

Weak tie interactions in networking: five types of interaction structures

Georgina Nightingall  and Weston Baxter

Imperial College London, United Kingdom

 g.nightingall21@imperial.ac.uk

Abstract

Weak ties contribute to an individual's happiness, health and career, yet networking events supporting weak ties are often considered ineffective and unenjoyable. More support is needed to aid the design of these experiences. This inductive qualitative study explores how weak tie interactions occurred in a 3-day event for a professional networking community. Data was collected from multiple behavioural settings through direct observation, semi-structured interviews and archival data. Results highlight five structures underpinning weak tie interactions and associated implications for design.

Keywords: design research, design principles, human-centred design, design for human connectivity, networking events

1. Introduction

Being connected to others is a fundamental human need. A greater quantity and quality of connections is associated with individuals being happier, healthier, and likely to live longer (Holt-Lunstad et al., 2015; Pinker, 2015). They can also increase our everyday happiness and sense of belonging (Sandstrom and Dunn, 2014b). Not only are connections critical to our wellbeing, they are also necessary for our performance in our professional lives. It is through our connections, that we can get access to cognitive and functional benefits such as information and resources (Whittington, Owen-Smith and Powell, 2009; Inkpen and Tsang, 2005), to diverse and creative ideas (Burt, 2004; Perry-Smith, 2006), and opportunities for professional advancement (Useem and Karabel, 1986).

Many of these connections are those on the periphery of our network, named 'weak ties' by sociologist Mark Granovetter (1973). He suggested that these connections involved less frequent contact, lower emotional intensity, and limited intimacy. However, as Sandstrom & Dunn (2014a) have outlined, you can have a weak tie with someone you see frequently (e.g. a co-worker, neighbour, barista) and experience strong reactions like annoyance from someone you must see every day (e.g. a co-worker) so the most important distinction between weak and strong ties is the subjectively perceived level of intimacy. Levels of intimacy and closeness change over time and weak ties can also become strong so it is important to recognise this is a continuum.

Networking is an active form of making professional connections and can be defined as "behaviours that are aimed at building, maintaining, and using informal relationships that possess the (potential) benefit of facilitating work-related activities of individuals by voluntarily granting access to resources and maximising common advantages" (Wolff and Moser, 2009 pp. 196-197). Research suggests that networking is positively related to career success (e.g. Forret and Dougherty, 2004; Langford, 2000). In the practitioner literature, networking behaviours, such as attending conferences, going out for drinks or staying in contact with colleagues, are shown to be important (Torres, 2005).

Despite the valuable benefits of networking and the ubiquity of networking-esque events, there are challenges in both its functional effectiveness and individuals' desire to engage in such activities. Scholars have started to pay attention to what beliefs de-motivates people from networking (Kuwabara, Hildebrand and Zou, 2018) and have found that people often feel that the idea of forming and leveraging relationships to get ahead is morally unfair, inauthentic and dirty (e.g. Casciaro, Gino and Kouchaki, 2014). From a functional perspective, although most individuals state they attend events to meet new people, Ingram and Morris (2007) discovered that people instead tended to speak to other people they already knew. Additionally, people are often looking to "play a different game" (Coburn, 2016) to achieve their own personal agenda and due to the limited time pressures, they need to make a quick value judgement on someone's perceived value before moving on to another person. It is possible that value is not immediately obvious - we tend to flock towards ourselves like us (homophily) rather than towards more diverse others, who are likely to bring fresh perspectives and access to other networks. Finally, it is important to recognise the value of building a basis of trust first to unlock value (Helliwell and Putnam, 2004), and the networking process may not provide the time or incentive to invest in building this first.

