TOWARDS A LANGUAGE-ACTION PARADIGM: EXPERIENCES OF A TRADE CONTRACTOR

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ABSTRACT

Construction projects have long been regarded as inefficient, waste ridden work that have been approached by contractors from a command-and-control tradition handed down from the dawn of modern manufacturing systems. The framework for which we have traditionally approached construction projects orients us to the work in a mechanistic, authoritative philosophy, which neglects how human beings really work. The language-action paradigm, alternatively, takes the human phenomenon into account, by orienting to action as something human beings both *do* and *understand* in language. Central to this paradigm are speech acts such as a requesting and promising that can be considered fundamental coordination of action, which when done reliably, produce more effective execution of construction projects. In a language-action paradigm, a construction project can therefore be considered as an array of assertions, assessments, requests, promises and declarations and the satisfactory completion of that project is then the fulfillment of promises corresponding to the project's array of requests. This paper explores the feasibility of implementing a language-action paradigm within a residential subcontracting company in the United States. The author begins with a discussion of the language-action paradigm, exploring its successful applications. The paper then discusses the motivation for implementing a language-action paradigm at the trade contractor level and highlights the successes and challenges associated with this implementation. Finally, the paper discusses lessons learned from this trade contractor's experience and makes suggestions for future language-action paradigm implementations across parties in the architecture-engineering-construction industry.

KEY WORDS

Language-action, reliable promise, commitment, lean construction

INTRODUCTION

The current "common sense" of construction project management practices are born from the "rationalistic traditions" handed down from traditions born by people such as Henri Fayol, a French mining engineer, who reduced project management practices to a "command and control" model. These models are relics of the industrial revolutions and orient to humans "doing" as machines that need to be driven, controlled and managed by a central authority - in many ways replicating the models of material and information management. The design of production management systems in turn focuses on the improvement of productivity by means of centralized scheduling and

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planning, push production, command issuing, and hard work incentive systems that are blind to, and ignore, what it means to be human.

By contrast, Flores (1982) describes work as the making and keeping of commitments. Macomber and Howell (2003) explain this shifts the focus of production from information and materials to people. Humberto Maturana, a Chilean biologist and philosopher, explains that with a focus on people comes an awareness that language essentially functions as a way to coordinate work, life and survival (Maturana and Varela 1987). Fernando Flores further synthesized this with the work of "Martin Heidegger and other philosophers who see language as the way we produce ourselves historically, and further integrated the work of John Austin and John Searle, philosophers of language who developed speech act theory" (Dunham 1997).

Dunham (1997) consider what it means to be human, or to experience the world as being human, and theorize that humans "experience" life in the language humans speak to themselves and to others. More pragmatically, philosophers and linguists like Austin and Searle explored how humans make use of sentences and utterances to *do things* in the world. Austin distinguished what is known as a performative utterance, in which a person is not simply making a proposition, but is actual doing something that has real-world consequence (Austin et al. 1975).

Flores built on Austin's work with others such as Terry Winograd, modeling how people fundamentally use language to coordinate action in conversations that are built with speech acts. They focused on how people produce a new, shared future rooted in linguistic commitments. This is what is referred to as the language-action approach, or the language action paradigm, aka LAP, and refers to how people act in and through language (Winograd 1987).

Essentially, LAP postulates that the coordination of action happens with language acts such as requests, offers, promises, assertions, assessments and declarations. Furthermore, the coordination and the action are understood only in language. Considering these insights, it is then no wonder why businesses, including construction, are plagued with wastes related to poor and ineffective human coordination. In addition to taking language more serious, Chauncey Bell suggests that the Lean construction community invent a new waste – coordination waste (Bell 2014). The construction industry cannot simply use the distinctions and frameworks for improving material and information flows to do the same thing with the flow of work that humans do because this view neglects and is blind to the fundamental ways that humans coordinate action. Rather, as practitioners of the language-action approach suggest, the construction industry needs to organize around the conversations people have, where customers and performers make requests, offers, assertions, assessments, promises and declarations. The author suggests that if the construction industry can build organizational competencies for more effective communication in the sense of making effective requests, compelling offers, grounded assessments and reliable promises, operations of teams and organizations would improve across the construction industry. That is, people communicate requests, and accept, negotiate, or reject these requests. When a request is accepted, a commitment is made and once fulfilled, the requestor can express satisfaction that the commitment was fulfilled, and this completes the language cycle.

