TEMPERAMENT THEORY

Understanding people in a workplace context

*Mel Bull**

1 Background

To understand the use of temperament theory, one needs to grasp the historical context. This section explores the historical context of temperament/personality theory dating to the first use of the concept from Hippocrates in 460–370 BC, through to the 20th century with Steiner (1919), Jung’s psychological types (1921), and Eysenck (1967) and to the use of this theory in the 21st century. To give definition to the concepts of ‘temperament’ and ‘personality’, Allport (1961) cited in Rothbart, Ahadi, and Evans (2000, p. 123) defined temperament as “the characteristic phenomena of an individual’s emotional nature, including his susceptibility to emotional stimulation, his customary strength and speed of response and the quality of his prevailing mood, these phenomena being regarded as dependent up in constitutional make-up”, whereas personality was defined as “the dynamic organization within the individual psychophysical systems that determine his unique adjustment to his environment”. The use of temperaments has predominantly been used in psychology, particularly in child development, but also in modern business in HR as a development tool and in recruitment, using psychometric testing.

The concept of personality or temperament types is not new, and this chapter gives a chronological view of the development of temperament theory and its use in modern-day practice. Temperament, from the Roman ‘*temperamentum*’, originally referred to a mix of bodily ‘humors’ and was a fourfold typology (Rothbart et al., 2000); a concept which was created in approximately 400 BC by the Greek physician Hippocrates (460–370 BC). He created the concept of an innate temperament within everyone and the interrelation between bodily fluids (humors) and our emotions and behaviours. As described by Rothbart et al. (2000, p. 123), the humors related to aspects of the body:

The choleric individual, with a predominance of yellow bile is irritable and quick to anger; the melancholic individual with predominant black bile is sad and anxious; the sanguine individual with predominant blood, is positive and outgoing; and the phlegmatic individual with predominant phlegm is slow rising in emotion and action.

Immanuel Kant had an interest in temperament (1760s) from a psychological and physiological point of view. His explanation of the temperaments referred to them with two terms, feeling

*Corresponding author: mel.bull@sheffield.ac.uk

and activity (Larrimore, 2001; Strelau, 1987). In his schema, the activity temperaments were the choleric with a temperament of intense but not persistent activity and phlegmatic as the polar opposite was inactive but enduring. In relation to the feeling temperaments, the sanguine and melancholic were also polar opposites, sanguine having strong and short-lasting feelings and melancholic having weak but longer-lasting feelings (Strelau, 1987; Lester, 1990; Stelmark & Stalikas, 1991).

The use of temperaments or fourfold typologies had been limited up until the turn of the 20th century (Keirse & Bates, 1984; Merenda, 1987), when there was a resurgence of the concept from several academics, including Adickes (1907), Adler (1912), Kretschmer (1925) and Spränger (1928). All of these hold a strong link back to Hippocrates's four humors, but Rudolf Steiner, Austrian spiritual philosopher, offered the closest link to the four humors (see Table 10.1). He focused on the concept of temperaments in the early 1900s and later renamed his 'practice' as anthroposophy, meaning 'wisdom of the human being', founding the Anthroposophical Society in Germany in 1924 (Steiner, 1919, 2008). He found a significance for the four temperaments in relation to elementary education and hypothesised that temperament diminished as the personality developed after puberty. Whilst his theory was very similar to the origins of Hippocrates's ideas, he focused on a spiritual link: "Only when we hear what spiritual science has to say can we come closer to understanding these special colourings of the human personality" (Steiner, 2008, p. 3). Steiner suggested that there were four 'sheaths' to the human being. He then related these to the original four 'humors'. Notably Steiner refers to a predominant temperament, highlighting that we have the essence of all four within us. He discussed the need to be able to understand our temperaments and to embrace our own being, which then allows us an "immediacy of understanding to each human encounter" (Steiner, 2008, p. 24).

