

This paper is part of the TDM / ArbitralWomen special on "Dealing with Diversity in International Arbitration" edited by:



Rashda Rana SC
39 Essex Street
Chambers, President
ArbitralWomen



Louise Barrington
Independent Arbitrator
and Director Aculex
Transnational Inc

ARBITRALWOMEN

The International Network of
Women in Dispute Resolution

Terms & Conditions

Registered TDM users are authorised to download and print one copy of the articles in the TDM Website for personal, non-commercial use provided all printouts clearly include the name of the author and of TDM. The work so downloaded must not be modified. **Copies downloaded must not be further circulated.** Each individual wishing to download a copy must first register with the website.

All other use including copying, distribution, retransmission or modification of the information or materials contained herein without the express written consent of TDM is strictly prohibited. Should the user contravene these conditions TDM reserve the right to send a bill for the unauthorised use to the person or persons engaging in such unauthorised use. The bill will charge to the unauthorised user a sum which takes into account the copyright fee and administrative costs of identifying and pursuing the unauthorised user.

For more information about the Terms & Conditions visit www.transnational-dispute-management.com

© Copyright TDM 2015
TDM Cover v4.1

Transnational Dispute Management

www.transnational-dispute-management.com

The Performance of Teams in International Arbitration: Gender Diversity and the Female Factor by U. Cartwright-Finch

About TDM

TDM (Transnational Dispute Management): Focusing on recent developments in the area of Investment arbitration and Dispute Management, regulation, treaties, judicial and arbitral cases, voluntary guidelines, tax and contracting.

Visit www.transnational-dispute-management.com for full Terms & Conditions and subscription rates.

Open to all to read and to contribute

TDM has become the hub of a global professional and academic network. Therefore we invite all those with an interest in Investment arbitration and Dispute Management to contribute. We are looking mainly for short comments on recent developments of broad interest. We would like where possible for such comments to be backed-up by provision of in-depth notes and articles (which we will be published in our 'knowledge bank') and primary legal and regulatory materials.

If you would like to participate in this global network please contact us at info@transnational-dispute-management.com: we are ready to publish relevant and quality contributions with name, photo, and brief biographical description - but we will also accept anonymous ones where there is a good reason. We do not expect contributors to produce long academic articles (though we publish a select number of academic studies either as an advance version or an TDM-focused republication), but rather concise comments from the author's professional 'workshop'.

TDM is linked to **OGEMID**, the principal internet information & discussion forum in the area of oil, gas, energy, mining, infrastructure and investment disputes founded by Professor Thomas Wälde.

THE PERFORMANCE OF TEAMS IN INTERNATIONAL ARBITRATION:
GENDER DIVERSITY AND THE FEMALE FACTOR

Ula Cartwright-Finch¹

1. Introduction

Gender diversity is an issue within international arbitration as it is across the business world generally. Women continue to be under-represented in top-level positions in international arbitration and this gender asymmetry is not just restricted to arbitral tribunals. Despite the fact that there are equivalent numbers of men and women entering the profession, panels and lists of arbitrators are overwhelmingly dominated by men, few arbitral institutions and global practices are led by women (with a handful of notable exceptions),² and the percentage of female partners practising international arbitration remains low generally.

There are several factors that may contribute to the gender gap that exists at the higher levels in international arbitration. These include potential biases (whether conscious or unconscious) against selecting women into managerial or leadership positions, difficulties juggling family life with work that often demands a heavy travel schedule,³ a paucity of female role models achieving that

¹ Ula Cartwright-Finch is a Senior Associate in Herbert Smith Freehills' international arbitration practice, currently based in London. She also holds a PhD in Cognitive Psychology from UCL and a Masters in Psychology from the University of St Andrews. The views in this paper represent those of the author and may not reflect the position of Herbert Smith Freehills.

