WHAT DO PEOPLE LIKE AND DISLIKE ABOUT CONSTRUCTION WORK? VIEWS TO CONSIDER WHEN IMPLEMENTING CHANGE

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Abstract: It is important to understand the preferences of construction workers and to ensure that positive attributes of the job are preserved, and negative attributes are mitigated when designing a healthy and positive work environment. To better understand the preferences of construction workers, 108 interviews were conducted with workers on active commercial construction sites in Colorado. Workers were asked simple, open-ended questions about their jobs. Questions were deliberately general and open to enable a foundation of social constructionism and the use of discursive data analysis, preserving the richness of the discussion. The results indicate that workers most enjoy seeing tangible results, social interaction with co-workers, problem solving, challenging and diverse work tasks, and working with their hands. Conversely, negatively attributes were work pressure, indirect communication, mandates from upper management, dangerous work, and a feeling of indifference perceived of their co-workers. Interestingly, the analysis revealed generational differences in the perceptions of technology and work attributes. For example, older workers were resistant to change and preserved preservation of methods, while the younger generation was interested in and receptive to change. The results can be used by practitioners, especially when considering and implementing agents of change such as deployment of a new technology. Such consideration may increase likelihood and enthusiasm of adoption. Researchers and practitioners can ensure that the positive attributes of work are enhanced, and negative attributes are diminished to create and maintain a positive work environment.

1   INTRODUCTION

Work preferences are valuable to understand because they link to both short and long-term success, mediated by motivation and job satisfaction (Amabile 1997). Research suggests that unmotivated employees expend the least amount of energy as possible at work, avoid work whenever possible, and produce low-quality work. Colloquially, unmotivated employees do just enough to avoid being fired. On the other hand, positive work attributes are linked to more motivated employees and enhanced work outcomes (Kowske, Rasch, Wiley 2010, and Smola and Sutton 2002). Motivation can be highly variable within a workforce and may fluctuate particularly as organizations institute change (Waninge, Dornvei, and Bot 2014). Job satisfaction is also a principle mediator between job attributes and work outcomes. If negative work attributes are present, job satisfaction typically decreases and job performance degrades (Hackman and Lawler 1971). In addition to the primary determinants of work performance, positive attributes of work also promote employee retention, health and safety, and general well-being (Wilson 2004, Grawitch et al. 2006, and Singh and Jain 2013).

Since the body of literature on work attributes is fragmented and dispersed across disciplines and industries, this review aimed to identify generalities in work preference that are independent of context or work type. The study involved (1) a thorough review of literature in work preference across industries; (2)

examination of work preference outside of construction; and (3) validated the generalizability of the findings to construction. This paper presents a basic overview of the first two steps and details for validation in construction. Data were collected via 108 open-ended interviews with workers and analyzed from social constructionist perspectives (Gergen 2009). An iterative approach was used to objectively code and subjectively explore the data using both content analysis and discourse analysis, respectively. This mixed process yielded a detailed and thorough understanding of work preference.

2 BACKGROUND AND LITERATURE REVIEW

2.1 Focus of Current Research

In construction, human resources (workers and managers) are vital because they are the most flexible, adaptable, and trainable assets. However, they also can be inconsistent and prone to error, making them also the most sensitive and unreliable assets (Liyanage 2015). It is not surprising that humans are often considered as flexible elements of a workplace that will adapt to changes. Unfortunately, if the changes do not promote job preferences or involve negative attributes, work performance may decline because of the change, counter to the original objective. To enable thoughtful implementation of change, this research identifies job preferences directly from construction workers. Existing literature in the social sciences identifies general human preferences, but the extent to which these findings translates to construction work remains unstudied. Such knowledge could enable human-centered decisions that positively impact worker well-being, safety, and performance (Edmonds 2018) and ensure that the end goals of a specific technological or managerial change are realized.