In modern parlance the work of Carl Jung, a Swiss psychologist and psychiatrist, is more commonly referred to and recognised through modern psychometric testing. Jung further developed the temperaments to psychological types by focusing on the opposite set of characteristics. He suggested, "the random variation in behaviour is actually quite orderly and consistent, due to basic differences in the way individuals prefer to use their perception and judgment" (Myers & McCaulley, 1986, cited in Vincent & Ross, 2001, p. 39). Jung's (1921 [1971], 1946) typologies were intricately linked with the physiological typologies of Greek medicine as highlighted earlier. Jung's basic model focused on a theory of primary and auxiliary functions, with a four-typology model of introversion/extraversion, sensation/intuition, thinking/feeling and rational/irrational functions. Jung believed that his theory could help to better explain personality but by no means does he suggest that an individual is a pure type. His theory is not one of

Table 10.1 Early 20th-century fourfold typologies

<i>Adickes (1907)</i> <i>Four world views</i>	<i>Adler (1912)</i> <i>Four mistaken goals</i>	<i>Steiner (1919)</i> <i>Four sheaths linked to Hippocrates's humors</i>	<i>Kretschmer (1925)</i> <i>Four character styles</i>	<i>Spränger (1928)</i> <i>Four value attitudes</i>
Innovative	Retaliation	Sanguine (<i>astral body predominates</i>)	Hypomaniac	Artistic
Doctrinaire	Recognition	Choleric (<i>ego predominates</i>)	Hyperesthetic	Religious
Traditional	Service	Melancholic (<i>physical body predominates</i>)	Depressive	Economic
Skeptical	Power	Phlegmatic (<i>etheric body predominates</i>)	Anesthetic	Theoretic

behaviour but of personality, as he focuses on the individual without the external stimuli. For example, an extravert is oriented to things and people whether they are in a crowd or on their own. However, Jung's model can be used as a tool to better understand who we are and how we generally function, and it subsequently allows us to assess our interactions with situations and people and to understand whether "our own actions truly reflected our judgements (thinking and feeling) and perceptions (sensation and intuition), and if not, why not?" (Sharp, 1987, p. 91). This further enhances the use of the temperaments model (Hippocrates, 400 BC) in being able to flex our behaviours to improve our communication with people.

When Jung's (1921) *Psychological Types* was translated to English in 1925, Katherine Briggs had already started to explore the importance of temperament in character development and stated that Jung's ideas corresponded with her own. The Myers-Briggs Type Indicator (MBTI), copyrighted in 1943, was created by her daughter Isobel Myers (nee Briggs) and was developed from Jung's typologies, delivering a 16-personality type model. The MBTI model allowed individuals to understand their own personality and how they engage with others, but it does not evidence ability (Kummerow, Barger, & Kirby, 1997). This concept was further adopted in the 1950s by David Keirsey who adopted both Jung's (1921) theory of psychological types and the Myers-Briggs (1943) method of measuring types in the formation of the Keirsey Temperament Sorter in 1955. Keirsey also focused more on the concept of temperament as opposed to the pure Jungian view of functions. He named his personality types into four groupings – artisan, guardian, idealist and rational – and related these to the original temperaments intricately linked to the MBTI.

Through the development of temperament theories, there have been different levels of engagement with the role of emotion. Strelau (1987) focused on the concept of emotionality and temperament. The work linked with that of Allport (1938) and Eysenck (1970), specifically referring to 'affective behaviour'. Allport and Odbert's (1936) work led to the development of the five-factor model which focused on extraversion, openness to experience, agreeableness, conscientiousness, and emotional stability. This model has been further developed by academics (Goldberg, 1981; McCrae, Costa Jr, & Busch, 1986; McCrae & Costa, 2003). Eysenck (1967, 1997) and Eysenck and Eysenck (1985) focused on a three-traits model to include extraversion/introversion, excitation/inhibition, and tough-mindedness/tender-mindedness. Goldsmith and Campos (1986, p. 231) cited in Strelau (1987) referred to the concept of temperament as "individual differences in emotionality" leading to Strelau's statement, "temperament is a synonym of the expression 'individual differences in emotional behaviour'" (Strelau, 1987, p. 513). Other terminology entered the frame; so for the extravert the other frames of reference were sensation seekers, low reactives and low arousability thus needing strong stimuli to gain the ideal level of arousal, but for introverts it was sensation avoiders or high reactives, and a lower level of stimuli was needed to keep an ideal level of arousal (Gray, 1964; Strelau, 1987). The concepts noted by Strelau (1987) still have a strong link to Jung's theory of introvert and extravert, but the significance being that emotion plays out in different ways depending on whether emotion is considered to be a "a trait, a process or a behavioral characteristic" (Strelau, 1987, p. 524).