The research strongly supports the value and benefits of it but lacks prescriptive support for the process of networking in professional environments. Most organisations place the role on individuals to network (and overcome their anxiety or beliefs), rather than focusing on contextual factors such as designing the environment to be more enjoyable and effective. Scholars have tended to understand behaviour from an individual's perspective using interviewing and focus groups to understand knowledge, beliefs, attitudes but not only is self-reporting often inaccurate, not all behaviour is under conscious control (e.g. Kahneman, 2011). This is especially true of routine behaviour which is more likely to be driven by automatic and learnt responses from the environment or behavioural setting in which behaviours occur (Aunger and Curtis, 2016). Whilst independent agents, people are also participants in larger social structures that shape their behaviour.

Weak tie interactions are important and not just found in networking settings. They show up in a variety of settings, from the way we check-out at supermarkets to the way we design communities. So design of technology, processes and systems that results in improved or weakened weak tie interactions has implications beyond networking. This is especially true where new technology has inadvertently designed out these interactions, for instance at self-checkouts or solving everyday problems via our smartphones (Kushlev, Proulx and Dunn, 2017). There have also been several studies to support the design for human connectivity. For instance, Mandeno and Baxter (2021) have proposed several design principles to improve networking events (e.g. providing explicit permission granting cues and activities and creating a safe space for participants to naturally be themselves). However, to date, work has not focused on weak ties specifically.

This research seeks to understand how weak ties are formed and how the use of design can support the formation of weak tie interactions including through technology and other means. The work builds on Mandeno's (2022) human connectivity journey that starts with finding one to connect with before a connection is formed. Mandeno went on to isolate five modes in which finding takes place: Stipulated, Sought, Suggested, Seduced, and Serendipitous. This study is interested in the formation of a connection and thus seeks to build on these Finding tactics and uncover the mechanisms behind the next stage in Mandeno's (2022) Connectivity process - (trans) Forming. The next section of the paper presents the methods of the study followed by the resulting structures of weak tie formations. Finally, design implications are discussed.

2. Methodology

This study sought to understand how weak tie interactions occur in the (trans)forming part of the connection process. It followed a qualitative inductive approach, gathering and analysing observation, interview, and archival data.

2.1. Research setting

The research setting for this study was a 3-day summit event for a global community of young leaders. The 3-day summit event brought together 75 global members (and curated guests) to deeply connect,

building trust and the seeds of friendship. Some individuals reported to have a few pre-existing relationships but most people did not know everyone so most connections would be considered weak ties. The event was designed to facilitate connection, learning and growth with structured interactions including workshops, and less structured interactions occurring over meals, and shared experiences like dancing, or walks. All events were led by members; there were no external speakers or the like. Although the community infrequently uses the term ‘networking’ to describe its activities, because of the transactional nature of the term, community membership supports personal and professional outcomes e.g. members often collaborate on projects, open their network for introductions and share resources such as their homes to visitors.

2.2. Data collection

Data for this study was collected through observation and interviews together with archival information. Observational data is especially rich as it creates more opportunities to understand how processes actually occur in real-time as seen by the researchers. This form of naturalistic data collection is most suitable for the research question being studied because it takes into account a number of elements that contribute to the interaction process but may be beyond the awareness of individuals’ self-reports such as the physical layout (stage, infrastructure, props) and social forces (roles, motives, social norms). To gather observations, the first author took part in the event as a member of the community and took on the role as a participant-observer for this study. As a highly engaged member and community leader since 2018, she has deep exposure to its history, idiosyncratic language and norms so was able to pick up on some of the finer nuances. To mitigate observer bias the author constantly reflected on their own biases and experiences and how these may influence the research findings. Additionally, data triangulation ensured that the findings were supported by multiple sources of data as observations were discussed with the other authors. Data was also collected from semi-structured interviews with 18 participants who attended the event. Interviews lasted on average one hour. The participants were recruited through purposive sampling, where the aim is to achieve greater variation in terms of their gender, cultural and professional background, and level of membership in the community (from new <1 year community members to members of c.10 years). The interviews were audio-recorded with the participant’s consent and then transcribed verbatim. A final source of data was archival data, to provide a more holistic understanding of the context in which the interactions occur. This secondary data included website text, and written posts Facebook pages or WhatsApp groups.

