



# The Psychology of Collaboration Space

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# Executive summary

## Introduction to collaboration

The purpose of this paper is to provide a literature review of the research into the psychology of collaboration spaces highlighting the impact of psychological factors on collaboration and the implications for workspace layout, design and furniture. Particular attention had been made to the effect of personality factors and the profiles of collaborative team members.

Research into the psychology of collaboration uses the same language as the workplace design and strategy community: “group effectiveness is a function of environmental factors, design factors, group processes and psychosocial traits”. However the “environmental factors” actually refer to the external economic market and the “design factors” refer to the features of the group that can be manipulated by managers to create the conditions for effective team performance. It appears that the impact of psychological factors on the design of collaboration space has not been previously explored in any detail. The lack of studies into the psychology of collaboration space justifies the need for this introductory paper and further research, but it also means that, for now, inferences must be drawn from obliquely related research studies.

Collaboration is not simply interaction between colleagues, it involves two or more individuals working towards a common goal and creating a new product (e.g. an idea, solution, or insight) beyond what that they could have achieved individually. Effective teams are characterised by trust and collaboration such that building trust through creating a community, interaction and socialising is important for nurturing collaboration. Therefore whilst collaboration is more complicated than interaction per se, interaction helps build trust and is therefore a prerequisite for true collaboration.

## Defining personality

Personality is derived from persona which is Latin for “mask” but nevertheless there is no consensus amongst psychologists on a single all-encompassing definition of personality. However, there are several reoccurring elements of personality such that personality can be defined as “an individual’s unique set of traits and relatively consistent pattern of thinking and behaviour that persists over time and across situations”. Personality is a bias towards particular traits (characteristics) that in turn affect behaviour. This embedded proclivity for behaving in a particular way means that it is also likely that people have a preference for and

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seek out environments that support their natural mode of behaviour and underlying personality.

Upon starting this study, one hypothesis mooted was that by determining the personality of team members we could in turn understand the best environment required to support their collaboration. The flaw in this hypothesis is that it assumes that all team members will have a similar personality allowing a single optimum collaboration space to be created. However, much research has been conducted comparing the performance of teams in which the members have either similar personality profiles or quite different ones. The research clearly showed that people with different personalities are better at different tasks and a mix of personalities in the team makes for a more effective and successful collaboration.

Personality theories date back to ancient Egypt and Mesopotamia but the ancient Greeks are most recognised as developing the first structured theory of personality. At the turn of the century the psychoanalysts, Freud and Jung, developed the psychodynamic theory of personality. Cattell followed by Eysenck applied new statistical techniques to psychodynamic theory resulting in trait theory. This then became the root of the most popular modern-day theories of the Myers Briggs Type Inventory and Five Factor Model.

## **Impact of personality on collaboration**

The Big Five factors are Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, often referred to as OCEAN. The effect of the Big Five personalities on team work and the implications for collaboration spaces are as follows:

- Openness – openness is important for creative and imaginative tasks but less important, or possibly detrimental, when the task is of a more routine nature:
  - open people prefer face-to-face (F2F) meetings, brainstorming, plus stimulating and new spaces; not open types prefer formal, familiar, conforming and traditional spaces.
- Conscientiousness – should be positively related to team performance across a wide variety of tasks and settings:
  - conscientious people prefer planned, formal, well-organised, minuted meetings; undirected people prefer impromptu informal meetings and quick interactions.
- Neuroticism (emotional stability) – the level of emotional stability should be positively related to performance for a wide range of team tasks:

- neurotic people prefer well-planned formal meetings with advance notice; stable people are comfortable with large, impromptu or informal meetings.
- Agreeableness – good for the performance of long-term teams with tasks that involve persuasion but can inhibit performance when tasks do not require social interaction:
  - agreeable prefer large meetings with structure to help gain group consensus; antagonistic prefer unstructured F2F meetings where they can challenge/derail.
- Extraversion – enhances team performance for imaginative or creative tasks but inhibits performance when tasks call for precise, sequential and logical behaviour:
  - extraverts prefer large group F2F, informal meetings and stimulating spaces; introverts prefer written communications, small groups, teleconferences, and subdued spaces.

### **Designing for personality and collaboration**

The increasing globalisation of organisations, and business initiatives such as off-shoring, may lead to team members being more dispersed resulting in a decrease in face-to-face collaboration or conversely increase in virtual collaboration. Studies comparing the performance of teams found that virtual teams tend to exchange less social information than co-located ones; this may slow the development of relationships and in turn reduce creativity and motivation. Face-to-face team meetings are usually more effective and satisfying than virtual ones, but nevertheless virtual teams can be as effective if given sufficient time to develop strong group relationships. Social interaction in the workplace, and between team members (virtual and co-located) is particularly important when the team is initially forming. Repeated encounters, even without conversation, help to promote the awareness of co-workers and to foster office relationships. So, again, although interaction alone is not a sufficient condition for successful collaboration it does indirectly support collaboration.