From a practical level, moving through the 21st century a multitude of temperament, personality or psychometric tests can be undertaken, including the MBTI, Insights DiscoveryTM, The Enneagram and Keirsey's Temperament Sorter, to name a few. The aforementioned historical context has led to the creation and the theoretical underpinning for these models, but there are continued discussions about the validity of such tools and critiques on the concept of temperament theory. In the field of psychology and personality, debate in terms of temperament and trait psychology is ongoing (Clark & Watson, 1999; Pervin & John, 1999). We hope that this section has given the reader an idea of how the concept of temperament was born and how the

varying scholars over the years have added elements to the initial concepts. This is not a chapter on the validity of temperament theory but more provides an understanding of how temperament theory can be utilised to understand ourselves and others. It also gives us the ability to understand our preferences and how we can learn to flex our behaviours to better relate and communicate with each other. Temperament theory does not evidence an ability to do a job, nor does it explain workplace dysfunctionality, but it is more a tool to understand and celebrate individual differences (Pederson, 2003). The following sections will focus on how to consider this temperament theory in the way we communicate, particularly through times of change, and may help to clarify the need to not take a one-size-fits-all approach. Because human beings are all different, we need to think about how our communication impacts at an individual level instead of trying to communicate en masse or providing a one-size-fits-all working environment.

2 Applicability to workplace studies

Linking to the concept of temperaments and the difference in individuals, Beard & Price (2010) define the workplace as ‘workspace plus culture’. If culture forms a strong part of our workplace, then there is a need to understand the people within this. Sundstrom (1984) provides an exploration into the psychologies of working environments and the impact these have on interpersonal relationships and communication. His focus is on outcomes: individual outcomes (satisfaction and performance), interpersonal outcomes (communications) and organisational outcomes (effectiveness). Sundstrom (1984, p. 7) defines the physical environment as that of “the individual’s immediate surrounding during the workday which consist of a workspace or workstation and its ambient conditions”. In a time of changing workplace requirements, rather than a blanket change of ways of working, the question needs to be asked whether we are considering the people within the space, their needs in terms of personality/temperament and the type of job to be undertaken in the space. Although the early theorists and authors of space recognised the need for improved communication, the issue of hierarchy and status was still as much of an issue as it is in today’s workplace.

The use of psychometric testing is prevalent within human resource management (HRM) and, as facilities management strengthens its links with the HRM discipline, perhaps there needs to be greater consideration on how the space and place of work impacts on an individual’s preferences (Jung, 1921, 1946). Pederson (2003) carried out a piece of research in the late 90s and focused on the role of an archivist/record keeper in Australia utilising Keirsey’s temperament types to try to understand the type of person that took on this job specification. She found that the predominant Keirsey type for the role was that of a guardian, who is seen as someone who enjoys factual data. The results were limited to Australia, but by understanding the type of person in the role, Pederson suggested that archivists had “greater understanding of themselves and of how they perceive and are perceived by others; temperament awareness can improve the quality of our working relationships and our opportunities for professional achievement” (Pederson, 2003, p. 362). If this is about understanding what we need from our workplace and relationships, then this could also help us to understand the space that individuals would prefer to work in, not just understanding the role they do.

Temperament theory could also offer a way of understanding staff needs when there is a potential workspace change. Pederson’s (2003) research focused on the individual within the job role, and whilst they found a predominant Keirsey (Keirsey & Bates, 1984) type, there was consideration of how this ‘type’ could improve their communication through better understanding of themselves and others. If you were leading a workplace change, then encouraging individuals to engage in the design of the space through open communication would be beneficial (Quirke,

2008). Haynes (2012) refers to an asset alignment model containing eight elements, including planet, position, purpose, procurement, place, paradigm, process and people. The people element is often not focused on, with a greater emphasis on organisational need rather than psychological needs of the employees (Haynes, 2012; Oseland, 2009). Oseland (2009) critiques personality theory in terms of extrovert and introvert traits in terms of office space as being a consideration, but that it should not be the only one. There also needs to be further consideration of the “type of activity being conducted and mood” (Oseland, 2009, p. 245). Although Oseland does further discuss creating different spaces for different people, whether that be quiet space or social space, he also refers to giving people the choice of where they prefer to work and that the creation of workspace should consider “organisational and individual psychological needs” (Oseland, 2009, p. 253). Participative design can lead to occupants feeling committed to their workspace and could even create psychological attachment to it (see Chapter 16 Place Attachment). It may also lead to better environment design, using the experts (those living in it) to recognise how they use their own space, and finally it also shows a cooperation between workers irrelevant of status (Sundstrom, 1984, Oseland, 2009; Haynes, 2012; Bull & Kortens, 2012).