2.3. Data analysis

Data was analysed through an iterative process, whereby the observation and interview data was coded, and analysed for patterns. The first author reviewed the event timelines and their observation notes to capture all observable instances in which interactions occurred. During the interviews, participants were asked about the different settings where they had some kind of interaction (formal settings and between settings). The author and participants interaction settings list were collated, and each sorted by interaction type to reach saturation of types. Behaviour setting theory was used to separate the elements of the setting, such as physical and social features, and to help identify the different enablers, barriers and mechanisms involved in weak tie interactions. This theory helps abstract local observations into more generalisable observations of the mechanisms that help to shift behaviour. The archival data helped provide a more comprehensive understanding of these patterns. The data was analysed against [Mandeno’s \(2022\)](#) five tactics for finding others to connect to, to see if it fit into his existent categories.

3. Findings

Analysis of over 50 activities at the events resulted in 5 distinct structures that explained the type of weak-tie interaction taking place and those elements of the interaction that are important for the interaction’s success. These interaction structures are labelled: Stipulated Interaction, Suggested Interaction, Seduced Interaction, Serendipitous Interaction and Sought Socio-Functional Interaction. Unsurprisingly, this builds on all of [Mandeno’s \(2022\)](#) Finding tactics (Stipulated connections, Suggested Connections, Seduced Connections, Sought Connections, Serendipitous Connections) as this

work looks at the step immediately following one finding a potential contact —the forming of that connection. Finding includes gaining awareness of another whilst forming takes place once someone has been found, so these tactics were expanded on to include the actual engagement through an interaction with the use of scripts and social norms (forming). Each structure is from the perspective of the connector and is characterised by three elements: intentionality, (in)directness and the number of agents involved. Each interaction forming structure is summarised in Table 1 below.

Table 1. Five structures for forming interactions with others (adapted from Mandeno’s original (2022) table ‘Five tactics for finding others to connect to’)

Name & Definition	Characteristics	Example	Visualisation
Stipulated Interaction - An agent (C), within a wider setting, establishes roles with associated scripts for interaction between two parties (A & B). Scripts can be explicit or implicit based on the task at hand and the roles played by the actors. A key role of C is also to help establish a social norm favourable to improved interactions	Non-intentional Indirect or direct Triadic	Workshop	
Suggested Interaction - An agent (C) adopts the role of an introducer between two parties (A & B), directly or indirectly. Creating a social norm and providing a basic or detailed script for the actors to follow at the introduction.	Non-intentional Direct Triadic	Introduction during drinks	
Seduced Interaction - The role of A has created an opportunity to share in a way that attracts B. The resulting role of A in relation to B provides a script that B can follow when initiating a conversation.	Intentional Direct Dyadic	Choosing a seat at dinner next to a leader	
Serendipitous Interaction - A and B are serendipitously in close proximity to each other and interact because of an invitation to keep or avoid breaking a social norm. There are not necessarily clear roles or scripts. Rather, a norm dictates that discussion is acceptable and polite.	Non-intentional Indirect Dyadic	Walking on a shared path to the clubhouse	
Sought Socio-Functional Interaction - A has a specific functional or social objective and makes a request for help, creating a role and clear script for B. Outcomes are impacted by the presence of prosocial norms.	Intentional Indirect Dyadic or Triadic	Requesting a hairdryer	

