

DO PROJECTS HAVE HORSEMEN?: INVESTIGATING THE WARNING SIGNS OF UNRELIABLE COMMITMENTS

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ABSTRACT

Projects are temporary business organizations that accomplish work through a network-of-commitments, commitments that both develop and rely on the relationship of trust. Commitment and trust is built via conversations, conversations that connect distributed knowledge, establish understanding and demonstrate trustworthiness. Missing conversations can lead to dissatisfied customers, operational breakdowns and project failure. This paper describes an ongoing observational-research study that is coding active project language on several construction projects. The objective of this research is to explore the relationship between conversation and various project and operational breakdowns. The end goal of this research is to establish warning signs that would indicate the need and direction for constructing intervening conversations that would improve network reliability, trust and customer satisfaction.

This research has been modelled based on observational research methods used by John Gottman to study marriage and relationships. Dr. Gottman realized that couples struggled to break marital problems because they were not aware of the language patterns that were destructive to their relationships. After many years of observation Gottman was able to code language used by couples identified what he called the “four horsemen” or “warning signs” for a troubled marriage. Trained at using these warning signs, Gottman can observe a couple for five minutes and predict with more than 90 percent accuracy which couples will remain married which will divorce.

It is suggested that, similar to Dr. Gottman's findings, there are "horsemen" or negative interactions that serve as warning signs for customer dissatisfaction, operational failure, low levels of innovation, and lost opportunity. This investigation is collecting observational data in an effort to identify the "horsemen" of lean Construction. Armed with these warning signs (horsemen), a trained project stakeholder could design and deploy critical conversations and subsequently increase project value.

KEY WORDS

Network, commitments, linguistic action.

INTRODUCTION

In 2005, I (first author) led a research team that focused on the implementation of 3D computer-aided-design (CAD) into the residential construction process. As we observed the construction process it was clear that the same house (same model of house) was never build in exactly the same way twice. What I realized was that the outcome (the “as-

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built” house) was not solely a product of the drawings, but it was a creation of the many interactions of the project stakeholders. In other words, a house was not a copy of the drawings and specifications, but a product of the interactions of subcontractors who were building that particular house. For example, on several occasions the same wall was changed based on conversations that were had by subcontractors to determine how components of that wall would interface. This process was not being controlled by a centralized design and planning system but by the interaction of its parts (subcontractors). It was quite clear that the centralized control that we were attempting to implement, via 3D CAD, represented a significant change to the current system, a system that is ruled by decentralized actions that were being coordinated by distributed conversations.

This decentralization has proven to be a very powerful engine for innovation in Lean organizations (Dunham 1997, Spear 1999). In the *Lean* tradition, innovation is the process of improving a product or service so that it adds value to both the internal and external customers in the production chain. It is well established that tapping into distributed knowledge to make innovative improvements requires a disciplined process of inquiry and a culture based on collaboration (Spear 1999). Furthermore, Dunham states that “innovation is a phenomenon that is rooted in conversational practices that generate new coordination of actions resulting in new value for customers, and these practices can be designed, learned, improved, and made part of an organization’s culture” (p. 50). Collaboration and more specifically collaborative conversations are critical to innovation. Furthermore, there is a critical void in research focused on these conversational practices.

Following the landmark work of Fernando Flores and Robert Dunham, the authors suggest that dissatisfied customers and operational breakdowns are a sign of missing or incomplete conversations. In practice the authors wanted to improve their ability to identify missing or ineffectual conversations that could lead to undesirable actions, dissatisfaction and missed opportunity. With this goal in mind, the authors of this paper connected empirical research conducted by John Gottman that focused on conversations and subsequent actions that lead to dissatisfaction and disillusion within marriage. In addition, Gladwell’s description of rapid cognition or “thin slicing” led the authors to the question, can we identify “warning signs”, in the lean construction process, that a customer is dissatisfied? It is hypothesized that with these “warning signs” we could quickly identify the need for additional conversation, conversations that could be designed to provide value to the customer through innovation. The ideas of Gottman and Gladwell provide a foundation for an empirical research study that we believe is critical to advancing the theory and practice of lean construction.

