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Fisher, Hunter & Macrosson's 2001 paper provided overall support for discriminant validity in the BTRSPI. The researchers were highly successful in their prediction of the frequency of occurrence of various Team Roles solely from Belbin constructs and stated that this added weight to claims of construct validity for the BTRSPI.<sup>13</sup>

### Concordant validity

In their 2004 paper, Aritzeta, Swailes & McIntyre-Bhatty found that the Observer Assessment (OA) showed concordant validity since, out of 3351 observations, 66.4% showed significant "Team Role agreement" between observers. When analysing the BTRSPI alongside the OA, 75% of the correlations could be considered from moderate to strong.

Whilst these findings are useful and positive, it is important to recognise that, owing to the nature of Belbin Team Role theory, it is possible that observers might identify very different behaviours in the same individual. Individual profiles can be regarded as **coherent**, **compatible**, **discordant** or **confused**, depending on the level and type of agreement between self-perception and observer assessments. In cases where self-perception differs greatly from observer input, a number of factors can be responsible for this outcome:

- Limited self-awareness – this is more likely to cause a discordant or confused profile if someone is new in a particular job role, or new to the work environment in general.
- The individual in question may be playing a different role than he or she desires to play or would be best at playing. Whilst the observer assessments may reflect the current Team Role contribution, the self-perception might reveal an aspiration to play a different role.
- An individual may undergo a change in values, which might not be immediately obvious to colleagues, but may influence the individual's outlook and behaviour.
- The role of observers – it is important to establish the exact working relationship between an individual and those observing them. An observer may not know the person well enough to comment on their working style, especially if they have not worked together for long. Additionally, the observers' own Team Roles may come into play when answering Observer Assessments.

It is likely that any dataset will contain a mix of these different kinds of profiles. When significant agreement is found between self-perception and observer assessments, this is used along with other statistical factors, to determine whether or not an individual can be considered a **strong example** of a particular Team Role type.<sup>14</sup>

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<sup>13</sup> *The distribution of Belbin team roles among UK managers* (Fisher, Hunter & Macrosson, 1998), p.132.

<sup>14</sup> In-depth information on analysing and providing feedback on Belbin reports is available via our Belbin Accreditation course, please see <http://www.belbin.com/rte.asp?id=25> for details.

### The BTRSPI and other measures

The BTRSPI has been analysed alongside other measures, such as the 16PF and OPQ. In his 2007 study, Aritzeta, Swailes & Senior commented that:

“Taking the empirical studies together, there is sufficient evidence that definitions of team roles are valid and that independently of the instrument used to measure team roles, results are consistent with other theoretical models. The team role model shows evidence for validity that cannot be disregarded [...]. Knowing the type of association that a team role shows with individual cognitive styles, conflict managing behaviour and the other areas explored will help to better understand team dynamics and facilitate team building behaviours.”

~ Aritzeta, Swailes & Senior, 2007<sup>15</sup>

For more information on validity studies which analyse the BTRSPI alongside other measures, please consult the “Further Reading” section below.

### Criterion validity

Criterion validity is concerned with the applicability of a test – it is proved by demonstrating that the results of a given test relate in a meaningful way to an external criterion – for example, job performance. This is often easier to judge when dealing with ability tests, but nevertheless, many organisations across the world can attest that Belbin Team Role theory has been proven to make teams more successful.

In 1995, Dulewicz investigated the association between Team Role and responsibility or status.<sup>16</sup> In order to do so, he measured salary, total remuneration, and the total number of staff and total expenditure budgets, for whom the individual had responsibility. He discovered that Team Roles seemed to be independent of measures of salary and job responsibilities.