Stipulated Interactions occur when an external agent explicitly connects A & B and they interact based on C’s instructions (direct), or they are placed in close enough proximity by C that they connect (indirect). Examples of this type of interaction from the data included attendees interacting at a workshop, in a leaders’ meeting, at closing circle, performing as improv theatre entertainment, and when checking in to the shared accommodation houses. The human facilitator stipulating this interaction can sometimes be replaced by the rules and instructions of the game, where the game’s structure becomes the facilitator. There were a variety of games in the data including the Dutch Games, Extreme Rock Paper Scissors and Volleyball. The key objective then for this tactic is not to connect, but to follow guidance collaboratively. The connection is a by-product of this. This type of interaction is successful because there are clear roles and/or associated scripts dictated by the facilitator such as ‘ask X about Y’ or in the game Rock Paper Scissors say “rock, paper, scissors” and then hold out your fist for rock, flat

hand for paper, or their index and middle finger for scissors. When the roles or instructions are unclear or unspecific, or completely lacking (e.g. just ‘network’), it can be more challenging for participants. However, the permission to approach and start a conversation can still reduce barriers to connecting because it establishes an injunctive norm around approaching people.

Design Implications: Create environments where individuals are assigned to work together. Improve interactions by inviting individuals across different groups to interact with a specific prompt that offers a script for the interaction.

Suggested Interactions occur when an external agent introduces A to B. This could look like a direct introduction when A is in the presence of B. Or it could be indirect, where C informs A & B that they should seek each other out. Typically, C would share why. Although intentional on the part of the agent, it is not an intentional connection from the perspective of the connector. This type of interaction is successful because C, in their role as an introducer, grants permission and an excuse for A to approach B. This can be for any number of reasons including functional (e.g. they are a great mentor) or social (e.g. you two will really get along because you have shared interests). The sharing of reasons provides a clear script that helps A and B start a conversation. This can be more challenging when C doesn’t provide reasons for making the connection or guidance on what to explore in a conversation, although the shared relationship with C can help (e.g. how do you know C?). Injunctive social norms usually dictate that it would be considered rude for B to ignore or not engage with the A following this direct introduction. This is helped by a sense of increased trust, created by proxy through their shared relationship with C.

Design Implications: Elicit needs, interests, and capabilities of participants in a way that shares these with others. Encourage individuals (or software) to build awareness of others’ interests, backgrounds and goals and invite or suggest moments to make introductions.

Seduced Interactions occur when A is in the proximity of B, having been made aware of and attracted to B’s existence previously (through their behaviour, a physical attribute, or a possession). A starts a conversation with B about something B has previously said/done, which A wants to talk about. As the event in this study was run for members by members, with the whole event flow creating opportunities for individuals to step into roles as workshop or activity facilitators, speakers, entertainers, leaders, transport providers, organising team etc. there were many opportunities for members to be seen by others. Additionally, members could become aware of each other before the event began, through posts made in the event or community WhatsApp groups. Examples of this type of interaction from the data included individuals making decisions at dinner about where to sit, which workshop to attend (after seeing the facilitator speak) and who to approach in shared spaces. This type of interaction includes examples where A is attracted to B because they believe they can help them. For instance, when participant B posted in the WhatsApp group about the need for a hairdryer and a car lift to the venue, they created awareness of their needs and an opportunity for A to seduce them. This example connects to the role B’s plays in Sought Socio-Functional Interaction. In these interactions, A’s awareness of B’s previous actions creates a script to start the conversation. This could be challenging for B, if they do not want to explore a connection with A, but feel compelled to by social norms. A connector is not required here, although they may act as a prop by recommending B to help fulfil the role.

Design Implications: Create opportunities to make individuals more visible with reasons to be approached later. This may include introductions, verbally acknowledging individuals in the presence of others, creating easily accessible profiles, and encouraging individuals to take on visible roles.