Appel-Meulenbroek, Clippard, and Pfnür (2018) carried out a review of previous research on the effects of the physical office environment on employee outcomes. They found studies on the office layout focused more on “privacy, concentration and communication and again relatively less on health, comfort and emotional state” (Appel-Meulenbroek et al., 2018, p. 69). There appears to be a gap in the individualised focus on temperaments and the people working within a space. Hartog, Weijs-Perrée, and Appel-Meulenbroek (2018) conducted a quantitative study drawing on personality traits and workplace satisfaction in multi-tenant offices but also recognised that the link between personality and workplace research has been limited. Previous studies have focused on the personalisation of workspace (Laurence, Fried, & Slowik, 2013) and on workplace design and the impact on cultural differences and preferences (Gan & Haynes, 2012). The organisational workplace change carried out at Channel 4 (broadcasting company in the UK) engaged staff in creating a workspace to suit all types of people (Bull & Kortens, 2012). Smollan, Matheny, and Sayers (2010) carried out a qualitative study on organisational change and the role that personality can play during this time. The research focused on engagement with change such as ‘drive, accept or resist change’ and personality traits, but also on how individuals understood their own predisposition to change. They found that personality traits impacted on how people engaged with change. This said, they focused specifically on the traits of “openness to experience, resilience, pragmatism, change self-efficacy and locus of control” (Smollan et al., 2010, p. 85) and not necessarily on temperament theory, but the traits are linked to the historical context of temperament. Deguchi et al. (2016) researched the impact of temperament on workplace stress and concluded that understanding temperaments can help to further the understanding of wellbeing and raise awareness of promoting social support from supervisors and colleagues. In the work by Bull and Brown (2011, 2012) on a workspace change in FinanceCo, they found the lack of effective communication mixed with a perceived lack of understanding of workplace needs had a negative impact on those staff involved. The research at FinanceCo did not focus on temperament theory, but perhaps by understanding individuals’ personality preferences there would have been greater consideration of the type of communication used and the space to be provided, leading to the workplace change being better received.

As we have worked through the global pandemic, there has been a general change in how people have worked; for some working from home has been a dream and for others a nightmare. Allowing for other mitigating circumstances, one of the potential discrepancies in how people have enjoyed (or not) working from home could be down to their temperament. Whilst this chapter does not focus on COVID-19, we need to recognise, as the world moves towards the

new norm that there may well be a need for a change in working practice, and a better understanding of people's preferences may aid the workplace design for the future.

3 Methodology/research approach

Research around temperament and workspace together is limited, but several research methodologies could be applied, depending on what the research was aiming to understand. An inference of our temperament type may also be made in how we choose to do our research. Working within the basic level of extrovert/introvert and thinking/feeling spectrums may lead people to research from different methodological positions. However, there does seem to be a predominance of positivist-based research in psychology.

If a researcher wanted to explore this through quantitative research taking a positivist position (Remenyi, Williams, Money, & Swartz, 1998), a hypothesis could be tested in terms of the impact of temperament on satisfaction with workplace (for example), drawing on statistical analysis. A measurement tool to ascertain the temperament of the participants would be needed, followed by a survey focused on the workplace. This format could then be replicated in multiple spaces (Gill & Johnson, 2002). From a more pragmatist position, a mixed-method approach could use a survey instrument and a measurement tool to ascertain the temperament of participants, but perhaps with a greater focus on the social actors' voices through the use of semi-structured interviews or focus groups (Tashakkori & Teddlie, 2010). This could also be carried out as an organisational case study using similar data collection methods (Yin, 2017). In the qualitative realm researchers could use a narrative methodology (Clandinin & Connelly, 2000; Clandinin, 2006) by asking people to create stories about their space, how they live and engage with it, and from this temperament type could be understood through the language used and the interpretation of the text (Georgakopoulou, 2006). This may give more of an insight into how people feel about their space though the language used (see also Chapter 8 Social Constructionism Theory).

There is not necessarily a one-size-fits-all methodology for this research. The research aims and objectives need to be considered, that is, whether the research is for practical implementation of space or theoretical context. There have been multiple accounts of research on traits and engagement with work satisfaction but minimal research on these concepts in alignment with workspace.