Construction companies have been implementing this perspective as a part of the Last Planner System (Ballard 2000), where reliable promises assist in project planning. Moreover, the LAP supports a shift in project management that emphasizes the role of communication (e.g., Howell et al. 2004) This paper presents the experience of a residential trade contractor in implementing LAP and discusses the successes and challenges of this implementation.

CONVERSATIONS FOR ACTION

Figure illustrates Winograd's model of a conversation (1987). It represents a conversation where at different states only certain deterministic action can happen. The first state represents a situation where a customer needs something and will either request it or be presented with an offer to care for it. Once the action happens, which happens in the form of different speech acts, the actors find themselves in new states, where again, only certain things can happen. For example, in state 4, the customer finds themselves presented with an assertion and declaration of completion made by the performer. In this state, the customer can either declare satisfaction, dissatisfaction, or withdraw their request. This model implies that effective coordination of action is essential for delivering value to customers. If the actors know their objectives, where they are located in the conversation and the possible course of action from that state, they can more effectively produce their objectives.
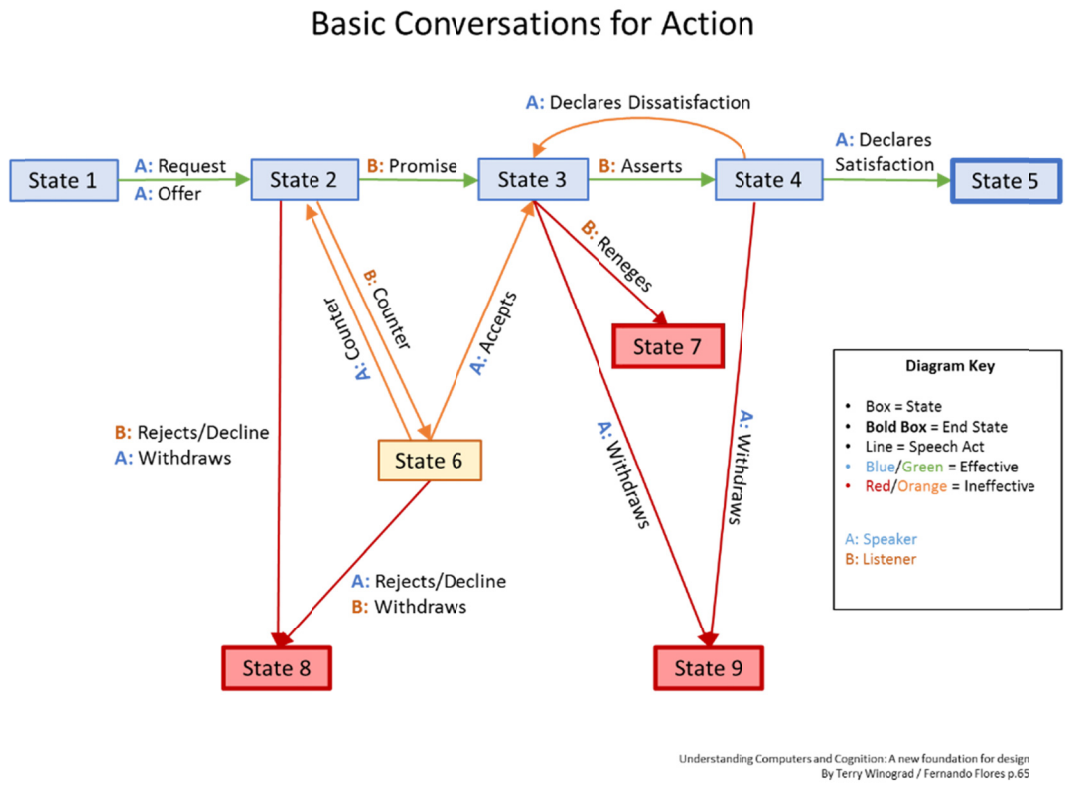