² For example: Karyl Nairn QC (Global Co-head – Skadden's International Litigation and Arbitration Group); Lucy Reed (Global Co-head – Freshfields' International Arbitration & Public International Law Groups) and Paula Hodges QC (Global Head – Herbert Smith Freehills' International Arbitration Practice). Women appear to be comparatively well-represented within arbitral institutions, however: Annette Magnusson (Secretary General – SCC); Chiann Bao (Secretary-General – HKIAC); Jacomijn van Haersolte-van Hof (Director General – LCIA); Judith Gill QC (President Elect – LCIA Court); Meg Kinnear (Secretary General – ICSID) and Teresa Cheng SC (Chairperson – HKIAC Council).

³ On the whole, this remains a greater challenge for mothers than for fathers.

balance, and relative challenges accessing predominantly male networks, formal and informal, in a field where personal connections are especially important.

In recognition of these potential barriers, firms and networks operating in the field of international arbitration are taking active steps to address the persisting gender gap. Some are devising mentoring programmes and career development initiatives specifically targeted at retaining and promoting women. Others are rolling out diversity training to educate managers and the workforce generally on unconscious biases, with the aim of reducing or eliminating their potential effects on recruitment and promotion.

These strategies place their focus at the level of the individual, and specifically, how women approach their careers and how men can adapt to proactively encourage the promotion of female talent. In conjunction with these strategies, initiatives are being adopted at the organisational level in order to improve gender diversity, most notably the setting of gender targets – or even quotas – for the proportion of women occupying top level positions.

What is considered far less often, however, is the level that exists between individuals and organisations: that of groups and teams. The effect of gender diversity on the functioning of teams has particularly important implications for international arbitration because teams impact the process at virtually every level. There are teams of legal counsel advising the parties (both in private practice and in-house), teams handling cases at arbitral institutions, and then the arbitral tribunal itself – often comprising a team of three individuals. In some cases, there may also be large teams of people involved in coordination and review during the document management phase of proceedings, teams of accountants or other analysts supporting expert witnesses in the preparation of their reports; even a sole arbitrator may be assisted by a tribunal secretary or the designated counsel administering the case on behalf of the arbitral institution.

This paper looks at research on the impact of gender diversity at the group level, and in particular, the effect of changing the balance of men and women in a team on the way that it functions and performs. The first part of this paper provides a brief overview of some of the key findings relating to gender balance and its effect on team processes and performance, before considering some of the potential limitations of that data. The second part of the paper is devoted to groundbreaking new research that provides evidence that groups (as distinct from the individuals within them) demonstrate measurable intelligence, and the surprising effects of gender diversity on this collective intelligence.

Approaching the topic from a different angle, this paper seeks to add an extra dimension to the business case for gender diversity by highlighting, with the backing of compelling, cutting-edge, scientific research, the measurable advantages of including women in teams. It also aims to complement perspectives on the gender debate that consider why inequality exists or how it may be addressed, by explaining how and why gender diversity can improve the performance of teams. For those looking to appoint the most intelligent arbitral tribunal, or who want to assemble the smartest team for a particular case, the following discussion will therefore be of interest. It may also stimulate valuable reflection on personal experiences of working with particularly effective teams.

2. Research on the impact of gender diversity on team processes and performance

Gender equality is advocated by many for social and political reasons. Recognising that managers and executives may be engaged faster by commercial reasons, however, proponents of equality are also active in promoting the business case for diversity⁴ – that is, the view that diverse teams (and a diverse workforce generally) will produce better results. Against this background, a great deal of research has been conducted into the effects of gender diversity on

⁴ The business case approach rests on the belief that professionals are convinced by rational arguments framed in scientific, evidence-based, terms, and with the primary motivation of achieving performance-driven outcomes.

intra-team processes and dynamics, and the way that teams perform. This section provides a brief summary of some of the major findings from this field of research, looking first at team processes and then at measures of team performance.

A. Gender diversity and intragroup processes

In general, the scientific research suggests that having a more gender diverse group of people improves the processes and dynamics that are observed within that group, such as communication, leadership, collaboration and psychological experience. Typically, these studies involve researchers manipulating the balance of men and women in a small team of people and then measuring the attitudes and behaviour of the different groups while they carry out a particular task. Other studies observe groups of people in real-life settings, looking at how their behaviour changes when the proportion of women and men varies over time.