Co-location of teams allows the use of non-verbal communication including: different paralinguistic and non-verbal signs, precise timing of cues, coordination of turn-taking or the repair of any misunderstandings. Extroverts gesticulate for longer and more often in meetings than introverts. As 55% of communication is non-verbal, 38% done by tone of voice, and only 7% related to the words and content, clearly non-verbal communication is a key

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component of interaction. Virtual collaboration systems therefore need to replicate this basic communication need, especially in the early stages of team forming or when the team consists of a high proportion of extroverts.

A comprehensive review of the social science literature revealed several general conditions for creating successful interaction and collaboration spaces: proximity, accessibility, privacy, legitimacy and functionality. Aesthetics could also be added to the list, for example different colours affect the performance of different types of task. Other research has shown that stimulating environments with vibrant colours, music or noise, and a buzz of activity may enhance the performance of extroverts but more calming environments will better suit introverts. Furthermore, complex tasks may be better done in calm environments whereas mundane repetitive tasks may benefit from a stimulating environment. The design trick is to provide the correct balance of stimulating (noisy or colourful) interaction spaces versus calm (quiet and subdued) ones to support different personalities and tasks.

Although a range of spaces for collaboration should be close to the team, these spaces do not all need to be dedicated collaboration spaces but can be other legitimate and accessible spaces for interaction (and intermingling) such as service and amenity spaces. However, these interaction nodes alone are not sufficient for collaboration and dedicated collaboration spaces, with good functionality and privacy, are required such as bookable teamwork, project and war rooms. Uniformly distributed clusters of shared spaces, i.e. local hubs, are more effective than banks of centrally adjacent spaces. A balance is required of distributed nodes for spontaneous interaction, local hubs for team collaboration plus central resources for planned (client or team) presentations.

Introverts are less comfortable with large group meetings than one-to-one interactions. Like their conscientious and neurotic colleagues (or sensing and thinking types) they also prefer time to think things through and develop their ideas before sharing them publically. The participation in collaboration of these personality types might therefore be enhanced by providing more discrete and private spaces adjacent to the main collaboration space, where one-to-one interactions can naturally and quickly take place after the more formal meeting. Evolutionary psychologists note the importance of sharing food and drink, and Tom Peters

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the importance of intermingling, so these spaces could be nearby coffee/vend/breakout interaction points. Furniture arrangement will affect how a team interacts with each other; the space and furniture therefore needs to easily reconfigurable to support different types of interaction e.g. one-to-one meetings, small group work or larger brainstorming sessions. Introverts and neurotic team members are likely to prefer more private, cosier and one-to-one settings than their gregarious counterparts. Organisational structure and project teams are constantly shifting in organisations, thus the space also needs to be adaptable to meet the needs of new teams as well as changing team requirements. The formality of the space has been shown to affect the depth of interaction and different personality types may prefer different levels of formality. For example, one research recommends mixing up seating options by taking the table out of the room or varying seat heights, plus creating cosy nooks for teams.

Collaboration involves capturing and displaying ideas and so designers need to acknowledge the importance of providing a means of generating, capturing and displaying information within collaborative teams. Those of an introverted and conscientious persuasion (or sensing and thinking types) are likely to appreciate the display of information more than their extroverted and disorganised (or intuitive and feeling) counterparts. Any non-porous surface could be designed as a whiteboard and used for capturing information but whole whitewalls can be created relatively inexpensively using magnetic vinyl sheeting and will provide more display space and versatility than whiteboards. Furthermore, filing cabinets can be clustered together and fitted with a top to provide layout space for sharing drawings and other large format information. Alternatively, inexpensive flat screen panels can be fitted in breakout spaces and team areas to provide a continuous display of rolling, historic or real time, information for one or a number of teams. It is not always practical or considered space efficient to provide dedicated project rooms for teams, especially if they are not utilised for the majority of the working week. One solution to this is to provide layered display boards in the project room so that the room may be used by multiple teams who can bring their displays to the front when using the spaces. An alternative (more expensive) technological solution is to provide multiple flat screens or projectors for displaying a team's information.

To facilitate virtual collaboration, the latest video-conferencing suites simulate face-to-face interaction much

better than their predecessors, and this new technology is becoming more affordable (especially when considering savings in travel cost, time and carbon). On a smaller scale new personal technology, such as Skype on laptops and FaceTime on phones, means that some elements of face-to-face meetings are now available anytime and anywhere for one-to-one interactions. The importance of sharing information in collaborative teams, particularly for introverted, conscientious (or sensing and thinking) types has already been raised. Whether co-located or virtual, collaboration spaces require seamless and intuitive technology so that information can be captured and shared. At minimum the spaces require essential basic audio-visual equipment such as display panels and teleconference phones , plus ample power and data points (preferably wireless broadband) all with well-designed controls and sufficient instruction in how to use it.

## **Conclusion**

Our personality impacts on our preferred means of interaction and the tasks that we prefer to carry out and the tasks we are particularly good at. Teams with a mixed group of personality types generally collaborate more effectively than those with team members of the same personality. It therefore follows that environments that support true collaboration need to recognise the different personality types and their preferred means of communication and interaction, which will ultimately contribute to successful collaboration. Spaces for collaboration must consider how the design, layout, furniture and technology can support various modes of interaction. The main design challenge is providing space-efficient display and collaboration spaces that are available to the team (whether co-located or virtual) as and when required.

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