Figure 1. A Conversation for Action (adapted from Figure 1 in Winograd 1987)

BACKGROUND: RESIDENTIAL CONSTRUCTION

It is important to distinguish the structure of the particular market segment of interest in order to observe the nature of coordination that has to happen for a business within that segment to be successful. The author distinguishes residential housing construction as a different type of production (as opposed to factory manufacturing, or for that matter, commercial or industrial construction) by identifying the unique characteristics and configuration of the industry.

Like other construction types, residential housing companies build fixed-in-place, site-produced structures with temporary teams from a large number of organizations where authority is overlapping. While the work is "projectized" rather than batch produced, it is performed in very short durations where the teams are in constant flux because they perform work at high volumes for a large number of customers across large geographic distances. This aspect might be the most consequential in terms of LAP because the scale of the network of commitments (e.g., Macomber and Howell 2003) that exist as a result. The particular trade contractor of this case study performs nearly 5000 such projects across the Phoenix, Arizona metropolitan area in the United States, where supervisors coordinate many different crews and subcontractors to perform a number of construction tasks (around 21 different tasks or phases - actions - for a single job) with a large number of customer supervisors, for more than 25 builders (customers). Depending on the phase of production, crews are onsite from 2-6 hours to perform their work.

Figure 2 distinguishes the reality of residential construction production as having a jumbled flow of work released that produces challenges with workforce and material management (planning and scheduling). Figure 2 also illustrates the nature of the product (coordination that must happen), the process pattern (coordination flows), and the challenges for management. Additionally, the work released is released in high volumes where it is priced and treated as homogenized manufactured product despite the fact that supervisors and crews often experience the work as if it is unique in terms of its configuration (option selection), the teams they work with (other trade contractors and their crews), and the environment in which it is built (every lot has its unique challenges - i.e., underground utility locations, trapped lots, topography).
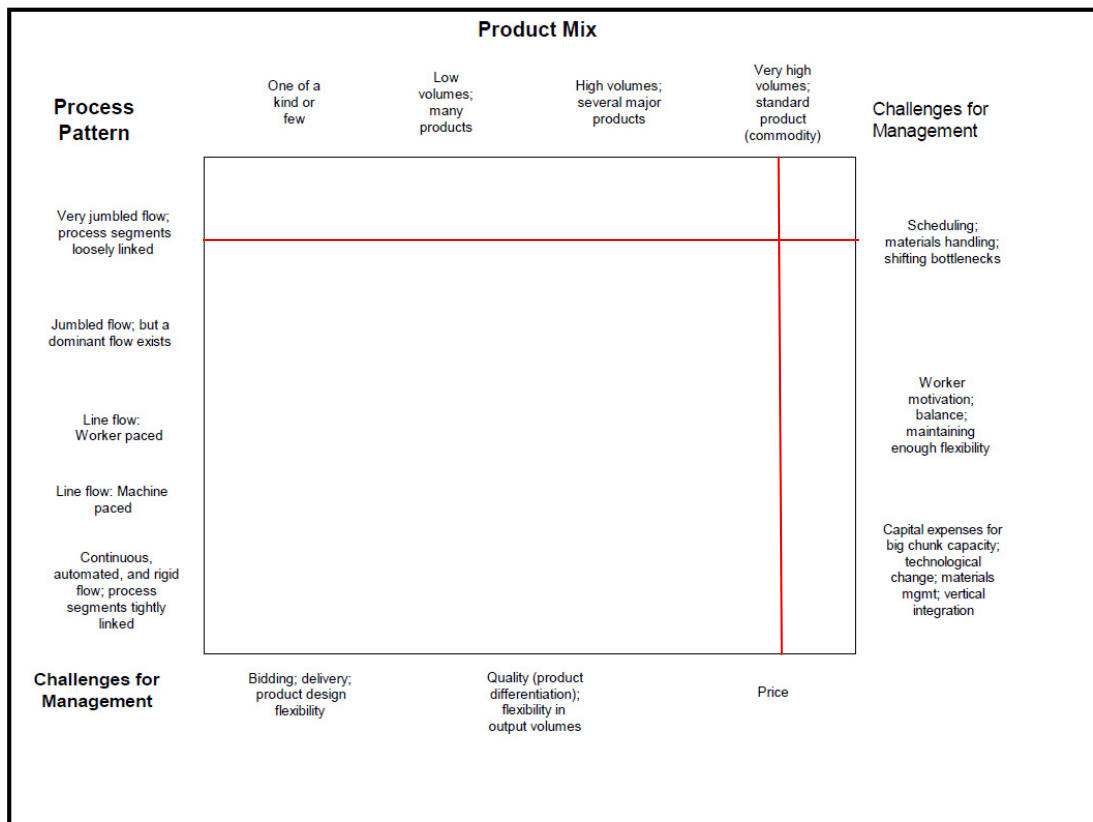
Figure 2: Manufacturing Characteristics (adapted from (Ballard and Howell 1998)