Serendipitous Interactions occur when A and B happen to be in proximity and are able to initiate an interaction because of an invitation to keep or avoid breaking a social norm. There were numerous examples of this in the data as the physical layout was designed to encourage participants to move through several close by limited shared spaces such as a main clubhouse where all meals and main

events took place, and one path to the accommodation houses. These included: meal buffet queues, the bar/drinks area, the notice board, the dance floor, inside the small accommodation houses of 6 participants, on the picnic tables outside the houses, walking on a shared path, queues for a photography experience, swimming in the lake and on the trampoline. So, whilst these are chance encounters, they can be increased by increasing proximity. They do not require an external agent to initiate them, and as they are by coincidence, they are both non-intentional and indirect. At this event, connection was a strong motive for participants' attendance, so opportunity more than permission was required to interact. In some of the more specifically social settings, the social norm to interact was higher because it is impolite to ignore others. This is increased when the physical infrastructure creates close proximity and constraints around abundance (of people) in the space, as it builds intimacy. The addition of time can also create a sense of familiarity. For instance, at mealtimes, travelling in the car to or from the venue and sitting next to each other in the audience during the entertainment. In other settings where the social norm to interact is very weak and there is a lack of familiarity, trust, or shared identity with each other, it could be much more challenging. In this type of interaction, especially if there are no clear roles, it may be more challenging for participants to start a conversation because there is no guidance on how to initiate. However, their shared local context may create a script.

Design Implications: Design intersectional spaces that increase the likelihood of two people colliding. Help increase familiarity of faces and names. Reinforce social norms that both invite engagement and discourage lack of engagement to increase the likelihood of an interaction occurring.

Sought Socio-Functional Interactions occur when A wants to fulfil an objective and makes a request for help which B is able to fulfil. Examples of this type of interaction from the data included functional objectives (e.g. find a fancy-dress costume, get a lift to the ATM, find a hairdryer, find a lift to the venue, get access to information, get food from the BBQ), and social-emotional objectives (talk to someone about an emotional challenge). Both social and functional objectives here are transactional because the connector is engaging to get something specific (instrumental motivation), rather than to purely connect (intrinsic motivation). A connector is not required here, although they may act as a prop by recommending B to help fulfil the role (e.g. because they know that B has a car). This interaction is intentional as A seeks out help from a person, but it can be either direct or indirect, as they may need their need to be met by someone specific or someone. This type of interaction has clear roles, and associated scripts which makes it easier for A to initiate an interaction. Physical proximity is not necessarily required, although it may be in some circumstances. It may become more challenging if A and B haven't established trust, and there isn't a strong social norm around helping others. A is more likely to be successful if they ask B directly, otherwise, their request for help may be ignored due to the bystander effect.

Design Implications: Create easily discoverable physical or virtual spaces and opportunities that make it easy to make requests. Reinforce social norms for requesting and giving help by rewarding this behaviour. Use others as props to increase the speed and likelihood of finding a relevant person. .

4. Discussion

These findings contribute to a better understanding of the different ways in which weak tie interactions occur. In so doing, these findings help designers gain a clearer understanding of the mechanistic process of forming connections, to better understand challenges and enabling opportunities, to create more effective interventions and as an evaluative tool to explain the success or failure of interventions. Additionally, having a nuanced understanding of the differences between each interaction and their influencing factors enables designers to identify which structure is most likely to result in their desired outcomes, and what the design requirements are to achieve this. Whilst we looked at a local event, the use of Behaviour Settings theory allows us to abstract these specific findings into a broader understanding of the elements that support or hinder an action from taking place. For instance, proximity is not enough to enable connection—social norms are another element required. The result is that the findings are more generalisable than simply the networking event analysed.

Some forming structures require the assistance of external agents, physical props, specific roles and social norms as key enablers in the formation of the interaction. For instance, Stipulated and Suggested forming structures require the assistance of an external agent. As identified by Mandeno's (2022, p118) connection-finding structures, Stipulated interactions agents don't need to have 'specific connectivity related intentions when putting people into close proximity' but with Suggested connections, this is a dependency; the quality of interactions 'depend(s) on the requisite knowledge and ability of the agent'. Thus, highlighting a need for agents to have access to enough knowledge of individuals to make relevant connections. Mandeno (2022) identifies a design opportunity here where spaces where diverse connections are desirable, where a matchmaker can create added value by suggesting contacts that are not normally sought out. We identify an additional benefit; in spaces where cognitive biases like homophily play a role in determining interactions, agents could help break down barriers by bringing together different groups. Thus, enabling minority individuals to feel an increased sense of inclusivity and belonging and helping individuals challenge their stereotypical assumptions about the value of diverse connections (McPherson, Smith-Lovin and Cook, 2001).