Belbin Team Role theory does not specify that one Team Role or another is required for a managerial role, or indeed, a role attracting a higher salary. Rather, Shi & Tang’s study, published in 1997, makes the useful comment that a given environment may promote the rise of particular Team Roles. For example, a threatening or political climate may promote a sober and discerning individual to a managerial position, who is shrewd in judging their environment and others around them – in other words, a Monitor Evaluator. In an organisation stuck in a rut and lacking ideas and resources, a Plant or Resource Investigator is likely to stand out; whilst in a stable and industrious environment, the characteristics of an Implementer or Completer Finisher might be more highly valued.<sup>17</sup>

There are two measures which can be introduced to ensure that an individual’s Team Role profile is a good match with their behaviour in a real-world scenario. These are i) Observer Assessments and ii) Job profiling.

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<sup>15</sup> *Belbin Team Role Model: Development, Validity and Applications for Team Building* (Aritzeta, Swailes & Senior, 2007), p.108.

<sup>16</sup> *A Validation of Belbin’s Team Roles from 16PF and OPQ using Bosses’ Ratings of Competence* (Dulewicz, 1995)

<sup>17</sup> *Team role behaviour and task environment: An exploratory study of five organizations and their managers* (Shi & Tang, 1997), p.93.

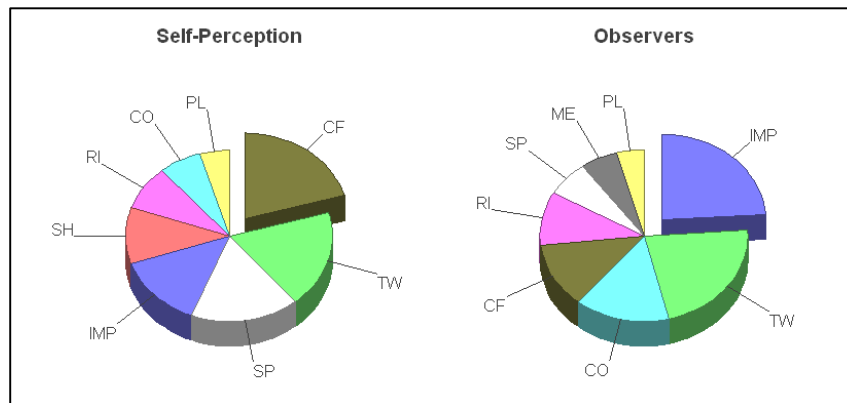
### i) Observer Assessments

Observer Assessments can be added to a BTRSPI to ensure that an individual's report is not dependent on self-awareness and -understanding, but rather is grounded in the perceptions of those who work with the person in question.

Observers are recommended because:

- Self-perception is subjective.
- An individual may have limited self-insight.
- An individual may answer regarding how they wish to behave or be perceived, rather than how they really are.
- Responses from self-perception are isolated rather than democratic.
- Since only one point of view is provided, there are limited or no opportunities for learning and self-development.

When Observer Assessments are added to a Self-Perception profile, a fuller report is produced, integrating the 360-degree feedback. For example, two pie charts present the differences in Team Role preferences between an individual's own perception and that provided by colleagues. Any discrepancies between self-perception and observer input can lead to fruitful discussion as to how the individual is perceived in the team, helping to unearth discomfort with a current role, or to discover any conflict between the individual's existing job role and the role they would like to play.



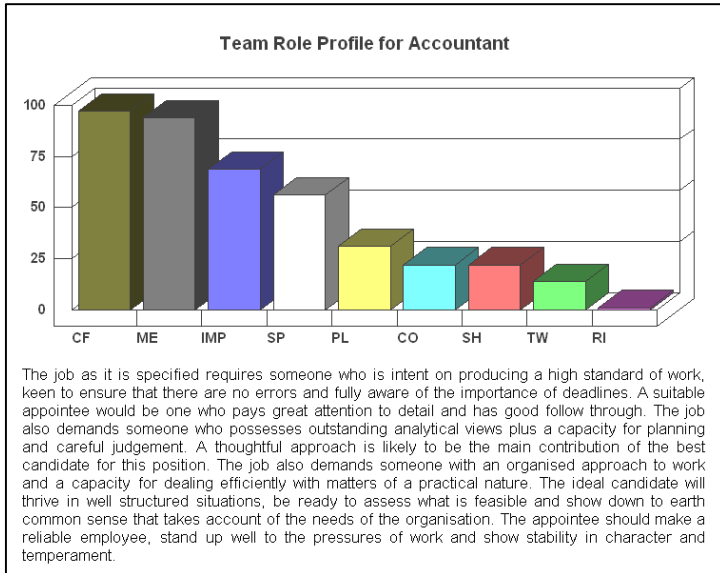
The use of Belbin profiles promotes discussion as colleagues can be encouraged towards open discussion of the behaviours they display or observe. Since behaviour is evidential, the claims the report makes about an individual can be corroborated or refuted with real, everyday examples. Whilst encouraging openness and honesty, the language of Team Roles helps to diffuse conflict by using constructive, non-confrontational language to explore strengths and weaknesses.