4 Limitations

Temperament and personality typologies have received varying critiques, depending on the research area. MBTI has been criticised as being unsubstantiated (Pittenger, 1993; Boyle, 1995) and misused as psychometric tools for recruitment, but as discussed earlier this is not about ability (Robbins, Judge, & Campbell, 2010). In the field of psychology and personality, there is an ongoing debate in terms of temperament and trait psychology (Clark & Watson, 1999). The potential limitations for workplace research could also include the adapted behaviour that is evidenced in the workplace as opposed to a true representation of self. Also, limited research exists that supports the use of temperament in understanding how people engage in their space, whilst being a limitation this may also be an opportunity to further current knowledge.

5 Theory relevance to practice

As practitioners it would be useful to understand changing workspace needs, the typologies of people within the space and how best to communicate any potential changes to workspace. In

large organisations it may not always be possible to fully understand everyone's needs, but by understanding different personality types and their requirements this may lead to being able to provide a better overall space for people within the building to include quiet space, communal space and meeting space. As we will be returning to a "new normal" post COVID-19 and encouraging people back into the workplace, this may be a perfect time to understand what people require to do their job but also to satisfy the different temperament preferences. A one-size-fits-all workspace needs to be re-examined to understand the people that live within it.

6 Further reading

- Appel-Meulenbroek, R., Clippard, M., & Pfnür, A. (2018). The effectiveness of physical office environments for employee outcomes. *Journal of Corporate Real Estate*, 20(1), 56–80. <https://doi.org/10.1108/JCRE-04-2017-0012>
- Hartog, L., Weijs-Perrée, M., & Appel-Meulenbroek, R. (2018). The influence of personality on user satisfaction: Multi-tenant offices. *Building Research & Information*, 46(4), 402–416. <https://doi.org/10.1080/09613218.2017.1307015>
- Oseland, N. (2009). The impact of psychological needs on office design. *Journal of Corporate Real Estate*, 11(4), 244–254. <https://doi.org/10.1108/14630010911006738>
- Pervin, L. A., & John, O. P. (1999). *Handbook of personality: Theory and research* (2nd ed.). New York: The Guilford Press.
- Sharp, D. (1987). *Personality types: Jung's model of typology*. Toronto, Canada: Inner City.

7 References

- Adickes, E. (1907). *Charakter und Weltanschauung: Akademische Antrittsrede, gehalten am 12. Januar 1905*. Tübingen: JCB Mohr (Paul Siebeck).
- Adler, A. (1912). *Praxis und Theorie der Individualpsychologie*. Zeitschrift für die Gesamte Neurologie und Psychiatrie. Munich: J.F. Bergmann-Verlag.
- Allport, G. W. (1938). Personality: A problem for science or a problem for art? *Revista de Psihologie*, 1, 488–502.
- Allport, G. W. (1961). *Pattern and growth in personality*. New York: Holt, Rinehart & Wilson.
- Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs*, 47(1), i. <https://doi.org/10.1037/h0093360>
- Appel-Meulenbroek, R., Clippard, M., & Pfnür, A. (2018). The effectiveness of physical office environments for employee outcomes. *Journal of Corporate Real Estate*, 20(1), 56–80. <https://doi.org/10.1108/JCRE-04-2017-0012>
- Beard, C., & Price, I. (2010). Space, conversations, and place: Lessons and questions from organisational development. *International Journal of Facility Management*, 1(2). Retrieved from <http://shura.shu.ac.uk/id/eprint/2616>.
- Boyle, G. J. (1995). Myers-Briggs type indicator (MBTI): Some psychometric limitations. *Australian Psychologist*, 30(1), 71–74. <https://doi.org/10.1111/j.1742-9544.1995.tb01750.x>
- Briggs, K. C. (1943). Myers-Briggs Type Indicator®, form M. *MBTI (Tm)*.
- Bull, M., & Brown, T. (2011). Implementing change. In E. Finch (Ed.), *Facilities change management* (pp. 108–122). Oxford: Blackwell Publishing Ltd.
- Bull, M., & Brown, T. (2012). Change communication: The impact on satisfaction with alternative workplace strategies. *Facilities*, 30(3/4), 135–151. <https://doi.org/10.1108/02632771211202842>
- Bull, M., & Kortens, J. (2012). Strategies for communication within facilities management. In K. Alexander & I. Price (Eds.), *Managing organizational ecologies: Space, management and organizations* (pp. 196–206). London: Routledge.
- Clandinin, D. J. (2006). Narrative inquiry: A methodology for studying lived experience. *Research Studies in Music Education*, 27(1), 44–54. <https://doi.org/10.1177/1321103x060270010301>
- Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry: Experience and story in qualitative research*. San Francisco, CA: John Wiley & Sons.