To summarize, residential contractors are concerned with a specific kind of manufacturing that has properties including quick lifecycles, uncertain coordination and complex (dynamic) environments. Residential construction, in general, is a combination of fabrication and assembly of a fixed-in-place product, at a unique site with overlapping teams and overlapping authority, where the builder often acts as a broker, commanding, controlling and coordinating a "parade of trades" that may or may not be coupled to each other, in a dynamic environment to produce a somewhat unique product.

The type of production residential construction is, has significant consequences to the design of construction production systems and the author suggests that an organization's orientation to project management will affect the effectiveness of their ability to coordinate action and ultimately compete in the marketplace.

CASE STUDY: LAP IN A US RESIDENTIAL TRADE CONTRACTOR'S OFFICE

This section describes the experience of a residential trade contractor in implementing LAP within their organization.

IMPLEMENTATION DETAILS

In 2007, some of the executive leadership at the trade contractor's office were exposed to LAP and began to study the work of Winograd and Flores. Through this

study, the executive leadership began challenging their notions of thought, action, cooperation and coordination. They started to challenge these notions within themselves first: they worked on making consequential assertions, grounding assessments, making effective requests, and making reliable promises. They practiced this within the leadership team first and then quietly with their employees and customers.

Over time, the leadership team began seeing significant results in their ability to cooperate and coordinate with each other at the executive level, and to a lesser degree with their middle level management and customers. Specifically, the strategic actions they were able to execute produced a significant growth in market share. In a four-year period, during the years of the housing collapse in the United States, the leadership team was able to grow the company's market share from 4% to 30%. Additionally, while contractors were exiting the market in alarming numbers, the trade contractor studied was able to design and implement new practices and systems into their business that helped them increase margins and return their business to profitability.

Over the last seven years, the entire executive team has learned, to varying degrees, the linguistic action approach. As the team learned and experienced success, they began to think about ways to adopt LAP for thinking and acting within the larger organization. The trade contractor began introducing the learning to middle-level management in order to improve the coordination between the executive team and their direct reports, as well as to begin the improvement of coordinated action with their direct reports. While the training produced some observable benefits such as improved fulfillment of promises (because employees could better observe their promises) and the improvement of requests made (because employees were trained to make more effective requests), the concepts remained relatively abstract for the management teams.

