MPM - Master of Project Management

The phenomenon of uncertainty in projects:
How teams can understand its impacts and respond successfully.

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Student: Kristrún Tryggvadóttir
Supervisor: Bob Dignen

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Abstract

Uncertainty is an inevitable part of life and as a result also of projects. There are many forms of uncertainty in projects and modern approaches for managing uncertainty are based largely on measurability and engineering. The form of uncertainty that can be most corrosive for a project team however is communicational uncertainty, and this is especially true for international teams. International teams are often knowingly assembled with a degree of diversity and can achieve high levels of performance if this diversity is managed without losing the varying perspectives. By developing our emotional intelligence through experiential learning exercises we may become more aware of our cognitive biases and attribution errors. We can learn to appreciate them as natural human reactions to a lack of knowledge (uncertainty) and part of what it is to be human. We can gain a sufficient understanding of them so that we may better regulate and not allow them to hinder our communication with others. The scientific waterfall approach to management is slowly shifting toward a more human approach. Trust, which accepts and includes uncertainty, is the basis of good communication and trust is what international teams should strive to build.
Introduction

In projects there is always uncertainty that stems from various sources. Whether it be the result of unforeseeable future occurrences or because of the often faulty assumptions people make involuntarily in response to limited or no experiential data. In project management we may use measurements and planning strategies to minimize the scale and importantly the likely impact of uncertainty. The question then arises as to whether or not these tools at our disposal and their accuracy cast any light on the phenomenon and management of uncertainty? In this paper I intend to explore the uncertainty pertaining to the communicational aspects of projects, how it can affect teamwork and what we can do to minimize it's impact on team performance. What do we need to be aware of in ourselves and in others and can we become more aware of our reactions to intrapersonal and interpersonal uncertainty? Can we help others become more aware of their reaction to others? The goal is not to find a way to end uncertainty but rather to determine if there is a way for a team to accept and function effectively when facing and in spite of uncertainty and most importantly how it can reduce its harmful impact on key project processes, outcomes and stakeholders. We have at our disposal measures to explain and predict diverse aspects of uncertainty - from the universal uncertainty that is engrained in the nature of all things to the structural uncertainty of projects we have - and strategies for coping.
Uncertainty

Dealing with uncertainty is something we all do on a daily basis to some extent but that does not mean we are necessarily aware of it or that prepare for it. Deciding whether or not to take our umbrella when we leave the house in the morning is an example of a decision in the face of uncertainty, as the weather does not always obey what the forecasters of rain have predicted. A forecast might also be considered an educated guess at best and in no way a certainty.

Uncertainty manifests itself in many ways and we may not be consciously aware of them all. Most likely we can never have full certainty or as Donald Rumsfeld puts it,

There are known knowns, the things we know we know. There are known unknowns, the things we know we don't know. There are also that third category of unknown unknowns, the things we don't know we don't know. You can only know more about those things by imagining what they might be. (Morris, 2013)

There will always be unknown unknowns that we cannot be aware of and that we can only hope to imagine. Uncertainty is therefore a principle of life and as project managers we must be aware of the phenomenon, how it may manifest itself and of its many potential consequences.

Uncertainty is universal and everywhere according to Heisenberg's uncertainty principle. The principle states that in spite of using the most accurate available methods and tools, exact measurement is impossible and uncertainty remains as uncertainty is built into the very nature of all things, and in order to gain certainty regarding one detail you will always lose certainty concerning another. Therefore absolute certainty is impossible to achieve (Jha, 2013). The phenomenon of attention itself, as in paying attention I would argue is an exercise in eliminating uncertainty, and one we practice on a daily basis. This fundamental human practice is in essence the act of focusing on something in order to watch out for it, make sense of it and/or draw correct assumptions about it while actively ignoring other data or stimulus. If I
for instance want to be absolutely certain about at which speed I am driving my car at all times I will undoubtedly lose at least some of my concentration on the road ahead as I watch my speedometer. I cannot be certain about the situation of both at any given time. The degree of uncertainty also depends on the speed at which I am travelling and the environment which is also ever changing and uncertain. The attention of 'consciousness' itself achieves a level of certainty by attention only by rendering other things uncertain. (Dignen, 2017)