BACKGROUND

Today decentralized processes are thriving. There is overwhelming and growing evidence that highly centralized organizations struggle to respond and innovate compared to decentralized organizations as is described in Brafman’s book titled, *Starfish and the Spider*. Although these concepts are powerful, they present major challenges to managers who operated in a centralized organization.

LAST PLANNER® SYSTEM

An example decentralized process is the LPS. The LPS is a highly decentralized project leadership system that maximizes value and minimizes waste. The aim is to engage the “last planner” (the planner closest to the work) to define weekly work tasks and crew

level assignments in an effort to “make work ready” and increase workflow predictability. The LPS system has shown significant improvements in project dimensions of cost, schedule, quality and safety.

Current forms of project management base production systems (i.e., PMI PMBOK, critical path) focus on activities and ignore flow and value considerations. LPS was designed to manage the combined effort of the two primary lean production principles, variation (uncertainty) and interdependence (dependence). As Koskela stated, “The main challenge provided by the peculiarities of construction seems to be now to respond to the inherent uncertainty (variation) and interdependence” (2001, p. 200).

The reliability of the LPS is dependent on a series of conversations that focus on workflow. Each craft or subcontractor engages in conversation in an effort to increase predictable release of work to the next subcontractor, subsequently reducing variation in the release of work and directly managing the handoff between trades (interdependence). This effort is significantly different from the centralized control of master scheduling where variation and interdependence are often never discussed nor managed.

The successful implementation and use of the LPS system is highly dependent on building a culture where conversations are highly regarded and valued. This may seem trivial at first but these conversations radically shift organizational structure and authority to the “last planner” allowing subcontractors to say “no” to a request for action. It is only when a leadership values the “last planners” opinion to this degree that it can begin to use the LPS in an effort to make improvements.

Most construction projects operate in a “commitment-free zone” where promise-base conversations are not taken seriously and are often imposed by central planners. Subcontractors approach these commitments with a “sure we will give it our best shot” attitude or a very low level of investment. It doesn’t take long to realize that operating an organization that is highly dependent on reliable promises is placing itself in jeopardy when operating in a commitment-free zone.

RELIABLE PROMISES

Macomber (2004) stated, “We often don’t have much basis for assessing the reliability of any performer for fulfilling whatever he or she promises us” (p. 3). As was mentioned above, LPS success is greatly dependent on highly valued and orchestrated conversations that elicit reliable promises. Therefore, there is significant effort and interest in developing a method that can be used to secure reliable promises (Macomber, 2004, Macomber & Howell, 2001).

Macomber (2004) suggests that making and securing reliable promises is a skill that can be learned and improved with practice. In fact, he suggested that most people do not have the skills necessary for making or eliciting reliable promises. Furthermore, commitments are made between people and are not imbedded within a typical scheduling process. Macomber suggests that skill developments should take a learning orientation that focuses on characteristics of reliable promises, and suggests that individuals use checklists to improve their ability.

An abbreviated checklist for securing promises has been provided in Figure 1. Items on this checklist include clarifying conditions of satisfaction, and conducting several assessments about the performers’ competence, capability, planning ability, sincerity, and resolve related to the “made” promise or commitment.

The key to making a reliable promise is improving our listening and inquiry skills during the planning phase. It is critical that we slow down the process, not taking the first sign of commitment as a “yes,” and asking pointed questions that build a level of understanding and true dedication. Macomber (2004) suggests that leaders ask questions that address these issues, such as: “let’s review what this will look like when complete?”, “Have you done this before?”, “Where will you find time in your busy schedule?” and “Do you really want to take this on?”

1. Clarifying conditions of satisfaction.
2. Assessing performer competence and ability to perform work.
3. Verifying time estimations and allocation of schedule.
4. Assessing performer sincerity in making the promise (no unspoken conversations).
5. Assessing performers resolve to make good on the promise.