To view a full sample report combining individual and observer feedback, please visit:

<http://www.belbin.com/content/page/1154/Belbin%20sample%20SPI+Obs.%20Reports-A4.pdf>

**ii) Job profiling**

It is increasingly difficult for an employer to judge an individual's potential success in a job from qualifications alone. Whether for recruitment or development purposes, it is important to ensure a good match between someone's Team Role profile and the Team Role requirements of a job.

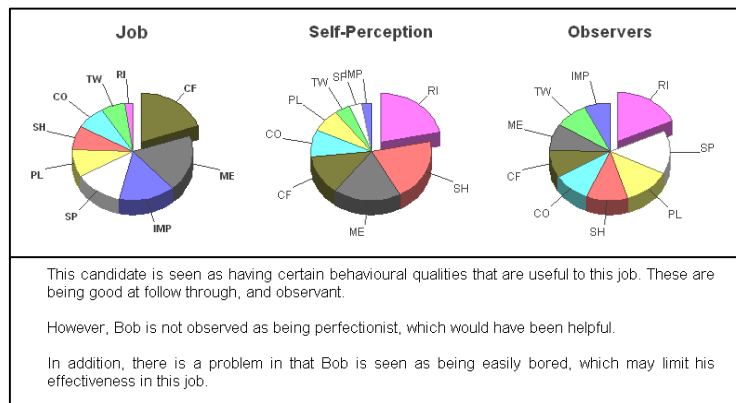


Belbin identifies the difference between eligibility and suitability. Eligibility refers to past experience, e.g. qualifications, training, cultivated skills. Suitability refers to future potential: the degree of fit between an individual's behavioural characteristics and the job he or she does.

In addition to assessing individual's Team Roles, Belbin can also be used to profile a job, in other words, to define a job in terms of Team Roles. The person responsible for the job (for example, the line manager) is asked to complete the Job Requirements inventory, which investigates the various characteristics which are required for the job. Job

observations can also be added so that those who come into contact with, or have a close understanding of, the job concerned (e.g. colleagues, managers, clients) can contribute to defining the role.

The job profile can then be directly compared to a Self-Perception profile to judge an individual's suitability and compatibility for the job in question.



In any situation where matching an individual to a jobs is important, this report can be a useful tool to indicate potential success in the job. For the purposes of individual review and development, this process can help to establish where there might be discrepancies between a manager's expectations and an individual's potential, by addressing the differences through the language of Team Roles:

“Belbin’s theories on their own, are not a panacea to [sic] the industry’s recruitment, management and leadership problems. However, they are a readily available and excellent aid to preventing disastrous recruitment and selection mistakes. This in turn prevents adding further to the pool of autocratic managers in our industry.”  
~ Helen Bennett, 2001<sup>18</sup>

There is no Team Role “formula” for a given functional role (e.g. marketing manager or accountant) since this may change from one organisational culture to another. However, the use of Observer Assessments and job profiling helps to anchor an individual’s self-awareness in a specific working environment. For example, an individual starting a new job might learn about the kind of behaviour that job requires, whilst the manager may gain insight into how the candidate might fulfil that job given his or her Team Role propensities. The use of job reporting can provide manager and candidate alike with “behavioural expectations” as to what the job requires. It may be that someone’s individual working style is a good fit with the job from the outset. Where there is not an immediate fit and the jobholder is very proficient in the role, it could be that the job boundaries and requirements are slightly different than the manager perceives, or indeed, that the individual has adapted to the requirements of the role. Job reporting can be used to provide gap analysis and as a focal point for discussion.