Uncertainty in project management
As project managers we are taught to manage risk and uncertainty systematically and scientifically. Mainly we are taught to do this through planning, measuring and charting. When uncertainty levels create friction within our team, we are taught how we may manage this crisis. Certainly project management today is based largely on an engineering approach and on the measurability of data, an empirical approach that seeks to engage with an implied knowable and controllable reality (Dignen, 2017). Therefore during the first stages of a project possible risks are identified and strategies for dealing with them are composed and evaluated. A hierarchy is established within the project team where accountability and management roles are defined. Analyses like PESTLE and SWOT are common practice as is the charting of stakeholders and the extent of their potential influence and engagement. Critical paths are identified and timelines drawn up to make absolutely clear what needs to happen and in which order, along with the dependencies of diverse tasks. Deadlines can be charted with PERT analyses to show whether or not they can be met. This so-called "waterfall" methodology is a prevailing choice of leadership style today but also popular within agile, which is also structured but allows for greater flexibility and shorter planning cycles. Also worth mentioning is VUCA, a model for evaluating environmental uncertainty (Appendix C). The VUCA model has in recent years become a staple within the business world as it helps leaders make sense of environments where planning is nearly impossible due to environmental issues (Bennet & Lemoine, 2014). Interestingly when gathered together and scrutinized we notice that very few of the formulas and analyses look at the inner structure of the team and the uncertainties of its operation. A lack of measurability does not reduce ambiguity Does a lack of focus
on relationship measurability imply that a project is successful if it meets its deadline and is carried out in accordance with the plans and analysis done in its beginning stages? The danger of focusing only on the more concrete dimensions of projects is that it may provide us with little more than an illusion of certainty and control.

**Uncertainty in international projects**

Projects exist on many scales, from local and national to multinational entities. The difference in levels of uncertainty, especially those of a communicational nature will often increase in proportion with a projects internationality. International teams are therefore often also more likely to face communicational uncertainty, as they tend to be more culturally diverse with different national cultural and professional culture backgrounds. This diversity, sometimes for which team members were most likely chosen can represent a hindrance to decision making and the building of relationships for example, and can even make it difficult for a team to realize the potential that diversity can offer. Optimal performance for a culturally diverse team is best reached when the dynamics of this diversity are managed in such a way as not to lose the varying perspectives for which the team members were likely chosen (Maznevski & DiStefano, 2000). Teams consisting of members with similar background will face uncertainties, but on an international level those uncertainties multiply as extra layers of ambiguity are added with less interpersonal knowledge and lower contextual knowledge between respective team members. Ambiguity in meaning, in method and psychological ambiguity, where teams members don't understand each other’s way of thinking, leading to false attribution can undermine team performance. Relationships may become volatile, especially in the face of such uncertainties and we can safely assume that communicational uncertainties along with this volatility will have some impact on the project, yet the casual connection to success or failure often goes largely unmeasured - it remains uncertain.

Communicational uncertainty can occur with any conventional interaction if the foundations of good communication are missing, and trust is in some way compromised (Dignen, 2017). Relationship uncertainty can also have a corrosive effect on project collaboration (Dignen & Wollmann, 2016). The adverse affect of the
failure resulting from human uncertainty within projects is often underestimated. (Dignen, 2017)

**Communication and uncertainty**

International project communication may be defined as the exchange of information, focusing on the verbal interactions of people in an international project context. Successful communicative outcomes ensure a project's overall success to some extent if the product is delivered on time and in good condition for example. Communicative success is, however, often less simply defined. If I ask someone to get me something and the other person throws it at me causing me personal injury, can we define the communication as successful? I have what I asked for yet did not specify that throwing was not how I expected the product to be delivered, and was without a full understanding of the delivery methods favored by the person I asked to deliver the item. Absence of interpersonal knowledge makes communication truly challenging. We often don't ask the right questions because we do not know the other persons perspective according to Richard Feynman. We need to know how the person we are communicating with sees the world in order to know what questions to ask (Sykes, 2008). To add complexity, our ability to understand other peoples motives as situational is often compromised because of our instinctual tendency to attribute the isolated behavior of others to personality traits instead of being situational reactions to circumstance or provocation (Ross, 1977). We tend to judge a person's character from isolated behaviors. A good example of this could be not returning a phone call. When done to us, we tend to assume that the other person is someone who is irresponsible and/or unorganized - we assign them character traits based on this one error but do not take into account all of the "what if's" that may have led to them not calling us back, their phone ran out of battery, they or someone close to them had an accident, they are seeing a play at their children's school and it's taking longer than expected. There is a whole range of possible explanations that we have a tendency to not consider. Our aptitude for communicating across interpersonal uncertainty is profoundly challenging.