The author reviewed the training materials and interviewed employees to better understand how LAP was taught, what elements of the training made the greatest impression, and how the LAP training influenced daily activities of the employees. Note the author confined her interviews to mid-level managers and higher on the organizational chart, as these were the employees targeted in LAP training sessions to date. When the mid-level managers become more fluent in LAP, the trade contractor intends to expand the training throughout the organization.

Content of the LAP Training Course

The training consisted of one three-hour session that took place in the trade contractor office in the afternoon. The first half of the training was lecture-style instruction, where the executive leadership presented LAP to the mid-level managers, based on the work of Flores (1982; Flores and Ludlow 1980), Macomber and Howell (2003), and Winograd (1987), among others. The second half focused on group activities, where participants acted out various conversations to help them better understand the concept of LAP and its application in their daily work activities. A few of the participants felt they wanted more training after the first session, so they volunteered to teach the second session, and made a few modifications, primarily to re-distribute the time so participants spent more time in groups acting out different conversation scenarios.

Training focused on making effective requests and securing reliable promises within and outside the organization. In terms of requests made by a customer, training focused on clearly specifying *conditions of satisfaction* and a *time for delivery*. Figure 3 illustrates the conditions of satisfaction. Additionally, methods for triggering the listener (performer) to more effectively notice these conditions and the time component were covered. For example, members of the management team discussed techniques with emails such as crafting subject lines to include the fundamental action, or highlighting the request along with the conditions of satisfaction and time component in the body of the email.
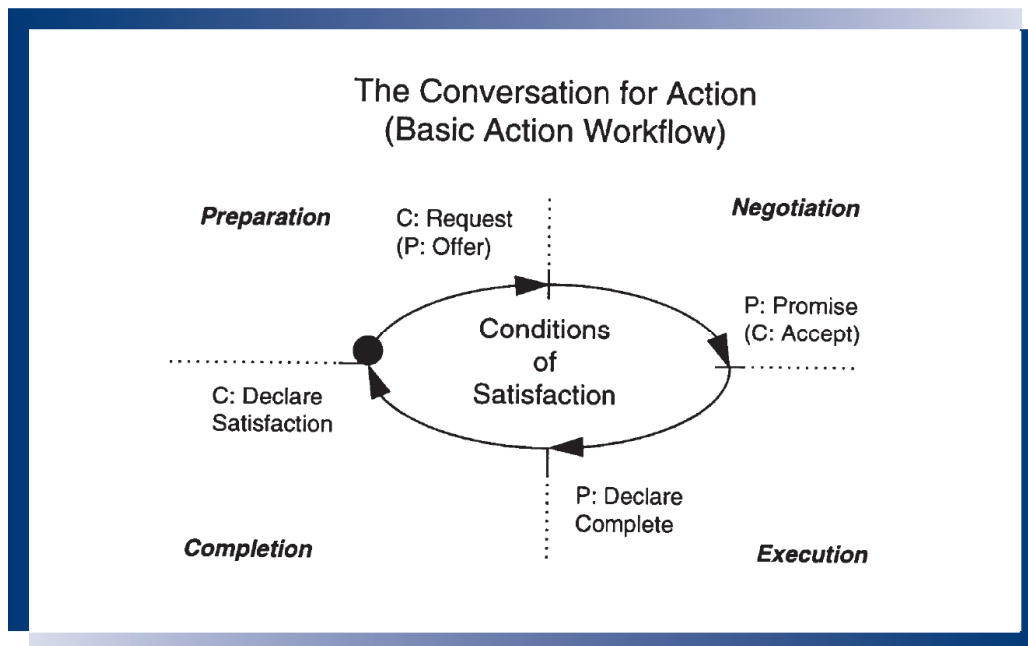

Figure 3. The Conversation for Action (Dunham 1997)

The training covered promises from two perspectives: action and trust. Trainers taught that all action came from commitments and concerning a request, that meant the performer would commit to negotiated conditions of satisfaction and a date for completion by making a promise. All actions for fulfillment would come after that promise was made. Additionally, the concept of trust was covered as it relates to humans keeping promises. The trainers impressed upon participants the consequences to the participant's identity when promises were fulfilled as well as when the participant failed to fulfill a promise.