- Clark, L. A., & Watson, D. (1999). Temperament: A new paradigm for trait psychology. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 399–423). New York: Guilford Press.
- Deguchi, Y., Iwasaki, S., Konishi, A., Ishimoto, H., Ogawa, K., Fukuda, Y., . . . & Inoue, K. (2016). The usefulness of assessing and identifying workers' temperaments and their effects on occupational stress in the workplace. *PLoS One*, 11(5), 1–12. <https://doi.org/10.1371/journal.pone.0156339>
- Eysenck, H. J. (1967). *The biological basis of personality*. Springfield: Charles C. Thomas.
- Eysenck, H. J. (1970). A dimensional system of psychodiagnosis. In A. R. Mahrer (Ed.), *New approaches to personality classification* (pp. 169–210). New York: Columbia University Press.
- Eysenck, H. J. (1997). Personality and experimental psychology: The unification of psychology and the possibility of a paradigm. *Journal of Personality and Social Psychology*, 73(6), 1224–1237. <https://doi.org/10.1037/0022-3514.73.6.1224>
- Eysenck, H. J., & Eysenck, M. W. (1985). *Personality and individual differences: A natural science approach*. New York: Plenum.
- Gan, Q., & Haynes, B. (2012). *Office occupiers: Cultural differences and preferences* (No. eres2012_383). European Real Estate Society (ERES). Retrieved from https://ideasrepec.org/p/arz/wpaper/eres2012_383.html
- Georgakopoulou, A. (2006). Thinking big with small stories in narrative and identity analysis. *Narrative Inquiry*, 16(1), 122–130. <https://doi.org/10.1075/ni.16.1.16geo>
- Gill, J., & Johnson, P. (2002). *Research methods for managers* (3rd ed.). London: Sage.
- Goldberg, L. R. (1981). Language and individual differences: The search for universals in personality lexicons. In L. Wheeler (Ed.), *Review of personality and social psychology* (Vol. 2, pp. 141–166). Beverly Hills, CA: Sage Publications.
- Goldsmith, H. H., & Campos, J. J. (1986). Fundamental issues in the study of early temperament: The Denver Twin Temperament Study. In M. E. Lamb & A. L. Brown (Eds.), *Advances in developmental psychology* (pp. 231–283). Hillsdale, NJ: Erlbaum.
- Gray, J. A. (1964). *Pavlov's typology*. Oxford: Pergamon Press.
- Hartog, L., Weijs-Perrée, M., & Appel-Meulenbroek, R. (2018). The influence of personality on user satisfaction: Multi-tenant offices. *Building Research & Information*, 46(4), 402–416. <https://doi.org/10.1080/09613218.2017.1307015>
- Haynes, B. (2012). Corporate real estate asset management: Aligned vision. *Journal of Corporate Real Estate*, 14(4), 244–254. <https://doi.org/10.1108/JCRE-10-2012-0022>
- Jung, C. G. (1921 [1971]). *Psychological types* (H. G. Baynes, Trans.; revised by R. F. C. Hull). Volume 6 of the Collected Works of C. G. Jung. Princeton, NJ: Princeton University Press.
- Jung, C. G. (1946). *Psychological types, or the psychology of individuation*. New York: Harcourt, Brace and Company.
- Keirse, D., & Bates, M. (1984). *Please understand me: Character and temperament types*. Del Mar, CA: Gnosology Books Ltd.
- Kretschmer, E. (1925). *Physique and character*. New York: Harcourt, Brace and Company.
- Kummerow, J. M., Barger, N. J., & Kirby, L. K. (1997). *Work types*. New York: Warner Books.
- Larrimore, M. (2001). Substitutes for wisdom: Kant's practical thought and the tradition of the temperaments. *Journal of the History of Philosophy*, 39(2), 259–288. <https://doi.org/10.1353/hph.2003.0103>
- Laurence, G. A., Fried, Y., & Slowik, L. H. (2013). “My space”: A moderated mediation model of the effect of architectural and experienced privacy and workspace personalization on emotional exhaustion at work. *Journal of Environmental Psychology*, 36, 144–152. <https://doi.org/10.1016/j.jenvp.2013.07.011>
- Lester, D. (1990). Galen's four temperaments and four factor theories of personality: A comment on “toward a four-factor theory of temperament and/or personality”. *Journal of Personality Assessment*, 54(1 & 2), 423–426. <https://doi.org/10.1080/00223891.1990.9674007>
- McCrae, R. R., & Costa, P. T. (2003). *Personality in adulthood: A five-factor theory perspective*. New York: Guilford Press.
- McCrae, R. R., Costa Jr, P. T., & Busch, C. M. (1986). Evaluating comprehensiveness in personality systems: The California Q-Set and the five-factor model. *Journal of Personality*, 54(2), 430–446. <https://doi.org/10.1111/j.1467-6494.1986.tb00403.x>
- Merenda, P. F. (1987). Toward a four-factor theory of temperament and/or personality. *Journal of Personality Assessment*, 51(3), 367–374. https://doi.org/10.1207/s15327752jpa5103_4
- Myers, I. B., & McCaulley, M. H. (1986). *Manual: A guide to the development and use of the Myers-Briggs type indicator*. Palo Alto, CA: Consulting Psychologists Press.