As we communicate to others, the listeners' reception of our words or gestures is heard and interpreted through their own filters of experience and knowledge which
are often unknown to us. We can never be certain that what we mean to say is what the other person hears and understands. The confirmation of meaning through feedback is quite rare in human interaction and can even evoke in us a crude response such as annoyance. We cannot be certain that others will ask us to elaborate or explain if anything is unclear or even offensive to them.

Coping and learning strategies

One of the core competences for coping with uncertainty is Emotional intelligence (EI) our "ability to manage ourselves and our relationships effectively" (Goleman, 2000). Daniel Goleman explains EI as a set of four fundamental capabilities that contain certain competencies (Appendix A). The capabilities are, self-awareness, self-management, social awareness and social skills. We each possess a certain level of EI based on our experiences and how these have been rationalized. According to research the most effective leaders show strong competence in five of the competencies of EI namely self-awareness, motivation, empathy, self-regulation and social skill (Goleman, 2000)

Experiential learning processes help develop EI by exposing our natural and instinctive negative emotional responses to uncertainty as an opportunity and process for learning. Taking a group through learning exercises which explore our personal cognitive biases can establish and deepen trust within groups resulting in a higher tolerance for uncertainty within the group. Bob Dignen coaches groups through such exercises to provide them with the opportunity to face their biases in a controlled environment. The exercises are designed to challenge the participants and evoke a primitive sense of threat when facing uncertainty, thus allowing the individuals to catch themselves in the act of making unfounded assumptions. Participants are confronted with the reality of their level of tolerance toward others and uncertain situations, leading them to contemplate their views and reactions and to migrate towards a more open position. They are in theory led through an experience that affords them a chance to develop emotional maturity by becoming aware of their reactions and contemplating their reasoning and from where in the psyche the stem. The development of emotional maturity in the face of uncertainty implies the development of emotional regulation and emotional intelligence, and is seen by many
as the central competence for handling uncertainty driven by internationally diverse contexts (Dignen, 2017).

Research into what qualities a global leader should possess have also identified skills such as learning and adapting, an ability to manage relationships and ambiguity (Maznevski & DiStefano, 2000) Maznevski and DiStefano recommend teams use a process termed MBI (map, bridge, integrate) whose goal is to get teams to a performing level by becoming aware of and working with their diversity (Appendix B)

"...as our expectations about a person solidify, our listening for that person ossifies, it becomes fixed and we take away their permission to change. So we don't hear the stuff they do or say that is different from what we are expecting and that is something to be very conscious of in relationships." (TEDx Talks, 2011)

Within some specific sectors solutions to handle communicative uncertainty have been developed and implemented. When we look at air traffic control, for instance, a strict form of communication between individuals is insisted upon, standardizing communication to assure a successful outcome. Among the characteristics of such closed loop communication styles is that it is strictly to the point, only information that needs to be conveyed and understood is articulated, and important information such as speed, altitude or runway assignment is repeated back for confirmation (Captain Vilhjálmsson, 2017).

Transparent management and agile methods are also in essence, ways for teams to manage and co-exist with uncertainty, with project managers kept in close and regular communication with team members and the team with each other. By encouraging more regular cycles of communication and making sure that all voices have a chance to be heard, the team members are likely to feel empathy and show understanding to each other's circumstances, and be better informed. Meetings are held very regularly (daily) and teams exchange status updates on their assigned tasks. In this way the team is in regular communication and everyone is made aware of each others circumstances. The method of agile, in theory, allows leaders and teams to become
aware of and identify uncertainties sooner and react accordingly, minimizing its impact on the project.

Final thoughts

The systematic waterfall approach to project management is slowly shifting toward methods that require more self-awareness and policing of biases, and a new agility in the face of uncertainty. We know that uncertainty cannot be eliminated, that it will always be a factor in all projects, but we are becoming mindful of a range of pragmatic tools to help us deal with and minimize its potential risk through understanding and trust. Project managers can train themselves to become aware of their own biases as the unconstructive responses to the uncertainty around them that they really are. However, cognitive bias also makes us who we are and is part of the beauty of being human. It is ever present and despite the efforts to construct a communication system that aims to eliminate all natural human failure such as that used in air traffic control, it is critical to become more aware of this humanness and train ourselves and our project teams to deal with it and embrace it. Similarly, diversity can be a 'ticking time bomb' if not handled correctly; yet if handled it can be a recipe for a very effective team.