2.2 Work Attributes

It is broadly understood that people like their job for many reasons, including: the enjoyment and sense of challenge of the work; social interaction; the ability to be creative; participating in satisfying and engaging work tasks; recognition of work-life balance; a sense of belonging; and engagement through inspiration, commitment, and fascination (Amabile 1997, Cohen and Prusak 2001). Other researchers have found similar findings that change depending on the research design and context. For example, Turner and Lawrence found six attributes that define work preferences: variety, autonomy, required interaction, optional interaction, knowledge and skill required, and responsibility (1965). Additionally, Csikszentmihalyi (2000) found eight attributes: enjoyment of the application of acquired skill; motions and patterns of the activity; development of personal skills, friendship, and companionship; extrinsic competition by measuring oneself against peers; intrinsic competition by measuring oneself against internal ideals; emotional release; prestige; and glamour. Finally, Seijts and Crim (2006) found that workers prefer connecting with employees; clear vision from leadership; direct expectations and feedback; praise and recognition for strong performance; feeling empowered; autonomy; collaboration with a team; high ethical standards and credible reputation and confidence. The dispersed literature in this domain is summarized in Table 1. The eight most influential references (as measured by citations) were included in this table. As one can see, there is some overlap in the findings, but there is not a clear and prioritized set of attributes that can be modeled for construction. This literature represents the overarching themes that were later used by the authors to code, analyze, and compare construction interview data for validation.

Despite the fragmentation and dispersion of literature in work preference, Herzberg et al. (1959) theorized that job preferences can be simply modeled using the motivator-hygiene theory. The premise is that there are five attributes of a job that produce either satisfaction or dissatisfaction (motivators): (1) achievement; (2) recognition; (3) pleasure of the typical work activities; (4) responsibility; and (5) advancement. Alternatively, the factors of dissatisfaction (hygienes) are caused by (1) policy and administration; (2) supervision; (3) salary; (4) relationships among coworkers; and (5) work conditions. Subsequent studies supported this model and defined these factors in greater detail (Bowen 1980; Padilla-Velez 1993; Hinkin and Tracey 2000). For example, employee turnover has been found to be the result of poor supervision, a poor work environment, and inadequate compensation (Hinkin and Tracey 2000).

Table 1: Work Attributes from Literature

Source	Herzberg et al. (1959)	Turner Lawrence (1965)	Amabile (1998)	Csikszentmihalyi (2000)	Hinkin Tracey (2000)	Cohen Prusak (2001)	Seitis Crim (2006)	Estridge (2018)	Present Study (2019)
Positive Attributes									
Human Interaction and Team Dynamics		•	•	•		•	•	•	•
Movement and Exercise									•
Variety and Creativity			•	•		•	•		•
Autonomy			•				•		•
Upper Management/Communication							•		
Building with Hands									•
Problem Solving									•
Easy Work Tasks									•
Pay	•	•						•	•
The Work Itself	•	•	•	•		•	•	•	•
Motions and Patterns of Activity		•							
Extrinsic Competition		•			•				
Intrinsic Competition		•			•				
Emotional Release		•			•				
Prestige, Pride and Glamour					•		•	•	•
Rewards and Recognition	•						•	•	•
Responsibility	•	•						•	
Growth and Learning	•						•	•	•
Involvement in Change								•	
Goals and Achievement				•		•	•	•	
Challenge				•		•	•		•
Negative Attributes									
Policy and Administration	•								•
Supervision	•				•				•
Salary	•				•				•
Coworkers	•								•
Work Conditions	•								•
Health and Safety									•
Logistics, Planning and Coordination									•

3 RESEARCH QUESTIONS

The objective of this research was to identify and document work attributes that are preferred or not preferred by workers in the construction industry. To achieve this objective, the following research questions were addressed:
1. What attributes for construction work are generally the most desirable, and how do data from the literature and empirical work compare?
2. What attributes for construction work are generally the least desirable, and how do data from the literature and empirical work compare?
3. How can this information be used to successfully implement change or aid in decision making?