In one study, for instance, scientists found that teams with equal numbers of men and women, and teams with more women than men, performed better than all-men or all-women groups on a simulated management task because those teams collaborated and cooperated more effectively.⁵ In that study, groups of undergraduate students with varying male-to-female ratios competed against one another over a ten-week period on a complex business-related assignment. The experimenters concluded that mixed groups performed better than homogenous-sex groups due to the valuable combination of women's more interactive, people-oriented style with men's competitive, decision-making style. This is consistent with other research demonstrating that men and women adopt different interpersonal styles and approaches to communication when they are in group settings. A paper comparing the results from a range of different studies found that men tended to be more autocratic in group settings (i.e. giving orders) whereas women were more democratic (i.e. interested in participation

⁵ Fenwick, G. D. & Neal, D. J. (2001) Effect of gender composition on group performance. *Gender, Work and Organization* 8(2): 205-225.

among team members).⁶ Other studies reveal that all-female groups are more generous and more egalitarian than all-male groups, with women exhibiting equal amounts of communication between group members and adopting shared leadership roles.⁷ Research also shows that individuals in gender-mixed teams experience greater levels of personal satisfaction⁸ and team morale⁹ than those in all-male or all-female teams. This effect may depend to some extent on the existing gender balance of a group, however, as changing the gender split in male-dominated environments has led to negative effects on reported satisfaction and functioning in some instances.¹⁰

Overall, however, gender balance and diversity has been shown to have demonstrable benefits to team dynamics and processes in a range of different settings. In addition, these positive benefits appear to be mediated by the different behaviours that men and women exhibit in the context of group interactions. To the extent that team dynamics, communication and morale contribute to the successful functioning of teams, these are significant results for clients, partners and other managers in assembling teams operating in the field of international arbitration.

⁶ Eagly, A. H. & Johnson, B. T. (1990) Group and leadership style: A meta-analysis. *Psychological Bulletin* 108: 233-256.

⁷ Berdahl, J. H. & Anderson, C. (2005) Men, women and leadership centralization in groups over time. *Group Dynamics* 9: 45-57; Schmid-Mast, M (2001) Gender differences and similarities in dominance hierarchies in same-gender groups based on speaking time. *Sex Roles* 44: 537-556; Dufwenberg, M. M. & Muren, A. (2006) Gender composition in teams. *Journal of Economic Behavior & Organization* 61(1): 50-54.

⁸ Lee, D. C. & Farh, J. (2004) Joint effects of group efficacy and gender diversity on group cohesion and performance. *Applied Psychology: An International Review* 53(1): 136-154.

⁹ Jehn, K. A., Northcraft, G. B. & Neale, M. A. (1999) Why differences make a difference: A field study of diversity, conflict and performance in workgroups. *Administrative Science Quarterly* 44(4): 741-763.

¹⁰ One study looking at the integration of female players into musical orchestras found that members reported lower levels of satisfaction and social functioning when the existing group was dominated by men. This effect fell away or reversed, however, as the proportion of women increased; Allmendinger, J. & Hackman, R. J. (1995) The more, the better? A four-nation study of the inclusion of women in symphony orchestras. *Social Forces* 74(2): 423-460.

B. Gender diversity and team performance

Results regarding the impact of gender diversity on team performance reflect similar advantages for gender-mixed teams. In general, experimental studies manipulating the gender composition of teams report that having a mixture of men and women improves economic performance, when compared with majority- (or exclusively-) male or female groups.

