ABSTRACT

Without a doubt, technical skills are a foundation for success in business. Effective communication is a consistently growing need within the technical community. The way ideas are related, both one-on-one and in groups, can have significant impact on the success of any project. It is not merely about the quantity of the communication, nor the accuracy of the content, but the manner by which the interaction takes place.

Electronic mail, teleconferencing, and instant messaging remove important ingredients from the communication process. While many find it sufficiently intimidating to speak in person before an audience of any size, it may be more daunting to present a complex set of ideas without the benefit of facial expressions, voice intonation, or hand gestures. How something is said is often more important than what is actually said.

This paper will review effective ways to share information with individuals and projects teams. It includes the common aspects of in-person and long distance communication and provides methods to overcome the challenges of electronic mail, teleconferencing, and instant messaging.

The paper will be useful for management at any level, project and technical leads, and individual contributors.

INTRODUCTION

The business landscape has changed in many important ways since the 1980s, when the internet became commercially viable. Business needs and technology have been a major factor in the transformation of managing project teams. Teams used to work in single buildings, then multiple buildings, then multiple sites. Multiple sites used to mean different offices in different time zones but in the same country. Now members of a project team may be on any continent. In addition, geographic diversity usually means language and cultural differences.

Whether they are on the same floor or different continents, the core issue of managing project teams toward a successful outcome has not changed. Effective communication is the keystone of successful projects. Technology has provided solutions to enhance communications, but it has also placed obstacles in the process that make quality communications difficult.

AN OVERVIEW OF THE COMMUNICATION CYCLE

Understanding impediments to communication requires a review of the communication cycle. Consider the figure below:

Figure 1. The Communication Cycle
“It’s Not That You Know It, It’s How You Show It”, continued

At its simplest, the communication cycle entails a transfer of information (the Message) from the Sender to the Receiver followed by a transfer of information (the Response) from the Receiver to the Sender. Left at this level, one could wonder why communication is so difficult – send a message or tell someone something, get a reply. Today’s business climate makes communication more complicated. To identify and understand the impediments to communication, the cycle needs deconstruction.

ELEMENTS OF THE COMMUNICATION CYCLE
The elements of the communication cycle are:

- The Sender and the Receiver – these are the individuals involved in the communication cycle. They are together because they swap roles within the cycle.
- The Message and the Response – these are the sets of information created by and exchanged between the Sender and the Receiver
- The Channel – the transmission method for the Message and the Response

One element may influence another. For example, the type of message may dictate the style and channel used to deliver it. One Channel may be more suitable for some Messages over another.

THE SENDER AND RECEIVER
The Sender initiates the cycle by transferring information to the Receiver. These two participants trade roles, essentially, in that the Receiver becomes the Sender by providing the Response. In this way, the Sender and the Receiver are the same. The similarity ends here.

Several attributes of the Sender and Receiver influence the Message and the Response:

- Understanding of the Message: Does the Sender understand the contents of the Message so that the Receiver will interpret it appropriately?
- Roles: Are the participants equal, or is one person subordinate to the other? For example:
  - line manager and employee
  - team lead and team member
  - sponsor’s project manager and CRO project manager
- Reflected attitude: A bias reflected in the language of the Message or the Response may or may not be welcomed.
- Cultural Influences: We learn the norms of our culture from a very early age. While individuals with the same cultural background may react differently, we generally assume that others will act in a certain way, depending on our culture. Differences can include (Gorman, 2011, and DuPraw & Axner, 1997):
  - The manner and style by which communication occurs – some cultures embrace technology, others prefer face-to-face communications
  - Attitudes toward conflict – open conflict may be permitted or discouraged
  - Approaches to completing tasks – some place emphasis on developing relationships before the work begins, others on beginning the tasks immediately and letting the relationships develop as time progresses
  - Decision making styles – delegation, group decision, single decision maker
  - Attitudes towards disclosure – some may not want to provide too many details, reluctant to reveal bad news or the reasons for a conflict
  - The use of emotion – in some cultures it is inappropriate to show emotions, while it is completely acceptable on others
  - The precision of words – some cultures look for meaning and understanding in the non-verbal parts
of the Message. Others place emphasis on accuracy of the spoken or the written word.