The playing of roles is an effective strategy for the forming of interactions. As previously stated, Stipulated and Suggested forming structures require an external agent to act as a matchmaker or facilitator of interactions. In Stipulated interactions, this role is not limited to a human. Games and their structured rules also stipulate interactions; games become the facilitator and invite others to become players, enacting specific roles as part of the game. Playing specific roles to meet the objectives of the game creates a clear set of expectations and boundaries for how to behave, clear scripts to follow, and permission for individuals to step outside of their normal routines and behavioural patterns. This can have very powerful effects for human connection, for not only do these roles invite interactions, they also allow individuals to authentically express themselves and transcend identities that might be getting in the way of connecting. For instance, in networking events it is common for individuals to receive the question 'what do you do?'. Whilst this is a relevant question for unearthing professional backgrounds, it can often feel transactional, inviting scripted self-censored pitches, and encouraging stereotypical behaviours. The playing of roles is also an important element of Sought Socio-Functional Interactions; the Connector's need creates space for another to play a role to meet it. Roles can act as highly effective enablers, especially in settings with high social norms against interacting. This is because they grant permission to interact, are specific so come with clear interaction scripts, create a sense of safety from clear boundaries and encourage prosocial behaviour of helping others. Whilst the interaction is transactionally motivated and might not always lead to further or deeper connection, they often present the opportunity for individuals to connect for more relational, intrinsically motivation reasons afterwards.

Proximity plays an important role in many of the interaction forming strategies; it is a required component of serendipitous interaction-forming structures, as individuals need to be in a shared space at the same time to bump into each other. Additionally, as Mandeno (2022) also highlights, Indirect Stipulated Interactions require 'proximity over time (e.g. playing on the same sports team or working in the same project team)' that create the circumstances for interactions to be initiated. Although not essential, proximity can also influence the outcomes in Direct Stipulated Interactions, Suggested Interactions and Sought Socio-Functional Interaction. In Direct Stipulated Interactions, actors may invite individuals to connect with someone sitting close by. In networking events and other social occasions, we tend to gravitate towards familiarity (Ingram and Morris, 2007), which may again accentuate divides with unfamiliar individuals from diverse backgrounds. The physical presence of two known individuals close by may create the stimulus and opportunity for an agent to step into a role as an external matchmaker in Suggested Interactions or for a Connector to approach an individual in Seduced Connections. With Sought Socio-Functional Interactions, individuals in close proximity to others are more likely to both become aware of their needs and feel compelled to help.

Social Norms are another important element to be considered by designers, because of their immense social power. This is especially true for Shared Space Interactions and Shared Space Social Interactions. In the former, social norms grant permission to interact (e.g. standing in a queue), whilst in the latter social norms create pressure for individuals not to interact (e.g. because it is impolite to ignore). When there are social norms present that disincentivize individuals to interact (e.g. it being perceived as weird

to talk to strangers travelling on shared public transport), it becomes even more important for designers to consider novel approaches to influencing these norms. Designing spaces where people are simply placed in proximity to each other, without consideration of norms, will not lead to successful interaction outcomes.