4   RESEARCH OBJECTIVES

4.1   Research Approach

Understanding the preferred work attributes in construction and the extent to which findings from other industries and applications generalize to construction can only be achieved through discussions with workers. Pre-defined surveys or structured interview templates would bias the sample and be fraught with confirmatory bias. Since humans are complex and irregular, we explored the research questions using a social constructionist approach. Social constructionism involves asking basic, open-ended questions and systematically analyzing the responses with open coding of not only what is said, but also *how* workers talk about their jobs. Specifically, discourse analysis reveals the complexities, consistencies, and inconsistencies in the way that people speak about their job preferences (Wetherell and Potter 1988 and Burck 2005). Once interviews were completed, the data were transcribed, coded and analyzed using content analysis facilitated by NVivo 12 Pro.

Social constructionism has been essential for the development of theories related to culture and society and discourse analysis is the most widely approach used to draw conclusions from verbal responses (Jorgensen and Phillips 2011). There are four premises shared by all social constructionist approaches: 1) critical stance to taken-for-granted knowledge; 2) historical and cultural specificity; 3) knowledge is sustained by social processes; and 4) link between knowledge and social action (Burr 2003). Discourse analysis establishes a relationship between language and context by examining patterns of language and considering the relationship between words and the cultural contexts in which they are used. Such analysis enables the researchers to consider how views of the world vary, and examines the relationships between participants. Discourse analysis has predominately been used in the humanities and social sciences, including linguistics, sociology, cultural studies, education, and communication, however it is applicable in any discipline or industry (Eggert, Roffee, and Thomas 2014). To date, this mixed methods approach has not seen widespread use in the construction domain.

While there is some opposition to using software programs to aid discourse analysis, the method was used to develop direction (Seidel 1991) and separate the researchers from pre-existing biases (Barry 1998; Hinchliffe et al. 1997). Here, a combination of a systematic literature review, discourse analysis, and content analysis was used to unpack complexities and inconsistencies that exist across over a hundred construction workers in Colorado. The combination of structured content analysis and discourse analysis presented both a factual representation of what was said, a detailed understanding of how it was said, and the extent to which there is internal consistency within and among responses. The open-ended nature of the questions promoted discussion and allowed the conversation to go in whatever direction the participant dictated.

4.2   Participants and Setting

Previous construction research on human factors typically focuses on the opinions of employers or safety managers (Gerber and Yacoubian 2002; Fardhosseini and Esmaeili 2016). As familiar workplace norms tend to take priority over formal policies, shifting the focus to site workforce may provide the most useful and informative data (Miller et al. 2007). All interviews were conducted by one researcher across eight commercial construction sites in Colorado. Per the approved human subjects' protocol, participation was on a strictly voluntary basis.

The sample of 108 workers closely resembles the demographics of the construction industry in the United States. For example, all the subjects were male, and twenty-five participants were of Hispanic or Latino, which reflects the demographics of the US construction industry. According to the Bureau of Labor Statistics, 27.3% of workers in construction are Hispanic or Latino and only 1.3% of construction workers are female (Bureau of Labor Statistics 2014 and 2015). Further, the average construction experience was approximately 14 years with a range from one month to 50 years of experience.

4.3 Interview Questions

A series of open-ended questions were asked of each of the participants that began with a discussion of the general description of their jobs and their experience to stimulate conversation and build comfort with the interviewer.

The specific questions were as follows:
1. Tell me about your job.
2. What do you do here and how long have you worked here?
3. Have you always done this type of work? If not, what did you do before?
4. Why did you choose construction?
5. What do you enjoy most about your job, if anything?
6. What do you dislike most about your job, if anything?
7. Are there any changes you think could or should be made in the workplace?
8. Do you think your coworkers feel the same overall about their jobs and the workplace?

Although prompts were used to guide the conversation, there were circumstances where variations of questions were asked, questions were omitted, or questions were added based on the natural direction of the conversation. Having some set questions allowed the researchers to standardize the data collection process while allowing workers to lead the discussion on their terms. This questioning style leads to comfortable conversation that allows discourse to naturally emerge. Importantly, all interviews were conducted in the field where workers were engaging in construction activities to promote ecological validity and to encourage specificity in responses (e.g., providing specific examples).