In *Management Teams: Why They Succeed or Fail*, Jana Krajcarova’s case study describes how Belbin’s individual and job profiling was used to resolve conflict between a quality control manager and the CEO. Whilst self-perception profiles allowed the individuals concerned to appreciate their two distinct approaches, the job profiling identified the real source of the conflict: the fact that the CEO envisaged the quality control manager role as requiring Co-ordinator and Shaper characteristics, whilst the present incumbent was a strong Monitor-Evaluator. The process of defining the job led towards a new job specification and a personal development plan for the manager. The author comments, “...we managed to solve this sensitive problem not only without any personal frustrations and animosity, but also with a significant increase in the motivation of both managers”. For more information on Meredith Belbin’s book, *Management Teams: Why They Succeed or Fail*, please visit: <http://www.belbin.com/rte.asp?id=28>.

**Please note that Belbin can be used as a recruitment and selection *tool*. Team Roles provide an insight into working and team relationships, but the profiles should not be used as the sole basis for making recruitment decisions.**

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<sup>18</sup> *Finding round pegs for round holes* (Helen Bennett, The Hospitality Review, July 2001, p.19).

### Belbin in practice

There is much evidence of the use of Team Role theory in general to promote self- and mutual understanding, more effective management and even significant culture change, which, in turn, translates into higher performance and evidential commercial and organisational success.

More information on the application of Team Role theory with positive results can be found in the case studies in Meredith Belbin's book, *Management Teams: Why They Succeed or Fail*. From tackling language barriers in international firms, to addressing change strategy, to personal development of young people, these case studies contain actual scenarios and outcomes from using the Belbin model.

All quotations below are taken from the case studies mentioned above. Please visit our website at <http://www.belbin.com/rte.asp?id=28> for more details and to order *Management Teams: Why They Succeed or Fail*.

"Here Belbin's methods played a significant role in revealing the presence or absence of certain attributes and increasing team members' awareness of each other. [...] This change has without exception resulted in better teams and better management."

~ Asbjorn Aanesen, Linjegods AS

Using Team Roles in change strategy, one organisation credits their use of Belbin with:

"The creation and delivery of a credible and robust strategy, which delivered 55 per cent profit growth in less than three years" and "The development of a rich, diverse team culture, which developed its skills in the delivery of a high-quality service and brands in the consumer marketing arena."

~ Paul Wielgus, Social Innovation UK and Chris Zanetti, Allied Domecq, Germany

Commenting on the use of Interplace in a school, Delphine Rushton comments:

"Whether it be a young teacher considering their first move from classroom operator into a managerial post, or a senior manager wishing to pursue further leadership roles, it provides feedback on team strengths and career direction. Unconnected with assessment of performance linked with pay, it helps staff evaluate their current responsibilities and contributions. Staff have not had access to this kind of feedback before and they have found it to be both illuminating and productive."