- The perception of time – tasks handled sequentially or in parallel, things that “save” or “waste” time
- Language: The language of the Message or the Response and the Sender and Receiver’s command of the language are critical factors in the communication cycle. The next section deals with this topic.

THE MESSAGE AND THE RESPONSE

The Message and the Response are similar in that the both have something to communicate. They differ in their function.

The Functions of the Message and the Response

Messages can be broken down into two types, each of which expects a response:

<table>
<thead>
<tr>
<th>A message can contain …</th>
<th>A response provides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>Acknowledgement</td>
</tr>
<tr>
<td>Direction / Request</td>
<td>Results</td>
</tr>
<tr>
<td></td>
<td>Feedback</td>
</tr>
<tr>
<td></td>
<td>Evaluation</td>
</tr>
</tbody>
</table>

Table 1. Differences between messages and responses

The Content of the Message

The content of the Message seems rather straightforward (information vs. direction/request), but not necessarily relegated to either type. The structure of the Message is important. Organization is necessary and must be discernable. Further, when combining information and requests make sure that the difference is readily apparent.

The Content of the Response

The content of the Response depends on the Message. Regardless of the type of message, it requires an acknowledgement. Acknowledgement does not necessarily mean understanding or compliance. An acknowledgement informs the Sender that that the Message was received and will be acted upon in some manner.

Results should be framed in the manner of “task completed” or “here is what I found.” Results are objective and, unless initially asked for, do not provide an opinion or evaluation. The situation may dictate the means of providing this kind of response. Generally, opinions and evaluations are best provided face-to-face or by phone.

Feedback is an assessment based on first-hand observation focused on behavior. Feedback is specific, framed positively, and provides recommendations for improvement. It is not an attack or negative. Feedback is a subjective response from a personal perspective.

Like feedback, evaluations are specific, positive, and provide recommendations for improvement. The major difference is that evaluations use an objective set of criteria.

The Link between Verbal and Non-Verbal Communication

The Message and the Response have two attributes: verbal and non-verbal communication. Depending on the situation, these types of communication dictate the Channel and the content of the Message.

The proportion of verbal to non-verbal communication is dependent on the Channel of the communication. For face-to-face opportunities, though it is largely verbal, there is a high-degree of non-verbal communication. It takes the form of gestures, body movements, and vocal variety.
Dr. Albert Mehrabian published an important yet controversial study about the relationship between verbal and non-verbal communication in 1981.

![Mehrabian Communication Model](image)

**Figure 2. The Mehrabian Communication Model (Mehrabian, 1981)**

Dr. Mehrabian’s work is often taken out of context. Using a specific percentage becomes relatively meaningless in that the Mehrabian model is not a general rule for any communication (Chapman). It does illustrate two important points:

- Words alone do not provide a platform for successfully conveying or interpreting meaning
- The content and quality of the Message is related to the Channel

The table below summarizes the relationship among the elements of communication and the suitable types of Channel

<table>
<thead>
<tr>
<th>Type of Channel</th>
<th>Communication elements</th>
<th>Potential Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face and video communication</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Teleconferences, phone calls, voicemail</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>E-mail, instant messages, documents</td>
<td>✓</td>
<td>—</td>
</tr>
</tbody>
</table>

Table 2. Impact of Constraints on Communication Effectiveness

The reduction in the number of communication elements by the Channel increases the importance of the language of the Message.
Impact of Communication Constraints on the Language of the Message

It is widely held that English is the common language of business. While team members may both use English, if they are from different countries, they might not use the same terms or colloquialisms. This creates communication challenges from mere spelling issues to significant differences in meaning.

Some examples would be:

- **Spelling differences**
  - "organization" versus "organisation"
  - "pediatrician" versus "paediatrician"

- **Same word, different meaning**
  - "Null" (zero) in the United Kingdom compared to "null" ("missing", the database term) in the United States
  - "First floor" means the ground-level floor in the United States, but it means the floor above the ground-level floor in the United Kingdom. It can bring about significant confusion to say, “The team meeting will be on the first floor.”

Since written communications remove any visual and audio components of the Message, it is important that written communications be as clear as possible. This can be very easy to do by following these steps:

- Avoid jargon or slang.
- Completely define ambiguous or error-prone abbreviations (in pharmaceuticals, “unit” instead if “U” or “IU”, “mcg” instead of “μg”)
- Check grammar, punctuation, and capitalization
- Check for tone, attitude, nuance, and other subtleties

The following section “The Channel,” (below) outlines the influences of the Channel on the Message.