4.4 Process

Each interview was audio recorded with the express permissions of the worker and the employer. Once the interviews were complete, each interview was transcribed. As subsequent interviews were conducted, clear discourses emerged as indicated by repetition in responses. Interviews were ended after no new discourses emerged from the data. This saturation was achieved after approximately 100 interviews and was later confirmed during transcription and analysis following the recommendations of Kumar (2005).

The transcribed text was imported into QSR Nvivo where it was coded. This software is designed for qualitative analysis and modeling of patterns in large volumes of text data. Nvivo was useful in the analysis of the nearly twelve hours of interviews because it allowed for the visualization of latent patterns and minimization of researcher bias (Richards and Richards 1991). During transcription, we notated themes and patterns. These coded categories collapse and expand within the constant comparison method (Silverman 2001). Throughout the transcription process, the content was analyzed within and between transcripts to ensure that multiple, repeated passes were made of the coded data which creates a high level of researcher familiarity and confidence in the data to ensure validity and accuracy (Taylor 2001). Using this highly systematic approach ensures a thorough review and reduces bias.

The structured content analysis exposed the general themes of **what** was said and was complemented by the discourse analysis, which reveals patterns and themes on **how** interviewees said it (Gergen and Gergen 2004). A variety of patterns and themes emerged through both content analysis and discourse analysis including patterns of variability (both consistent and inconsistent), emergent themes, nuance, contradiction, and repetition (Wildemuth 2016). Social constructionism, in a manner similar to grounded theory, creates reliability by external comparison among responses and internal comparison within responses to establish dominant patterns (Taylor 2001 and Burr 2003). Paltridge (2013, p. 2) claimed that, "discourse is one of the most significant concepts of contemporary thinking in the humanities and social sciences as it concerns the way language mediates and shapes our interactions with each other and with the social, political and cultural formations of our society."

With the focus on human resources in construction, the flexible and adaptable coding approach allowed for patterns to develop and disappear throughout the process, which resulted in focus on the dominant discourse (Wiggins and Potter 2007). The combination of discourse analysis and structured coding allowed for an iterative approach and cross-validation of the approaches and yielded high internal validity (Taylor

2001). The findings presented are the dominant discourses as determined by the aggregated data and are the most prominent. These discourses are presented in a narrative to enable the nuances, relationships, and conflicts to be exemplified. The quotations provided in the results represent examples of dominant discourses. The standardization of data collection, transcription, and constant comparisons throughout the analytical process enhanced reliability and minimized researcher bias (Gibbs 2007).

5 RESULTS

5.1 Salient Work Attributes

Throughout the analysis of the transcriptions, the dominant attributes were classified as either positive or negative, depending on how the participants spoke about each attribute. The most powerful themes in the findings included:
- Workers genuinely enjoy their jobs in construction and take pride in their work
- Workers do not enjoy working with others who do not care about or take pride in their job
- Workers enjoy social interactions with like-minded co-workers
- Workers enjoy working with their hands and seeing tangible results of their efforts
- Dysfunction or lack of coordination from upper management was a ubiquitous negative attribute

Although the general themes were consistent overall, there were some inconsistencies among individual attributes, considered to be outliers. For example, some of the workers preferred more challenging work tasks that were physically demanding while others preferred lower mentally and physically demanding jobs. Due to these inconsistencies, the general themes discovered represent dominant discourse but should not be considered consensus. Although work conditions can be optimized by understanding and recognizing more desirable work attributes, these attributes are not universal.

5.2 Positive Attributes

As work attributes were identified, they were linked theoretically to existing literature and representative quotations were added to provide context and richness. One major theme was that most construction workers enjoy their jobs and have a high degree of pride in their work. The overarching theme that "you either like what you do or you don't stay long" in the construction industry was pervasive.