~ Delphine Rushton, Richmond School

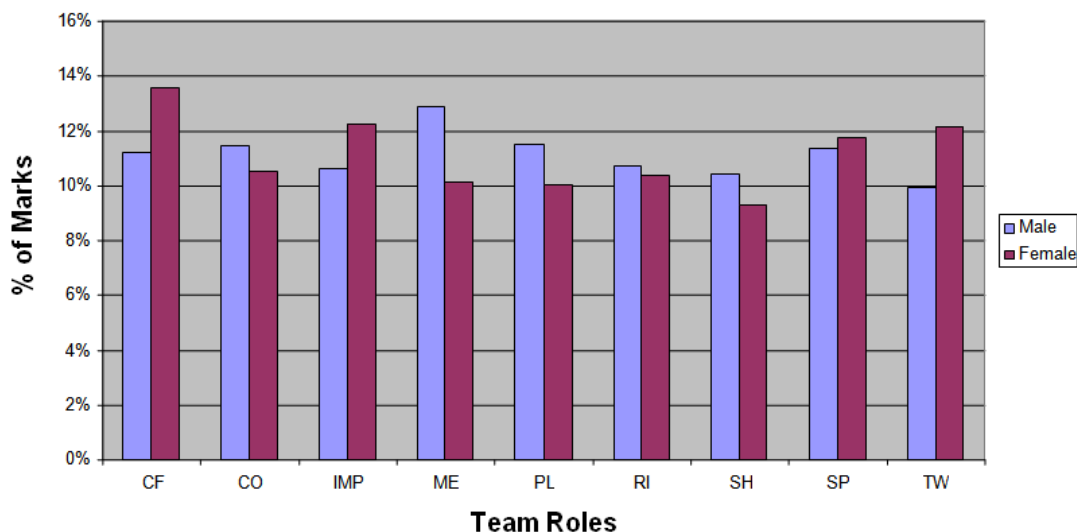
## Testing, Bias and Fairness

In testing, it is important to ensure that there are not significant differences in test scores for certain groups. A test can be said to be biased, for example, if females consistently scored significantly higher than did males for a particular trait; or if members of different ethnic groups felt discouraged to answer certain items for cultural reasons.

### Belbin and Gender

The Belbin Interplace system collects information regarding the gender of respondents in order to script reports correctly. This information is not used in any part of the calculation process and does not affect the data collected.

Belbin has conducted analysis using a database of more than 20,000 respondents, whose data was processed through the Belbin Interplace system. With this large dataset and up-to-date, valid version of the BTRSPI, the effect of Type I and Type II errors were significantly reduced (for more information on Type I and Type II errors, please see the “Further Reading” section below).



The graph demonstrates that there is very little gender difference for any Team Role (in this case, only Self-Perception data was used). The greatest difference (2.6%) between male and female respondents was found for Monitor Evaluator (ME) and even this figure represents only a small difference of 1.8 “ME marks” per SPI.

There are two published research studies which have been conducted concerning Belbin and gender, with varied results. However, it should be noted that both studies used considerably smaller sample sizes of 185 and 390 respondents respectively. (For more information on the statistical errors caused by using a small or inappropriate sample size, please see the “Further Reading” section below.) Moreover, the findings of both studies were compromised by the use of the obsolete self-scoring BTRSPI to produce results. (For more information on why this version should **not** be used, please see the “Administration and Scoring” section above). In 1996, Balderson & Broderick used clusters of Team Roles and reported that there was no statistically significant difference between membership of clusters for men and women. However, they also reported that, in a separate analysis, ME and PL were found to discriminate between

gender, with women scoring higher on both Team Roles than men.<sup>19</sup> In turn, Anderson & Sleaf's 2004 study claimed to find a bias in favour of CO and SH for men, and TW for women. However, the researchers admit that their results are far from definitive.<sup>20</sup>

Given that the results of the two studies appear to contradict one another, and in view of Belbin's findings from a dataset over 100 times larger, Belbin concludes that there is no significant gender bias for any Team Role and that the two research studies demonstrate natural variation between sample groups, highlighting only those individual differences which Belbin celebrates.

### Belbin and Ethnic Origin

Belbin Team Roles is an international language, used all over the world. The BTRSPI has been translated into many different languages by professionals familiar with the Belbin Team Role theory, who take great care to ensure that the nuances of language in the BTRSPI are captured in different languages. For more details on our agents and distributors outside the UK, please visit <http://www.belbin.com/rte.asp?id=93>. The Belbin Interplace system allows an individual user to create norms which reflect Team Role preferences for a given culture, whether organisational or national. For more information on norming, please see the "Norming" section above.