In one study, for example, researchers found that teams with an equal gender balance outperformed male-dominated teams in terms of both sales and profits on a start-up venture project assignment.¹¹ In another study, the best performing group in a competitive business game with three-member teams was found to be two men and one woman (i.e. majority male), whereas exclusively female three-member teams performed significantly less well than all other gender combinations (i.e. exclusively-male, majority-male and majority-female groups).¹²

The impact of gender diversity on company performance in real-life contexts is less clear cut, however. This topic, and in particular, the effects of women in the boardroom, is a growing area of research, facilitated by several countries now imposing legislative quotas on female representation on boards of directors (e.g. Norway, Spain, France, Iceland,¹³ Italy, Belgium and Germany¹⁴). In general, these studies find that the presence of female directors improves corporate

¹¹ Hoogendoorn, S., Oosterbeek, H. & van Praag, M. (2013) The impact of gender diversity on the performance of business teams: evidence from a field experiment. *Management Science* 59(7): 1514-1528.

¹² The results in that study were explained by the observation that three-women teams tended to be less aggressive in their pricing strategies, invested less in research and development and invested more in social sustainability initiatives than other gender combination teams; Apesteguia, J., Azmat, G. & Iriberry, N. (2012) The impact of gender composition on team performance and decision making: evidence from the field. *Management Science* 58(1): 78-93.

¹³ Norway, France, Spain and Iceland have all passed legislation requiring 40% of boardroom positions to be held by women.

¹⁴ Italy, Belgium and, most recently, Germany, have also enacted laws specifying female quotas for boards of directors, setting the minimum level at a third or 30%.

governance, with more diverse boards demonstrating greater attendance at board meetings (by both men and women), increased monitoring (e.g. through audit and nominating committees), more equity-based compensation for directors and higher chief executive officer turnover.^{15,16}

However, empirical research into the relationship between gender diversity and financial performance is inconsistent and the results from those studies are complicated by a number of intrinsic factors.

By way of illustrations, two separate reports published in 2007, by the non-profit organisation Catalyst¹⁷ and the consultancy firm McKinsey¹⁸ respectively, lend support to the traditional business case that diversity on boards improves a company's financial performance (using return on equity, return on sales and return on invested capital as metrics). However, subsequent authors have pointed to methodological flaws in the design of both studies that limit the conclusions they can provide. For example, neither study states whether the trends were statistically significant and neither is capable of determining the causal direction of the relationship between financial performance and the proportion of women in top management positions.¹⁹

Moreover, while some recent studies report that firms with women directors perform better on key measures of financial performance than those without women on their boards,²⁰ later research has reported the opposite results in

¹⁵ Whilst greater turnover at CEO level may seem to represent a detrimental impact at first blush, this measure was treated by the authors as a positive index of governance overall, reflecting CEOs being held to account for the financial performance of the company. In particular, turnover was more sensitive to stock performance in companies with more women on their boards.

¹⁶ Adams, R. B. & Ferreira, D. (2009) Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics* 94: 291-309.

¹⁷ The bottom line: corporate performance and women's representation on boards (2007).

¹⁸ Women matter: Gender diversity, a corporate performance driver. McKinsey & Company (2007).

¹⁹ Lückérath-Rovers, M. (2013) Women on boards and firm performance. *Journal of Management & Governance* 17(2): 491-509.

²⁰ Lückérath-Rovers (2013).

certain limited circumstances. Specifically, the presence of female directors on boards was found to have a negative effect on financial performance in those companies that already had strong governance structures.²¹ This suggests that gender diversity, and the increased corporate governance that accompanies it, may have a differential impact on value depending on the strength of the existing governance systems. If a company already has strong governance mechanisms in place, then a tougher board could lead to over-monitoring, and a corresponding fall in performance. Conversely, tougher, more gender-diverse boards may be particularly useful, and may increase value, for companies with otherwise weak existing governance structures.

Evidence from the empirical literature relating to gender diversity is therefore mixed when considering its effects on economic performance. In particular, the impact of altering the gender balance of a group of people can vary depending on a company's existing governance structure (strong versus weak) as well as a variety of other factors.²² Taken together, these complex interactions indicate that context plays a crucial role in modulating the effects of gender diversity on performance. As a result, there is growing recognition that the traditional "business case" for diversity in its simplest form may not be supported unequivocally by the research and that instead, a more nuanced view may more accurately reflect the reality.