- Oseland, N. (2009). The impact of psychological needs on office design. *Journal of Corporate Real Estate*, 11(4), 244–254. <https://doi.org/10.1108/14630010911006738>
- Pederson, A. (2003). Understanding ourselves and others: Australian archivists and temperament. *Archival Science*, 3(3), 223–274. <https://doi.org/10.1007/s10502-004-4039-1>
- Pervin, L. A., & John, O. P. (1999). *Handbook of personality. Theory and research* (2nd ed.). New York: The Guilford Press.
- Pittenger, D. J. (1993). The utility of the Myers–Briggs type indicator. *Review of Educational Research*, 63(4), 467–488. <https://doi.org/10.3102/00346543063004467>
- Quirke, B. (2008). *Making the connections: Using internal communication to turn strategy into action*. Aldershot: Gower Publishing, Ltd.
- Remenyi, D., Williams, B., Money, A., & Swartz, E. (1998). *Doing research in business and management: An introduction to process and method*. London: Sage Publications.
- Robbins, S. P., Judge, T., & Campbell, T. T. (2010). *Organizational behaviour*. Englewood Cliffs, NJ: Financial Times Prentice Hall.
- Rothbart, M. K., Ahadi, S. A., & Evans, D. E. (2000). Temperament and personality: Origins and outcomes. *Journal of Personality and Social Psychology*, 78(1), 122–135. <https://doi.org/10.1037/0022-3514.78.1.122>
- Sharp, D. (1987). *Personality types: Jung's model of typology*. Toronto, Canada: Inner City.
- Smollan, R. K., Matheny, J. A., & Sayers, J. G. (2010). Personality, affect and organisational change: A qualitative study. In W. F. Zerbe, N. M. Ashkanasy, & C. E. J. Hartel (Eds.), *Research on emotions in organizations, Vol. 6, Emotions and organizational dynamism*, (pp. 85–112). Bingley, UK: Emerald Insight.
- Spränger, E. (1928). *Types of men*. New York: G.E. Stechert Company.
- Steiner, R. (1919). *Discussions with teachers*. New York: Anthroposophic Press.
- Steiner, R. (1944, 2008) *The four temperaments*. Forest Row: Rudolf Steiner Press
- Stelmark, R. M., & Stalikas, A. (1991). Galen and the humor theory of temperament. *Journal of Personality and Individual Differences*, 12(3), 255–263. [https://doi.org/10.1016/0191-8869\(91\)90111-N](https://doi.org/10.1016/0191-8869(91)90111-N)
- Strelau, J. (1987). Emotion as a key concept in temperament research. *Journal of Research in Personality*, 21(4), 510–528. [https://doi.org/10.1016/0092-6566\(87\)90037-7](https://doi.org/10.1016/0092-6566(87)90037-7)
- Sundstrom, E. (1984). *Work places: The psychology of the physical environment in offices and factories*. Cambridge: Cambridge University Press.
- Tashakkori, A., & Teddlie, C. (Eds.). (2010). *Sage handbook of mixed methods in social & behavioral research* (2nd ed.). Thousand Oaks, CA: Sage.
- Vincent, A., & Ross, D. (2001). Personalize training: Determine learning styles, personality types and multiple intelligences online. *The Learning Organisation*, 8(1), 36–43. <https://doi.org/10.1108/09696470110366525>
- Yin, R. K. (2017). *Case study research and applications: Design and methods*. Thousand Oaks, CA: Sage.