### Belbin and Age

To date, no data have been gathered regarding age and respondents, since this is not required by Interplace for the profiling process. Whilst there are no known differences in terms of preferred Team Roles, it is sometimes observed that those who have been in the work environment for a longer period of time are likely to have a more defined or polarised Team Role profile, since a longer experience of a working environment tends to increase awareness of one's strengths and weaknesses.

If an individual is less sure of their contribution and the Team Role profile does not seem so well-defined, it is best practice to add Observer Assessments. As well as overcoming the limitations of self-reporting, this gives someone new to the work environment some hints as to where their colleagues acknowledge their strengths and talents to lie, thereby maximising the opportunity for self-development and cultivation of their stronger Team Roles. For more information on the limitations of self-reporting and the advantages of adding Observer Assessments, please see the "Concordant Validity" section above.

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<sup>19</sup> *Behaviour in Teams: Exploring Occupational and Gender Differences* (Balderson & Broderick, 1996).

<sup>20</sup> *An Evaluation of Gender Differences on the Belbin Team Role Self-Perception Inventory* (Anderson & Sleaf, 2004).

## Belbin and Management

The original research conducted by Meredith Belbin in the 1970s was conducted with a sample of top managers. However, research has demonstrated that the BTRSPI can be used at all operational levels. **In other words, Team Roles are relevant for anyone in the work environment who interacts with others and wishes to learn more about his or her own behaviour, and that of colleagues and managers.** The Observer Assessment encourages feedback throughout the strata of an organisation and is intended to provide a universal language to address difficult issues which might otherwise cause conflict within teams.

Having examined the distribution of Team Roles among UK Managers in their 1998 study, Fisher, Hunter & Macrosson went on to investigate the use of Belbin for non-managers. They employed a team working exercise in their experiment, concluding that Belbin Team Role theory could be equally applicable to non-managerial as well as managerial teams.<sup>21</sup> Please see the “Further Reading” section for more information regarding Belbin and management.

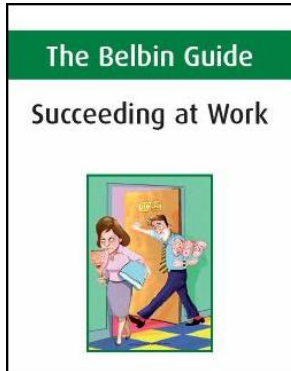
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<sup>21</sup> *Belbin's Team Role Theory: For Non-Managers Also?* (Fisher, Hunter & Macrosson, 2001).

## Further Reading

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### Books from Belbin



Belbin's latest book, *The Belbin Guide to Succeeding at Work*, provides an ideal introduction to Belbin Team Roles, helping you to understand yourself, and how to project your behaviour to your advantage.

It makes an ideal handout for any teambuilding or self-development course. For more information, please visit <http://www.belbin.com/rte.asp?id=149>.

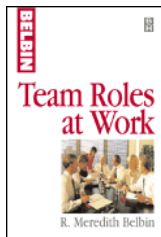
Meredith Belbin has written two books which are particularly relevant to the use of Belbin Team Roles:



**R. Meredith Belbin**, *Management Teams: Why They Succeed or Fail* (Butterworth Heinemann, 2nd ed., 2004)

This book provides an informative introduction to Team Role theory. It is one of the most widely-read, imaginative and influential books on this vital area of management research and was cited by the FT as one of the top fifty business books of all time.

For more information, please visit <http://www.belbin.com/rte.asp?id=28>.



**R. Meredith Belbin**, *Team Roles at Work* (Butterworth Heinemann, 1993)

This book provides an ideal practical guide to Belbin Team Roles. Find out how to apply the nine Belbin Team Roles in a practical setting. Operational strategies provide ideas, techniques and a new range of information and advice which can be used to the advantage of the organisation.

For more information, please visit <http://www.belbin.com/rte.asp?id=29>.