Using Winograd's Basic Conversation for Action Diagram (Figure), participants were also trained to see paths and states of a request, where the conversation became costly and where it ended. Training also taught trainees how to identify when conversations were heading towards state 8 or 9, whether declared or not (i.e., whether or not the cancelations or declines were explicitly stated). Moreover, training taught strategies to address these conversations. Namely, a senior executive shared two examples in the training that illustrated how trainees could try to move conversations either in or heading towards state 8 or 9, back on the path to state 5. Both of his examples involved email communication where he made a clear, time-

bounded request. Approximately two days after the time expired, he sent a follow-up email with the words, "I accept your decline," and found that these words alone prompted near-immediate action from the other person in the conversation (e.g., the other person responded to email within a couple of hours). In both cases, the other person wrote back to the executive and was much clearer about when (or if) (s)he would be able to fulfill the request.

A few students of this training showed initiative in LAP implementation, and the trade contractor requested that these students lead the training for their peers. As implementation within the organization proved successful, the trade contractor invited key vendors and trade contractors to participate in the training, supporting LAP implementation outside of the organization.

Ultimately, as the executive team began to see the consequences of producing an organization who could effectively and competitively coordinate action, they imagined an organization where all key roles superiorly understood how action is produced in language and as result used that knowledge to fulfill promises for conditions of satisfaction to customers across the entire network of commitments that produced their offer. To do this they envisioned training all key roles from executive management, to the field superintendents, to different degrees, in the linguistic-action paradigm. Additionally, they speculated that the design and implementation of certain processes, tools and feedback loops would be necessary to institutionalize the framework and make it self-generating and self-regulating.

Employee Reaction to the Training

Overall, employees responded positively to the training. The five employees interviewed (representing about half of the middle managers originally trained) stated they learned something, they changed their work habits, and they saw a benefit for the organization if LAP was implemented across the organization.

The author asked the employees to describe LAP or conversations for action in their own words to assess whether or not the training clearly conveyed the concept of LAP. The employees interviewed provided a range of responses, but all described LAP well, particularly as it relates to making clear requests and stating the benefit of the request to the requestor. Moreover, most interviewees reported learning that conversations for action are deterministic (e.g., have a finite number of end states) and conversations can be managed if approached as a request and commitment.

The author also asked employees to comment on how the training had impacted their work practices. All of the employees stated they had modified the way they made requests, ensuring requests were clear, time-bound, and easy to find within emails. Moreover, three of the five employees interviewed explained they spent more time and effort thinking about the other person in the conversation to ensure they contextualized their requests to convey mutual benefit. For example, one project manager said he now explains why information he asks for from vendors will support not only his purposes, but the vendor's interests as well. Finally, one project manager interviewed stated that he begins conversations with the end in mind. He knows he wants the conversation to end up in state 5, so he steers the conversation in that direction from the beginning.

Finally, the author asked the employees what they thought the benefit would be to the organization if the entire organization implemented LAP. Interestingly, the author only heard one response repeated. One employee stated LAP implementation would

align employees and improve teamwork within the organization. Another employee stated LAP implementation would save time, as he perceives himself spending quite a bit of time trying to decipher others' requests, and he feels that time would be more productively spent if he could respond to a clearer request. A third employee stated that successful LAP implementation would provide a competitive advantage to the organization, as the organization would become a "benchmark" trade contractor for scheduling. He felt that routinely delivering on commitments was the only way to "leapfrog" others in the industry that may have longer personal relationships with builders, and thus win more work. Finally, two of the employees interviewed stated that LAP implementation would save cost, though for different reasons. The general superintendent felt LAP implementation would reduce the need for re-dos and thus reduce costs. He also stated that LAP implementation could help the organization to better understand customer wants and needs, in turn supporting a reduction in re-work. A senior executive, who also stated the primary benefit of LAP implementation would be reduced costs, explained that if conditions of satisfaction were clearly understood from the outset of a project, the organization would be able to complete the requests more efficiently, thus delivering value to clients.