Figure 1: Abbreviated checklist for securing reliable commitments (adapted from Macomber 2004).

FOUR HORSEMEN OF THE APOCALYPSE

For over forty years a group of psychologists have been systematically studying relationships within the institution of marriage trying to answer the question, “what makes marriages fail?” Prior to the 1960’s research techniques were limited to self-assessment techniques such as surveys. Howard Markman points out that in the beginning psychologists had interview data and self reports, but people are not good observers of their own behaviour so interview data and self report data are inherently limited (Spiegel 2005).

A methodological breakthrough occurred with the availability of video cameras. Research’s like Howard Markman and John Gottman began to invite couples to their laboratories and videotaped their conversations and behaviours. They would give couples a list of things to talk about (e.g., how to discipline their children) and then unobtrusively video tape their interactions. They would transcribe these videos, parse the transcriptions, and use these as the basis for training and coding observations.

John Gottman described that “several different laboratories were doing the same thing at the same time and coming up the same findings, that there were systematic differences and that you could measure and describe these differences.” (Spiegel 2005). The biggest difference and predictor of marital discontent and divorce was how couples managed conflict. It was how couples handled their interaction when they were angry or sad that had the greatest predictive power. It was through coding these videos that researchers were able to understand the behaviours that were most destructive.

John Gottman explained that, there were four things that were highly correlated to divorce or relationship misery if the couple stayed together. He called these four factors the “four horsemen of the apocalypse.” Figure 2 provides a list of these four destructive behaviours, they include criticizing your partners character, defending yourself against personal attacks, attacking your partner’s self in a contemptuous way, and withdrawing from the relationship to avoid conflict. Of these “contempt” had the most predictive power or was the most destructive to a marriage.

1. Criticism – attacking your partner’s personality or character
2. Defensiveness – Seeing yourself as a victim, warding off a perceived attack

3. Contempt – attacking your partner’s sense of self with intention to insult
4. Stonewalling – withdrawing from the relationship as a way to avoid conflict

Figure 2: The four Horsemen of the Apocalypse (adapted from Gottman 1999).

Using these video-based observational techniques psychologists like Gottman have developed an increased awareness of language that is destructive and contemptuous and are able to predict with a high degree of accuracy (94% accuracy) if a couple’s relationship will end in divorce. Malcolm Gladwell termed this heightened sense, “thin slicing,” and interviewed Gottman in his bestselling book *Blink*. Gottman has gotten so good at “thin slicing” couples that if you provide him with three minutes of video he can predict the outcome of a marriage. How does he do this? Gladwell suggests that Gottman has trained himself to pay attention to only the patterns in the couple’s conversation that matter (Gladwell 2005). A conversation that may seem benign or overwhelming to the untrained observer is quickly coded and evaluated by Gottman’s ability to “thin slice”.

DO PROJECTS HAVE HORSEMEN?

As is state above, reliable commitments are critical for project success. As Macomber suggests, managers need to adhere to checklists and ask pointed questions to assess the stakeholders’ ability to meet their commitments. However, do projects have horsemen? Can we use detailed observations to code behaviours, training ourselves in the ability to recognize the need for critical conversations and “thin slice” project activities that will help us predict success or failure. Stated in a question, can we determine behaviours and conversations that cause projects to spiral toward failure?

We hypothesize that using sequential analysis (as defined by Gottman - 1981) we can identify “horsemen” or key behaviours that will allow us to “thin slice” project interactions and implement interactions (conversations) that in increase reliability.

PROPOSED RESEARCH COLORADO STATE UNIVERSITY (CSU) AND LEAN CONSTRUCTION INSTITUTE (LCI)

The following research is being developed in a joint effort between CSU and the LCI. Similar to Gottman and Markman’s work it is anticipated that this research will require several researchers working on similar methods over multiple years to develop and verify the findings. By presenting our research ideas and methods it is our hope to gather critical review, improve the proposed methods and encourage others to collect similar data and share their results.