The most substantial work themes discussed as positive attributes are outlined below:
- Tangible Results, Project Completion, and Final Product
- Cognitive Demand, Challenge, and Problem Solving
- People and Coworkers
- Working with Hands
- Diversity of Work Tasks and Always Changing
- Movement and Being Outside
- Autonomy

The most dominant theme was that construction workers look forward to the tangible results from their work, whether outputs of their individual trade or completion of the project overall. When simply asked what they enjoy most about their job, the most common responses were, "The building itself. Taking something from ground and just building, you know, entire buildings" and "the ability to look back and say, 'I built that' and see my own personal accomplishments." Workers are proud of their craft and, when a project is complete, there is a strong individual sense of personal accomplishment. After tangible results, the most dominant positive theme was that construction workers enjoy working with their coworkers. In general, workers perceive each other to be friendly. In fact, one participant stated that, "people are more personable on a job site than if you're walking down the street." Consistent with literature, the importance of the interpersonal aspects of work are emphasized and it is notable how drastically they influence the nature of work and the employment relationship. This social domain of construction work is interesting and arguably one of the least understood of the attributes studied but has a major influence on the efficiency and effectiveness of the organization (Wilson 2004).

Interestingly, cognitively demanding and challenging jobs were determined to be preferred work traits. People like demanding and technical work that requires them to learn new things throughout their careers. Problem solving and troubleshooting was widely acknowledged as positive. Perhaps unsurprisingly, a common theme was enjoyment of jobs that involve working with their hands instead of behind a desk or in an office. Being hands on, working outdoors, movement throughout the workday, and work tasks that are never repetitive and highly diverse were favoured. Additionally, the discourse analysis revealed that construction workers perceive that when they are autonomous and management isn't, "breathing down their neck," they are able to be efficient and productive and enjoy their jobs. Workers often made direct comparison to the lack of autonomy and the repetitive nature of work in manufacturing to show their preferences over alternative jobs.

Other positive attributes included pay and easy work tasks. The primary reasons given for entering the construction industry was adequate pay, followed by entering the 'family trade.' While more workers prefer the challenge of difficult or physically demanding work tasks, there was a sizeable minority who preferred simple jobs. Specific work tasks were also described as preferences; however, with the variety of trades on represented in the sample, these findings could not be summarized as generalizable themes.

5.3   Negative Attributes

In contrast to positive attributes, workers expressed undesirable attributes as well. When asked to think about what it is they do not like about their job, most participants were able to clearly define negative themes. Workers with more experience often reminisced about the past and expressed their displeasure that construction has changed over the years. They specifically note that projects are being built faster and cheaper and construction has "lost the fun." The major negative work attribute themes can be summarized into four categories:
- Scheduling and Communication
- Upper Management
- Health and Safety
- People

The category of scheduling and coordination encompasses logistical challenges, coordination issues at the project and trade levels, lack of foresight and planning, long working hours, drawing errors, rework and specific scheduling concerns. The issue of rework was discussed at length among a variety of trades and typically stemmed from poor trade coordination and congestion. Rework was also linked to people not being respectful work completed by other trades. Overall, construction workers agree that scheduling challenges have evolved and project schedules are more condensed. For example, workers note that "We all want it to slow down. Years ago, you had time to do your job right. Now you have to do your job right and fast."

Scheduling and coordination ties into communication as many of these concerns and issues can be linked with or attributed to poor communication. Although communication issues do include language barriers and top-down corporate communications, participants more commonly believe that information is being lost or not disseminated properly among trades and there are deficiencies related to spatial and logistical coordination. A representative comment was that, "things slip through the cracks and people get lazy in how they communicate things to other people and subsequently things get lost." Others believe that the communication issues stem from those in the trades not being heard and, "all people want to do is be heard." Additionally, there appears to be a significant disconnect between upper management and the field. Office politics, bureaucracy, and a perceived disconnect with corporate leadership were all issues, summarized as, "The organization is a big thing…if the upper management is organized then it makes everybody else's job easier." Other management issues included perceived favoritism and the need for more recognition for a job well done.

Negative attributes associated with health and safety included those related to specific work tasks that were more dangerous or ergonomically challenging (e.g., working on knees, on ladders, and heavy lifting). Specific tasks such as working on the roof or underground were cited as examples of work that is "tough on your body." Undesirable working conditions were associated with working outdoors like extreme weather conditions, heat, and cold. Interestingly, even though the extreme conditions are undesirable, the

opportunity to be outside during the workday was generally considered a positive work attribute. There was also a heavy focus on safety as a negative attribute in construction. Although workers believe safety is important, they also felt the industry's regularity-based approach to safety was overbearing and counterproductive. Participants generally noted that there were inconsistencies with safety within their company and across the industry. As one worker noted, "every jobsite is different" when it comes to safety requirements and construction workers find this inconsistency to be a disadvantage. Even more interesting, some participants stated that while emphasis on safety is desired, it's being pushed too far with management following "the book more than common sense."