SUCCESSES

At the executive level, the trade contractor found that the team was able to more effectively coordinate strategic action plans amongst themselves and through their direct reports. For example, the trade contractor was able to coordinate strategies to successfully grow market share from 4% to 30% over a four-year period. They attribute this to the new conversations they were having as a result of studying language action, and in essence, cleaning themselves up with their own ethics around making requests, offers, assertions, assessments, declarations and promises. This allowed them to invent new possibilities, come to a consensus on them, and then execute them effectively and competitively.

As the executive team offered the training to their middle level management team, the executive team created sessions that were intended to further increase their own ability to coordinate effective action in the organization. Training materials highlighted the importance of *accepting* requests, and explained how requests that are left unanswered undermines the concept of reliable promising and LAP. This heightened awareness led to reduced wait times for return calls, reduced time to respond to emails, and an improved outlook on making commitments.

The trade contractor also found that training was most successful when led by peers of the audience. Thus, the organization will make efforts to engage peers of the audience as instructors for future training activities. This should also lend credibility and context to the training, as it will address relevant examples for the audience.

Finally, the organization found a cultural shift took place after implementing LAP. Throughout the organization, employees began holding themselves to higher standards of speech, clearly articulating requests, negotiations, and commitments. The organization recognized improvements not only in speech, but also in attitude and outlook, both onsite and in the office. While some management employees were resistant to the learning, they either eventually accepted it or departed from the company.

CHALLENGES

The trade contractor faced a few challenges when implementing LAP, discussed briefly below:

- The organization had to translate an abstract concept into an actionable one. It was not easy to shift thinking in a product paradigm into a people paradigm.

- The organization implemented training in waves and this involved a learning curve. The organization had to assess and learn which materials would be most effective for a given audience, who would be the appropriate trainer, and when to introduce training to various audiences.

- After completing the training, some employees use the same words and tone to make requests in all of their correspondence. While this is positive in terms of showing impact to daily activities, these requests may seem harsh to certain "person Bs" in a conversation. For instance, an email with a clear request (i.g., one with a deadline and explanation of what is needed and why) may be appropriate for a colleague but not for a customer.

NEXT STEPS

The residential trade contractor continues to engage its Executive Board in LAP training and work to develop the LAP implementation within the organization. Further, the trade contractor is working to develop a workshop on Conversations for Action that can be easily applied by front line management, to further the gains and benefits the organization has realized from LAP implementation to date.

The trade contractor is also working to formalize their philosophical stand on production and linguistic action to better support its implementation and aid in roadmapping next steps for LAP. This will also facilitate the trade contractor developing a structure to support making and receiving reliable promises.

While the trade contractor has found training supports LAP implementation, the organization is seeking tools that further facilitate implementation, particularly for the front line management. The tools should focus on making feedback loops explicit and helping to close these loops. In turn, this will reduce the number of non-responded requests.

CONCLUSION

The LAP offers a structure for making and receiving reliable promises, in turn facilitating value generation within and outside of organizations implementing LAP. Due to the unique nature of residential construction, particularly as it relates to variability and complexity, LAP is arguably more critical to implement. This paper presented the LAP implementation journey of one residential trade contractor, in hopes that it will inspire other residential contractors to implement LAP and potentially form an LAP Community of Practice within the International Group for Lean Construction community. While LAP implementation has been successful thus far, the trade contractor profiled in this paper believes tool development is a critical next step in making LAP a reality within this trade contractor's organization and the residential contractor community at large.

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