The interaction structures identified provide a basis for supporting the definition and scoping of the challenge space within design and the current behaviours. The detailed understanding then also helps to guide strategies or approaches to improving design outputs. Further work is needed to enhance this line of work and consider how it may be transformed into a more formal design method, but such work is beyond the scope of this paper. This research creates the scaffolding for researchers to build upon. Firstly, researchers could explore how common each structure is, or how impactful. We would expect there to be nuances across different contexts, especially since social norms are highly context dependent. For instance, large urban cities like London tend to lean towards social norms against interacting with strangers, whilst those residing in less urban areas, like British countryside towns and villages, tend to have social norms that encourage greetings and friendliness with strangers. For impact, the strength of a connection is an important factor in the connection process; interactions which feel low quality in connection are less likely to cultivate trust, a sense of belonging or a desire to reconnect again. Secondly, individual characteristics may influence the preferences of some structures over others. Anecdotal data from this study suggested that self-described introverts tended to prefer forming connections where an external agent created permission and an opening script (e.g. a Stipulated Interaction at a workshop). More extroverted individuals reported feeling challenged with the level of structured interactions (e.g. in the closing circle) that feel ‘over-engineered’ (P9) and designed so that ‘every minute is accounted for’ (P8). Thirdly, understanding the relationship between the strength of each weak-tie and each strategy was out of scope of this study. We would expect attendees who have already broken the ice and established baseline trust to rely less on permission-granting social norms for approaching others. A final interesting area that should be explored is the relevance of these structures to interactions occurring in digital spaces, given their increasing prevalence in our lives.

5. Conclusion

Contexts, whether formal or informal, professionals come together to interact are ripe networking opportunities. The interactions in these contexts are best described as weak ties until they grow into a more meaningful relationship. Understanding the mechanisms driving these interactions is essential to the design of experiences, whether it is for a conference, meeting, team away-day or general organisational design. There are five interaction structures revealed in this study each with specific behavioural settings elements required to enable interactions and considerations for improving the likelihood of interaction success. This provides designers of such networking events an opportunity to address both what kind of interaction structures are taking place at their events but also how to support people in developing relationships within each of these interactions. This acknowledges the role of the designer of the event to help create successful interactions. It also helps clarify the kinds of competencies expected from individuals in each context to successfully engage others. Bringing this level of awareness can enable the design of more successful interactions in networking and other weak tie interaction settings.

References

- Aunger, R. and Curtis, V. (2016) ‘Behaviour Centred Design: towards an applied science of behaviour change’, *Health Psychology Review*, 10(4), pp. 425–446. <https://doi.org/10.1080/17437199.2016.1219673>.
- Burt, R.S. (2004) ‘Structural Holes and Good Ideas’, *American Journal of Sociology*, 110(2), pp. 349–399. <https://doi.org/10.1086/421787>.
- Casciaro, T., Gino, F. and Kouchaki, M. (2014) ‘The Contaminating Effects of Building Instrumental Ties: How Networking Can Make Us Feel Dirty’, *SSRN Electronic Journal* [Preprint]. <https://doi.org/10.2139/ssrn.2430174>.
- Coburn, D. (2016) ‘Don’t Waste Your Time on Networking Events’, *Harvard Business Review*, 26 September. Available at: <https://hbr.org/2016/09/dont-waste-your-time-on-networking-events> (Accessed: 11 April 2023).
- Forret, M.L. and Dougherty, T.W. (2004) ‘Networking Behaviors and Career Outcomes: Differences for Men and Women?’, *Journal of Organizational Behavior*, 25(3), pp. 419–437. <https://doi.org/10.1002/job.253>