Another negative attribute is related to social interaction and working with other people on sites. Although interaction was considered to be positive in some contexts, personality conflicts, language barriers, communication issues, lack of pride or respect, temporary labor concerns, lack of knowledge and ambition with newer/younger workforce, work force shortage, and not enough ownership in work were all cited as negative aspects of the job. Much of this list can be summarized with the overarching discourse that construction workers do not like working with other people who do not care about their job. The phrase "people who don't care" was heavily used when describing negative attributes. Temporary workers were most commonly described as the people who do not care about their job because they are "only at work to collect a paycheck." Some believe that new workers do not care and are taking advantage of workforce shortages. As one worker noted, "a lot of these guys are green. A lot of these guys just don't care." This indifference was recognized by many as a problem that causes rework and frustration, especially when temporary workers "don't appreciate other people's work."

Other negative attributes that were recognized during the discourse analysis include salary and repetitive work. Although salary was discussed as a positive because construction is generally well paid, it was also cited as a negative because there is substantial room for growth. Worker feel that salary does not match skill and experience, causing skilled workers to feel underappreciated. Interestingly, salary was a primary motivator for some, but not others. For example, one worker noted that "money doesn't mean anything to some people - just being able to go home to your family everyday" was most important.

5.4   Generational Differences and Technology

A unique and unexpected outcome of this study were the generational differences that emerged in the analysis. There were two main age groups in the population, which is reflective of the current demographic of the industry. The first group was an older generation close to retirement who have dedicated their careers to construction with over 25 years of experience. The second group was a younger generation of workers who largely do not intend on a full career in construction. Twenty-three of the participants had more than 25 years of experience in construction and 78 participants had less than five years.

The generational differences included different opinions and abilities with technological advancements, varying attitudes toward craftsmanship, and overall motivation. The older generation was far less receptive to technological change perceiving it to be a hindrance to productivity and a disadvantage to teaching new workers the *craft of a trade*. Representative quotes included, "I know how to do it this way" or "this is the way we have always done it." In fact, many workers made a direct correlation between age and acceptance of technology as portrayed by the following quote: "I'm young, so I'm open to technology for sure." The general finding was that there is a place for technology in construction and that technological advancements exist within individual trades, but the implementation on a larger scale should require extensive research and training prior to roll out.

5.5   Discussion

Construction worker opinions on work preferences are generally positive with workers enjoying their work. Although there are clearly defined positive and negative work attributes that are many of the findings validated general literature, there were some specific attributes and contexts that were different for construction. For example, working with other people, completing tasks that require mental acuity, problem solving, and working with hands were all found to be desirable. Alternatively, work pressure, indirect communication, mandates from upper management, dangerous work, and a feeling of indifference perceived of their co-workers were the most notable negatively attributes. Interestingly, the major source of

variation in perceptions linked to generational differences that in turn link to resistance to or acceptance of change, and general expectations of the employer.

This information is helpful as organizations implement change on construction sites. For example, if an organization plans to implement a new technology, it should be done carefully and with the understanding that older workers are likely to be more resistive. Further, through a strategic design and implementation of a technology, positive attributes of the work can be promoted, and negative attributes can be mitigated. For example, more involvement of the workforce implementation of change could increase buy-in and feelings of involvement and autonomy. This could improve job satisfaction and motivation which likely would positively affect employee retention. Although these are only a few examples, understanding the attributes of construction that are more desired and those that are less desired is information that can be applied across a variety of uses from technology implementation to changes in organization structure or culture. Strategy with thought given to these attributes may improve overall worker well-being, productivity, safety, and quality. Such improvement may, in turn, improve the success of the entire industry.

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