C. Challenges and potential limitations of existing research

Aside from the complexities in the data mentioned above, there are a number of limitations associated with the existing research on gender diversity and team processes and performance. By way of example, implications from experimental research are necessarily limited to the specific conditions that the researchers

²¹ Adams & Ferreira (2009).

²² A full review of the literature is outside the scope of this paper, but there is a great deal of research on the factors affecting team performance in the gender context; see Post, C. & Byron, K. (2014) Women on boards and firm financial performance: A meta-analysis. *Academy of Management Journal* amj-2013 for reviews.

choose to test (such as groups formed of a certain number of individuals, or particular tasks or measures being examined) and so generalising the results to real-world situations may be difficult. Laboratory experiments also tend to study effects over a relatively short timeframe and so the development and emergence of trends over time may be missed. On the other hand, empirical data that is gathered within real-life settings may be influenced by a variety of factors (e.g. it may be that high-performing companies are more likely to appoint women to board positions, rather than women having a strong positive effect on company value). Such data also lacks a good control group against which to compare meaningfully. As a result, drawing firm conclusions about the causal impact of one factor (here, gender diversity) on performance is fraught with difficulty. The extent to which it is possible to generalise from the experimental and observational studies conducted to date to the functioning of other business teams is also unclear. Teams that operate in international arbitration, for example, are not directly comparable to boards of directors and their influence over shareholder value.

Moreover, whilst these studies have sought to measure the way that the performance of teams with different gender mixes varies across tasks and domains, none has sought to measure how intelligently a group behaves, in the same way that an individual's intelligence may be measured. As discussed in the second part of this paper below, obtaining an accurate indication of the intelligence of a particular group of people – as distinct from that group's processes and performance – is useful first, because it is an inherent characteristic of the group and secondly, because it can be used to predict success in future performance. Again, this will be of interest to parties appointing a tribunal with multiple members, a client or partner assembling the best team of lawyers for a matter or any manager putting together the smartest test for a job.

3. Research evidencing collective intelligence and the impact of gender diversity

The following discussion describes the results of new research that provides compelling evidence that intelligence exists within groups as it does in individuals. This section begins with a brief introduction to the concept of intelligence before describing the main findings from this groundbreaking research, including the interesting and surprising effects that occur when women are added to an all-male team.

A. A brief introduction to intelligence

The concept of general intelligence derives from the somewhat surprising finding that people who perform well on one task tend to perform well on most other tasks – even if those tasks engage vastly different skillsets or involve different methods of testing. To understand this further, it is helpful to illustrate the structure of intelligence tests, and the analysis of the results they provide.

An intelligence test actually comprises several distinct subtests, each of which measures a different kind of cognitive ability (verbal comprehension, perceptual reasoning, working memory or processing speed).²³ In principle, there is no reason why a person with strong verbal abilities, for example, ought to be good at perceptual reasoning or arithmetic. In fact, it is not unreasonable to expect that the opposite may be true (i.e. that someone who spends all their time expanding their vocabulary by reading books may neglect the development of other skills such as mathematics). The remarkable finding that intelligence tests reveal is that performance across all of these subtests is highly correlated. This means that, generally, someone who scores highly on one test is likely to score highly on all of the others.

²³ This describes the composition of the Wechsler Adult Intelligence Scale, a well-accepted, standardised intelligence test for adults and older adolescents, currently in its fourth edition (WAIS-IV).

Using factor analysis on these scores,²⁴ researchers find that one factor explains a large proportion (in the range of 30% to 50%) of the results on the different subtests, reflecting the general cognitive ability that is termed “intelligence”.

This discovery was considered radical when it was first documented at the turn of the last century,²⁵ but it remains one of the most reliably-replicated results in the entire field of psychology. Moreover, intelligence can be measured in under an hour and reliably predicts a wide range of significant life outcomes, such as school performance, professional success and even life expectancy.

