Lai		
Scranton		
The Caddy		
The Colony		
The Shysters		
The Winner		
DIRECTOR QUALITY		
1-900		
Hearts & Minds		
Hybreed		
Malled		
Murder.com		
My Lai		
Scranton		
The Caddy		
The Colony		
The Shysters		
The Winner		



Appendix F

Step-by-Step Instructions for Administering TINSEL TOWN

Step	Facilitator Activity	Participant Activity	Time Allotment
1	Distribute & Collect Consent Form	Read & Sign Consent Form	5 minutes
2	Form groups		5 minutes
3	Read instructions aloud	Listen & read along	5 minutes
4	Initiate Cycle 1	Cycle 1: Individual Study	15 minutes
5		Cycle 1: Discussion	20 minutes
7		Cycle 1: Recommendation	5 minutes
8	Administer Post-Task Measures; Collect & Score Final Recommendation	Post-task Measure: <ul style="list-style-type: none"> ▪ Trust ▪ Information Sharing 	5 minutes
9	Complete Revenue & Profit Sheet; Give Feedback	Discuss Performance Feedback	5 minutes
10	Initiate Cycle 2	Cycle 2: Individual Study	15 minutes
11		Cycle 2: Discussion	20 minutes
12		Cycle 2: Recommendation	5 minutes
13	Administer Post-Task Measures; Collect & Score Final Recommendation	Post-task Measure: <ul style="list-style-type: none"> ▪ Trust ▪ Information Sharing 	5 minutes
14	Complete Revenue & Profit Sheet; Give Feedback	Discuss Performance Feedback	5 minutes
	Initiate Cycle 3	Cycle 3: Individual Study	15 minutes
		Cycle 3: Discussion	20 minutes
		Cycle 3: Recommendation	5 minutes
15	Administer Final Measures	Final Measures: <ul style="list-style-type: none"> ▪ Trust ▪ Information Sharing 	10 minutes
16	Debrief		10 minutes
17	Complete Revenue & Profit Sheet; Give Feedback	Discuss Performance Feedback	5 minutes
		Total Time	3 hours

Devine, et al. (2004)