### THE CHANNEL

The Channel chosen to deliver the Message directly influences the effectiveness of the Message. The Message should be efficient, and yet make the most of the communication opportunity. The Channel should complement the Message.

Using e-mail to send simple directions is reasonable. Delegating a complex task or relating any negative or emotional content by e-mail could lead to questions or awkwardness. It may be best to arrange a time to speak in person or by phone.

A careful consideration of the advantages and disadvantages of different channels will be helpful (Melcrum Ltd.):

<table>
<thead>
<tr>
<th>Channel</th>
<th>Positives</th>
<th>Potential negatives</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-person Meetings and Teleconferences</td>
<td>Can make communication personal and relevant to the team involved</td>
<td>Success depends on skill of leader</td>
<td>Making the best possible use of this time – it's valuable</td>
</tr>
<tr>
<td></td>
<td>Opportunity for discussion, feedback, questioning and ideas</td>
<td>Time commitment for both manager and audience</td>
<td>Distribute an agenda well in advance of the meeting</td>
</tr>
<tr>
<td></td>
<td>A good facilitator can create a lively and interactive session</td>
<td>Beware of content overload; other channels are more effective for information delivery</td>
<td>Making sure you uphold meeting discipline if you want them to happen</td>
</tr>
<tr>
<td></td>
<td>Can help build understanding and involvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channel</td>
<td>Positives</td>
<td>Potential negatives</td>
<td>Considerations</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hybrid (in-person meetings</td>
<td>Same as above</td>
<td>Number of attendees and availability of conferencing equipment may adversely affect the quality of the meeting</td>
<td>Same as above</td>
</tr>
<tr>
<td>with some members joining</td>
<td></td>
<td>Side conversations of those in the room may alienate remote attendees</td>
<td></td>
</tr>
<tr>
<td>remotely)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E-mail</td>
<td>Can reach mass audiences fast</td>
<td>Impersonal and open to misinterpretation</td>
<td>Using the subject box to get across your key message</td>
</tr>
<tr>
<td></td>
<td>Cost effective and simple to use</td>
<td>Can result quickly in information overload</td>
<td>Keeping it short and simple</td>
</tr>
<tr>
<td></td>
<td>Consistent and controlled message</td>
<td>Can't tell if messages have been read</td>
<td>Using headings and bullet points for key messages and break up the text</td>
</tr>
<tr>
<td></td>
<td>Reaches the recipient directly</td>
<td>Doesn't prioritize messages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Good for information, awareness or instruction</td>
<td>Can't generate dialogue or discussion</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Abuse of &quot;reply all&quot;</td>
<td></td>
</tr>
<tr>
<td>Instant Messages</td>
<td>Good for reaching remote workers</td>
<td>Will annoy people very quickly if overused</td>
<td>Keeping it short and simple</td>
</tr>
<tr>
<td></td>
<td>Good for quick communication</td>
<td>Not suitable for protracted or group conversations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can be used to direct people to further sources of information</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td>Good for reaching remote workers</td>
<td>Parties not always available</td>
<td>Set times for phone calls beforehand</td>
</tr>
<tr>
<td></td>
<td>Reaches the recipient directly</td>
<td></td>
<td>Keeping it short and simple</td>
</tr>
<tr>
<td></td>
<td>Opportunity for discussion, feedback, questioning and ideas</td>
<td></td>
<td>Best for private or sensitive topics</td>
</tr>
<tr>
<td>Voicemail</td>
<td>Helpful for remote workers</td>
<td>People will hang up if the message is too long</td>
<td>Keeping it short and simple</td>
</tr>
<tr>
<td></td>
<td>Opportunity to hear about issues from senior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documents</td>
<td>Organized presentation of complex topics</td>
<td>Wordiness, jargon, ambiguity, bad grammar and punctuation</td>
<td>Version control</td>
</tr>
<tr>
<td></td>
<td>Can use tables and diagrams to summarize for easier interpretation</td>
<td></td>
<td>A single repository for the latest version</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Include a change history section to facilitate identification of updates.</td>
</tr>
</tbody>
</table>

Table 3. Considerations for choosing a communications channel
When planning a communication carefully consider:

- culture, language, and the strengths and weaknesses of the Channel
- the objective for the Message
- the need for the Message
- the type of audience
- the possible reactions to the Message
- quantity does not trump quality; use only needed words to make the point

**IMPEDEMENTS TO EFFECTIVE COMMUNICATION**

Humans are the single greatest obstacle to communication. This section outlines some of the obstacles that humans introduce into the cycle and suggests improvement strategies.