B. New research evidencing intelligence in groups

Historically, intelligence has been measured only in individuals. Recently, however, a team of scientists from MIT, Union College and Carnegie Mellon, sought to establish whether groups – as distinct from the individuals within them – have a general collective intelligence that can be measured and that reliably predicts performance on a broad variety of complex tasks.²⁶ In other words, are some groups smarter than other groups? Can this be measured? If it can, does a group's collective intelligence have predictive value above and beyond that of the intelligence of the individual members making up the team.

As discussed above, given that teams – and their effective performance – are central to the process of arbitrating disputes, this research has important implications for the present discussion about gender diversity in international arbitration.

²⁴ Factor analysis is a statistical method that is used to determine whether a number of variables (here, performance on the ten subtests that comprise an intelligence test) are related to and influenced by one or more unobserved factors (here, a general cognitive ability or “general intelligence”).

²⁵ Spearman, C. E. (1904) General Intelligence, Objectively Determined and Measured. *American Journal of Psychology* 15: 201-293.

²⁶ Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N. & Malone, T. W. (2010) Evidence for a collective intelligence factor in the performance of human groups. *Science* 330: 686-688.

To answer their questions, the scientists gave teams of individuals a range of tasks to complete, each of which tested a different group skill, namely generation, choice, negotiation and execution. The “generate” task required brainstorming to come up with as many uses of a brick as possible; the “choose” task was intellectual, requiring members to answer (as a group) a set of progressively difficult questions that tested nonverbal reasoning ability; the “negotiate” task required the team to devise a shopping trip using a shared car so that all members could get as many of their items at the best places possible; and the “execute” task was a typing task, where members had to collectively type difficult text into a shared online document. After that, each team completed a more complex task, involving playing draughts (checkers) against the computer as an opponent. The study, practice and promotion of international arbitration more generally is likely to use many of these group skills regularly. For example, legal counsel will brainstorm together to come up with case theories, strategies or potential candidates for arbitral appointments, negotiation skills will be engaged at various points in the process of dispute resolution (and in everyday legal practice generally) and effective preparation for hearings involves the execution of several practical tasks by different teams of people. Accordingly, the results of this research are likely to be relevant for those considering the way that teams operating in the field of international arbitration function and perform.

What the scientists found is that, as with individual intelligence, the groups varied in their ability to perform each task. Critically, however, the scores of each group were highly correlated across the variety of different tasks that were completed. Accordingly, teams that were good at brainstorming were also good at solving the visual puzzles and beating the computer. In addition, applying the same statistical techniques used by individual intelligence tests (i.e. factor analysis) they identified that a single factor – which they called “collective intelligence” – predicted the group’s performance on all of the different tasks as well as the more complex task.

C. What makes a smarter team?

What, then, makes one team smarter than another? Interestingly, the collective intelligence of a group was not correlated with many of the factors that might ordinarily be expected.

First, it does not correlate highly with the average intelligence of the individuals comprising the group, or with the highest intelligence of any individual group member. In relative terms, then, group intelligence appears to have little to do with individual intelligence. This is a notable and unexpected finding in itself. What it means is that a group of smart people does not necessarily make a smart group.²⁷ For instance, a team of very bright men may be outperformed by a team whose average intelligence is lower, if that team has a mixture of men and women. There is a limit to this, however; collective intelligence is correlated with average individual intelligence in part,²⁸ and so a mixed-sex group of people with relatively low intelligence is unlikely to outperform a group of very intelligent men, for example. The performance of a group can therefore be greater – or weaker – than the sum of its parts, depending on the prevailing gender balance.

Secondly, and also rather surprisingly, collective intelligence was not found to correlate with many factors associated with positive group functioning, such as group satisfaction, group cohesion and group motivation. Therefore, performance across a range of tasks did not vary depending on the positive (or negative) processes occurring within the team.

Collective intelligence did, however, correlate with equality in the extent of participation among group members. Importantly, groups in which a handful of people dominated the conversation scored lower on collective intelligence than

²⁷ This effect is well-documented in the field of sports. A football team, for example, may perform better or worse than one might predict based on an analysis of the talent of the individual players “on paper”.