In the end it comes down to trust. Human projects and human interaction requires some degree of trust, which is often, said a characteristic of highly functioning teams and their accomplishments. Interestingly, trust accepts and even embraces uncertainty and can only be defined by the presence and management of uncertainty. Trust within a project team requires an acceptance of uncertainty and a certain level of tolerance toward uncertainty, yet is itself dependent on the presence of a negotiated degree of certainty. This is the paradox, which those in international projects must understand, embrace and consciously navigate.
Acknowledgement

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References


Appendix A

**Emotional Intelligence: A Primer**

Emotional intelligence—the ability to manage ourselves and our relationships effectively—consists of four fundamental capabilities: self-awareness, self-management, social awareness, and social skill. Each capability, in turn, is composed of specific sets of competencies. Below is a list of the capabilities and their corresponding traits.

<table>
<thead>
<tr>
<th>Self-Awareness</th>
<th>Self-Management</th>
<th>Social Awareness</th>
<th>Social Skill</th>
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<tbody>
<tr>
<td>Emotional self-awareness: the ability to understand and recognize your emotions as well as your impact on others.</td>
<td>Self-control: the ability to keep disruptive emotions and impulses under control.</td>
<td>Empathy: the skill of sensing other people’s emotions, understanding their perspective, and sharing an active interest in their concerns.</td>
<td>Visionary leadership: the ability to take charge and inspire with a compelling vision.</td>
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<tr>
<td>- Accurate self-assessment.</td>
<td>- Trustworthiness: a consistent display of honesty and integrity.</td>
<td>- Organizational awareness: the ability to read the currents of organizational life, build decision networks, and navigate politics.</td>
<td>- Influence: the ability to wield a range of persuasive tactics.</td>
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<td>- Self-confidence: a strong and positive sense of self-worth.</td>
<td>- Conscientiousness: the ability to manage yourself and your responsibilities.</td>
<td>- Service orientation: the ability to recognize and meet customers’ needs.</td>
<td>- Developing others: the propensity to bolster the abilities of others through feedback and guidance.</td>
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<tr>
<td>- Self-awareness: the ability to keep disruptive emotions and impulses under control.</td>
<td>- Adaptability: the skill at adjusting to changing situations and overcoming obstacles.</td>
<td>- Communication: the ability to listen and to send clear, convincing, and well-tuned messages.</td>
<td>- Change catalyst: proficiency in initiating new ideas and leading people in a new direction.</td>
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<td>- Achievement orientation: the drive to meet an internal standard of excellence.</td>
<td>- Conflict management: the ability to de-escalate disagreements and orchestrate resolutions.</td>
<td>- Building bridges: proficiency at cultivating and maintaining a web of relationships.</td>
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<td>- Initiative: a readiness to seize opportunities.</td>
<td>- Teamwork and collaboration: competence at promoting cooperation and building teams.</td>
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(Goleman, 2000)
Appendix B

(Maznevski & DiStefano, 2000)
Appendix C

**Complexity**

**Characteristics:** The situation has many interconnected parts and variables. Some information is available or can be predicted, but the volume or nature of it can be overwhelming to process.

**Example:** You are doing business in many countries, all with unique regulatory environments, tariffs, and cultural values.

**Approach:** Restructure, bring on or develop specialists, and build up resources adequate to address the complexity.

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**Volatility**

**Characteristics:** The challenge is unexpected or unstable and may be of unknown duration, but it’s not necessarily hard to understand; knowledge about it is often available.

**Example:** Prices fluctuate after a natural disaster takes a supplier off-line.

**Approach:** Build in slack and devote resources to preparedness—for instance, stockpile inventory or overbuy talent. These steps are typically expensive; your investment should match the risk.

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**Ambiguity**

**Characteristics:** Causal relationships are completely unclear. No precedents exist; you face “unknown unknowns.”

**Example:** You decide to move into immature or emerging markets or to launch products outside your core competencies.

**Approach:** Experiment. Understanding cause and effect requires generating hypotheses and testing them. Design your experiments so that lessons learned can be broadly applied.

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**Uncertainty**

**Characteristics:** Despite a lack of other information, the event’s basic cause and effect are known. Change is possible but not a given.

**Example:** A competitor’s pending product launch muddies the future of the business and the market.

**Approach:** Invest in information—collect, interpret, and share it. This works best in conjunction with structural changes, such as adding information analysis networks, that can reduce ongoing uncertainty.

(Bennet & Lemoine, 2014)