**LACK OF COMMUNICATION SKILLS**

According to the Washington Post, fear of public speaking tops the list of American’s fears. Reasons for the fear include self-consciousness, discomfort with body movement, appearing nervous, past failures, judgement by others, insufficient preparation, and comparison to others.

In face-to-face delivery, the combination of verbal and non-verbal cues is critical. Using these tools effectively maximizes the influence and the impact of the Message.

Mastery of the tools of face-to-face communication has long and short-term benefits. Ways to accomplish this would be joining a public speaking group, such as Toastmasters International (http://www.toastmasters.org) or those found sites such as MeetUp.com.

**DOCUMENT HANDLING**

Make certain that all members of the team can access the documentation file (software version, file type, file security).

Keep separate versions of a document so that it can be available for reference, if needed.

Without a detailed change history in a document (this means a word-processing file, spreadsheet, or other type of document), the reader is forced to perform some sort of comparison (usually manually) to identify updates to the document. This is a huge time-waster. Do not force someone to examine a document (a word-processing file or a spreadsheet) without pointing them to changes from the previous version.

**INAPPROPRIATE USE OF TECHNOLOGY**

E-mail is the de facto method of communicating in business. We have probably encountered instances when e-mail was not appropriate or used properly. Following is a list of common e-mail abuses.

**Use of “Reply All” paired with a lack of BCC list**

E-mail is not a suitable platform to have a conversation. If “reply all” is used with a message that does not use the blind carbon copy (BCC) feature, all the recipients of the message are sent the reply. Multiple instances of “okay” or “thanks” are counter-productive and fill up mailboxes quickly. Recipients should consider whether a reply is necessary at all, and if so should send the response using the “reply” button instead of “reply all.”

**Long e-mails**

An internal e-mail should not be a document exchange mechanism. Consider placing the contents of a lengthy e-mail into separate a document and attach a copy of the document or a link to the document location.
The Unguided “See below”

Many choose to intersperse responses to specific points directly in the forwarded part of the sender’s original e-mail. This may be a convenient way to place comments in context, but use some mechanism to differentiate the new points from the original text. Many use different colors and put something like “See my comments below in red.”

“As I said in my previous e-mail …”

Use of this type of reply can be perceived as off-putting and does not foster an environment of open communication.

Improper use of TO and CC

Expect replies from those on the TO list. Members of the CC list need not reply, and again, recipients should consider whether a reply is necessary at all, and if so should send the response using the “reply” button instead of “reply all.”

Inappropriate closings

This most always happens with “hardcoded” signatures. Do not use an e-mail to provide negative feedback and close the e-mail with “Best Regards.” Closings should be consistent with the content of the e-mail.

Also, use cultural awareness when choosing a closing. Could the closing be perceived as pretentious or off-putting?

Changing the topic without changing the subject

If a thread of e-mails changes topic, change the subject of the e-mail. This makes searching through the e-mails later easier for those involved.

CONCLUSION

We often take for granted that our communications with each other are high quality and easily understood. The messages we send may be simple but as presented in the sections above there are many factors to consider when transmitting ideas to one another. We can influence many of the factors, but likewise we cannot control others.

An awareness of cultural influences, language differences, and the roadblocks to great communications can lead to better interaction among team members.

REFERENCES

http://www.businessballs.com/mehrabiancommunications.htm


Melcrum Ltd. (n.d.). Choosing the right communication channel. Retrieved from melcrum.com:

Mind Tools Ltd. (n.d.). Cross-Culture Communication - Good Collaboration is a Must. Retrieved from mindtools.com:
http://www.mindtools.com/CommSkll/Cross-Cultural-communication.htm

CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the author at:

Name: Jim Christine
Enterprise: DataCeutics, Inc.
Work Phone: 913-884-3993
Web: https://www.linkedin.com/in/jimchristine

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.

Other brand and product names are trademarks of their respective companies.