²⁸ Average intelligence was found to correlate moderately with collective intelligence across the different testing conditions.

groups where people took turns contributing to the conversation more equally. Parallels can be drawn here with other research arguing that team performance is strongly related to the connectivity between members in the group – with high performing teams having stronger connections among their units. Thus, teams whose members communicate more with one another are more collectively intelligent.²⁹ These effects are also consistent with previous research regarding gender differences in interpersonal styles in group settings, with women encouraging more participation (translating to greater turn-taking in conversations) compared with men's more autocratic style.

D. Gender diversity and collective intelligence

Perhaps the most surprising effect the scientists found, however, was that smarter groups tended to have more women in them. Collective intelligence was significantly correlated with the proportion of women in a group, so that groups that included more women scored higher for collective intelligence than groups with fewer women.³⁰ This indicates a shift from the conventional view that more diversity, and a balance between the genders in particular, equates to better performance. Instead, what they found was that, in general, the more women in the group, the higher the collective intelligence would be. According to preliminary trends in the data, however, this effect did level off – where all-women teams underperformed those with one or two men. This suggests that some gender diversity, at least, is helpful in producing a more intelligent group.

These results have been replicated in a variety of different contexts. In addition to the usual face-to-face group setting, the researchers obtained the same results in a virtual, online environment, where team members never actually met each other but instead participated together over the internet, communicating only

²⁹ Losada, M. & Heaphy, E. (2004). The Role of Positivity and Connectivity in the Performance of Business Teams: A Nonlinear Dynamics Model. *American Behavioural Scientist* 47; 740-765.

³⁰ Groups with more women tended to perform above the average range on scores of collective intelligence, and groups with more men tended to fall below the average.

via text.³¹ In the online environment, the most collectively intelligent teams chatted more with one another, participated more equally and generally had more women. The generality of this finding across online domains is particularly relevant to international arbitration, since much everyday business (including within individual teams) is conducted over email or other virtual means of communication.

For obvious reasons, these results – and in particular, the finding that women appear to make more intelligent groups – caused a media storm when they were first reported a few years ago.³² The effects of the female factor on collective intelligence were equally surprising to the researchers, who had not designed their original experiments to focus on gender specifically. However, further research elucidating the initial trends that were seen has found that it is not women *per se* that increase the collective intelligence of a team. In fact, collective intelligence was also highly correlated with the average social sensitivity of the members in the group. Social sensitivity refers to the ability to understand other people's thoughts and feelings, as well as more general knowledge about social rules and norms. Significantly, these differences in social sensitivity explained the positive effects that women had on collective intelligence.³³ Therefore, the proportion of women in a group raised its collective intelligence because women generally score more highly than men on measures of social sensitivity.

Social sensitivity was measured in these experiments using a task that tested participants' ability to make inferences about other people's mental states.³⁴

³¹ Engel, D., Woolley, A. W., Jing, L. X., Chabris, C. F. & Malone, T. W. (2014) Reading the Mind in the Eyes or Reading between the Lines? Theory of Mind Predicts Collective Intelligence Equally Well Online and Face-To-Face. PLoS ONE 9(12): e115212.

³² The original findings in Woolley and colleague's 2010 Science article have been featured in print and media publications around the world, including Wall Street Journal, The New York Times, Fortune and New Scientist.

³³ Applying regression analysis to the data, social sensitivity emerged as the only statistically significant predictor of collective intelligence.