Our preliminary research question was stated as follows. Currently, how successful are project leaders at identifying unreliable interactions and operational failures? We want to see if project leaders, who are trained to identify reliable promises, can identify interactions that ultimately failed. The following methods are proposed in an effort to answer this question. This is only the preliminary research question. Our plan is to continue this inquiry in a longer term effort to answer the bigger research question that was stated above.

RESEARCH ASSUMPTIONS

We assume that these unreliable commitments will manifest themselves in the same way independent of the project delivery system.

VIDEO DATA COLLECTION

Researchers will attend planning meetings where weekly project commitments are being made. Video tape recording will be made of project stakeholders making commitments.

PROJECT LEADER APPRAISAL

Project leaders will be asked to assess the performers' competence and ability to perform work after a commitment is made and prior to beginning work.

TRACK PERFORMANCE

Weekly commitments will be tracked against completion of task both in regards to quality and time. Supervisors will be asked to complete a work log that indicates timeliness of work performed (within commitment timeframe) and quality of work performed (within accepted conditions of satisfaction). This log will be maintained for those activities that were under study and videotaped. They will also be asked to record a reason for deviation (if a deviation occurred) using the list defined by Macomber (2004). Figure 3 includes the ten reasons listed by Macomber that will be used in this study to complete the above mentioned log. These reasons include variation that is both within the control of the performer and outside of their control (weather, sickness, etc.). These reasons will be important for analysis as some variation may be external and therefore outside the scope of this study.

EDIT VIDEO

Researchers will edit the video into short (approximately five minute) clips that focus and included interactions and verbiage of weekly commitments.

ASSESSMENT OF PROMISES

Ten of the edited videos will be selected, five videos of tasks that did not meet time and/or satisfaction requirements and five that did meet these requirements. A group of project leaders will be recruited to view these videos. These experts will be asked to review the videos and to make an assessment of the individual's ability to complete the task as defined and to note a reason they felt there may be variance. These individuals will have no prior knowledge of the project activities that they are viewing.

EVALUATION AND RESULTS

Project leader assessments will be compared to actual project data and evaluated based on differences. In addition, we will begin to parse the video data into thought units and a coding scheme. This coding scheme will be used for future research.

1. Lacked the skill or know-how for completing the promise
2. Prerequisite work of others was incomplete
3. My prerequisite work was incomplete
4. Poor estimate of capacity
5. Capacity reallocated to other work

6. Some aspect of wherewithal was missing (tools, equipment, materials, etc.)
7. Misunderstanding of the conditions of satisfaction or acceptance criteria
8. Misunderstanding of the promise date
9. External factor (weather, sickness, loss of power, etc.)
10. Failure to revoke or re-promise

Figure 3: Reason for variance from planned action (Macomber 2004).

CONCLUSION

It is accepted that the success of project-based delivery systems relies on securing reliable commitments from various stakeholders. Dunham (1997) and Macomber's (2004) work conducted on linguistic action and reliable commitments provides valuable tools to those attempting to improve reliability of project interactions. These tools rely on the project stakeholders' ability to manage conversations through the commitment cycle. Empirical research on the use of highly detailed observation to codify human behavioural patterns has given researchers in psychology the ability to "thin slice" or predicts outcomes with great accuracy. These methods have proven extremely useful as psychologists work to identify destructive patterns related to marriage. Furthermore, they are developing marriage counselling interventions focused on redesigning conversations that are highly correlated to marriage success.

Similarly, this research has been designed to explore the connection between project language/communication and various operational and project failures. Data from this study will also be used to begin coding behavioural patterns that emerge when project stakeholders are observed? Studying and coding project interactions over time we anticipate that we will identify destructive behaviours or "project horsemen" that will be highly correlated to stakeholder satisfaction and project success/failure. In the future, we anticipate that we can train project stakeholders to react to these warning signs and therefore improve overall project success and customer satisfaction.

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