- Granovetter, M.S. (1973) 'The Strength of Weak Ties', *American Journal of Sociology*, 78(6), pp. 1360–1380. <https://doi.org/10.1086/225469>
- Helliwell, J.F. and Putnam, R.D. (2004) 'The social context of well-being', *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*. Edited by F.A. Huppert, N. Baylis, and B. Keverne, 359(1449), pp. 1435–1446. <https://doi.org/10.1098/rstb.2004.1522>.
- Holt-Lunstad, J. et al. (2015) 'Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review', *Perspectives on Psychological Science*, 10(2), pp. 227–237. <https://doi.org/10.1177/1745691614568352>.
- Ingram, P. and Morris, M.W. (2007) 'Do People Mix at Mixers? Structure, Homophily, and the "Life of the Party"', *Administrative Science Quarterly*, 52(4), pp. 558–585. <https://doi.org/10.2189/asqu.52.4.558>.
- Inkpen, A.C. and Tsang, E.W.K. (2005) 'Social Capital, Networks, and Knowledge Transfer', *Academy of Management Review*, 30(1), pp. 146–165. <https://doi.org/10.5465/AMR.2005.15281445>.
- Kushlev, K., Proulx, J.D.E. and Dunn, E.W. (2017) 'Digitally connected, socially disconnected: The effects of relying on technology rather than other people', *Computers in Human Behavior*, 76, pp. 68–74. <https://doi.org/10.1016/j.chb.2017.07.001>.
- Kuwabara, K., Hildebrand, C.A. and Zou, X. (2018) 'Lay Theories of Networking: How Laypeople's Beliefs About Networks Affect Their Attitudes Toward and Engagement in Instrumental Networking', *Academy of Management Review*, 43(1), pp. 50–64. <https://doi.org/10.5465/amr.2015.0076>.
- Langford, P.H. (2000) 'Importance of relationship management for the career success of Australian managers', *Australian Journal of Psychology*, 52(3), pp. 163–168. <https://doi.org/10.1080/00049530008255384>.
- Mandeno, P. (2022) *Design for Human Connectivity - an Exploration through Contemporary Work Situations [PhD Thesis]*. Department of Design Engineering, Imperial College London
- McPherson, M., Smith-Lovin, L. and Cook, J.M. (2001) 'Birds of a Feather: Homophily in Social Networks', *Annual Review of Sociology*, 27(1), pp. 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>.
- Nierenberg, A.R. (2009) *Nonstop Networking: How to Improve Your Life, Luck, and Career*. Capital Books Inc, VA, USA. Available at: <https://www.amazon.co.uk/Nonstop-Networking-Relationship-Selling-Personal/dp/1933102896> (Accessed: 12 April 2023).
- Perry-Smith, J.E. (2006) 'Social yet creative: the role of social relationships in facilitating individual creativity', *Academy of Management Journal*, p. 18. <https://doi.org/10.5465/amj.2006.20785503>
- Pinker, S. (2015) *The Village Effect: Why Face-to-face Contact Matters*. Atlantic Books, USA. Available at: <https://www.amazon.co.uk/Village-Effect-Face-face-Contact/dp/1848878583> (Accessed: 12 April 2023).
- Sandstrom, G. M., & Dunn, E. W. (2014a). Social interactions and well-being: The surprising power of weak ties. *Personality and Social Psychology Bulletin*, 40(7), 910–922. <https://doi.org/10.1177/0146167214529799>
- Sandstrom, G.M. and Dunn, E.W. (2014b) 'Is Efficiency Overrated?: Minimal Social Interactions Lead to Belonging and Positive Affect', *Social Psychological and Personality Science*, 5(4), pp. 437–442.: <https://doi.org/10.1177/1948550613502990>.
- Torres, N.L. (2005) 'It's Who You Know', *Entrepreneur*. Available at: <https://www.entrepreneur.com/starting-a-business/business-it39s-who-you-know/80950> (Accessed: 11 April 2023).
- Useem, M. and Karabel, J. (1986) 'Pathways to Top Corporate Management', *American Sociological Review*, 51(2), p. 184. Available at: <https://doi.org/10.2307/2095515>.
- Whittington, K.B., Owen-Smith, J. and Powell, W.W. (2009) 'Networks, Proximity, and Innovation in Knowledge-intensive Industries', *Administrative Science Quarterly*, 54(1), pp. 90–122. <https://doi.org/10.2189/asqu.2009.54.1.90>.
- Wolff, H.G. and Moser, K. (2009) 'Effects of networking on career success: A longitudinal study', *Journal of Applied Psychology*, 94, pp. 196–206. <https://doi.org/10.1037/a0013350>.