³⁴ The "Reading the Mind in the Eyes" test, which is a widely-accepted measure of these skills in adults; Baron-Cohen, S., Wheelwright, S., Hill, J., Raste, Y. & Plumb, I. (2001) The "Reading the Mind in the Eyes" Test revised version: a

The test involves inferring, from photographs of only the eye-region of a face, what another person is thinking or feeling. This ability, often referred to as "theory of mind", is fundamental to people's ability to function effectively in social interactions and environments.³⁵ Accordingly, people with greater abilities to reason and infer about other people's mental states are generally more competent in social situations. Some researchers consider theory of mind to constitute one component, or subset of skills, within a larger variety of skills underlying the concept of emotional intelligence (others include self-awareness, self-management, social awareness and relationship management). Emotional intelligence, in turn, is a factor which has proved central to team performance in previous research. Interestingly, in the context of the present research, theory of mind scores were correlated with collective intelligence in the online testing conditions as well as the face-to-face setup, despite the fact that participants could not see each other's faces.³⁶

4. Applications for international arbitration

Discussion surrounding the gender gap in international arbitration often centres around the composition of arbitral tribunals and the dearth of female arbitrators generally. However, a large number of arbitrated disputes are resolved before the arbitral tribunal has had a chance to impact the process significantly (or at all). Thinking more broadly, international arbitration encompasses a great deal more than just a process for dispute resolution, and teams feature prominently in every instance.

study with normal adults, and adults with Asperger syndrome or high-functioning autism. *Journal of Child Psychology & Psychiatry* 42: 241-251. The test involves inferring, from photographs of only the eye-region of a face, what another person is thinking or feeling.

³⁵ Individuals with autism, for example, demonstrate severe impairments in theory of mind abilities.

³⁶ This indicates that performance on the theory of mind test taps into a deeper social functioning ability than just reading faces (literally, reading between the lines).

In addition to the typical scenarios mentioned in the introduction, there are mooted competitions for teams of students, conferences featuring panels of speakers, committees involved in the drafting of arbitral rules, guidelines and legislation, and teams of researchers involved in the conduct of industry-wide surveys. It is rare for an individual to operate alone in his or her endeavors in the industry of international arbitration; even journal articles by sole authors are likely to be written with the input and feedback of fellow colleagues.³⁷ The research discussed in this paper regarding team performance and the impact that gender diversity is therefore highly relevant to international arbitration in its widest form.

Studies demonstrate that gender diversity has a positive overall impact on team processes and intragroup dynamics, but the data on team performance is more mixed with subtleties that are harder to interpret. As discussed above, there are important limitations to these results that should be borne in mind. Experimental studies may suffer in the meaningful application of their results to the business world. On the other hand, observational studies using historical data from companies in the real world must be treated with caution, since it is difficult to draw firm conclusions from them about the causal relationship between gender diversity and measures of performance. There are also several important questions that have not yet been considered, which are significant to the issue of gender in international arbitration. For example, the research reviewed in this paper does not consider the differential effects, if any, associated with women versus men occupying leadership positions within teams. Since the gender gap in international arbitration is widest at the top levels of management, considering gender diversity in vertical rather than horizontal team structures represents an interesting question for future research. Another factor to consider is the lifespan of a team and whether the effects of diversity modulate over time as individuals adapt to one another within a team.

³⁷ At this point, the author would like to thank Briana Young, Craig Tevendale, and Julie Cartwright-Finch for their helpful comments on this paper.

For these reasons, the new scientific research reported in this paper on collective intelligence represents an exciting and compelling new angle from which to consider gender diversity. The critical finding from these studies to date is that teams with more socially sensitive individuals will be more collectively intelligent, regardless of whether those individuals are men or women. However, because women tend to score higher on measures of social sensitivity than men, adding women to a team is very likely to increase its intelligence. This, in turn, improves the way the team functions on various types of tasks, many of which engage similar skills to those which are used in the practice of international arbitration every day.

Another advantage of collective intelligence as an index of team performance is that it represents a unique quality of the team as distinct from the individuals within it. Historically, a team's theoretical potential has been considered from the point of view of the resources that the group possesses through the specific abilities of individual team members. Importantly for the present discussion, the research suggests that the intelligence of a team can be increased by changing the individuals in the team, or by increasing the communication and collaboration between the individual members. For anyone involved in the industry of international arbitration and working with groups, whether face-to-face or virtually, this paper should provide interesting suggestions as to how to increase collective intelligence. It also helps to provide a case for the inclusion of women in teams.