### Other titles from Belbin

**R. Meredith Belbin**, *The Coming Shape of Organization* (Butterworth Heinemann, 1996)

**R. Meredith Belbin**, *Changing the Way We Work* (Butterworth Heinemann, 1997)

**R. Meredith Belbin**, *Beyond The Team* (Butterworth Heinemann, 2000)

**R. Meredith Belbin**, *Managing without Power - Gender Relationships in the Story of Human Evolution* (Butterworth Heinemann, 2001)

Please visit <http://www.belbin.com/rte.asp?id=156> for more general information on Belbin books.

## Further Reading

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### Research Studies

Owing to its popular acclaim and success in the workplace, the BTRSPI has been the subject of much research from 1993 to the present day, claiming the interest of psychologists and academics, as well as those working with teams. However, research into the BTRSPI has been characterised by a number of erroneous practices:

- The BTRSPI measures behaviour and produces output in terms of Team Roles. Team Roles are not personality traits, but clusters of behaviour. Since the BTRSPI is a behavioural, not a psychometric, analysis, research into its psychometric properties produced variable results. Although 23 out of 32 studies showed positive evidence supporting the BTRSPI, only 4 out of 9 studies on the psychometrical properties of the inventory produced supportive evidence, because the inventory was being tested for characteristics it was not intended to possess.
- Many studies have been conducted using the now obsolete, self-scoring version of the BTRSPI, which is missing a Team Role, is not properly normed, is not substantiated by Observer Assessments and does not produce detailed feedback. For more information, please see the “Administration and Scoring” section above.
- Some studies created, and experimented with, a normative version of the BTRSPI. Please note that Belbin owns the copyright to the BTRSPI and that reproduction and/or alteration of the BTRSPI is prohibited by Belbin. For more information, please visit <http://www.belbin.com/rte.asp?id=7>.
- The majority of early studies were conducted with small or inappropriate sample sizes, which magnified the chance of Type I and Type II errors. These are statistical errors which are more likely to occur when the sample size is small:
  - In Type I errors (also called “rejecting null when null is true” or “false positive”), researchers mistakenly think that a statistical difference exists when, in truth, there is no statistical difference (in other words, the null hypothesis is true but was mistakenly rejected).
  - In Type 2 errors (also called “retaining null when null is false” or “false negative”), researchers fail to reject the null hypothesis, even though the alternative hypothesis is true.

When reading research studies conducted on the BTRSPI and analysing the findings, it is useful to bear these frequently encountered shortcomings in mind.

### **e-interplace® Research Articles**

The following studies were conducted using e-interplace® data. The authors asked Belbin Associates for access to this data, which is fully-normed and consists of more than 5,000 records.

Stephen Swailes et al. are independent researchers based at the University of Hull. His studies demonstrate that the BTRSPI has good reliability and validity (please see the “Reliability” and “Validity” sections above) and which takes into account the unique ipsative and non-ipsative characteristics of the BTRSPI. The following articles in particular are recommended (in date order).

*Aritzeta, Ayestaran & Swailes, Team Role Preference and Conflict Management Styles (2005)*

*Aritzeta, Senior & Swailes, Belbin Team Role Preference and Cognitive Styles: A Convergent Validity Study (2004)*

*Aritzeta, Senior & Swailes, Belbin’s Team Role Model: Development, Validity and Applications for Team Building (2007)*

*Aritzeta, Swailes & McIntyre-Bhatty, Further Evidence on the Validity of the Belbin Team Role Self Perception Inventory and the Observer’s Assessment Sheet (2004) \**

*Aritzeta, Swailes & Senior, Team Roles: Psychometric Evidence, Construct Validity and Team Building (2005)*

*Beck, Fisch & Bergander, Functional Roles in Work Groups – An Empirical Approach to the Study of Group Role Diversity (1999)*

*McIntyre-Bhatty & Swailes, The Reliability of the (Belbin) Team Role Self-Perception Inventory: Cronbach’s alpha and ipsative scales (2000)*

*Morison, Chris, An Investigation of Belbin Team Roles as a Measure of Business Culture (2008)*

*Swailes & Aritzeta, Scale Properties of the Team Role Self-Perception Inventory (2006)*

*Swailes & McIntyre-Bhatty, Uses and Abuses of Reliability Estimates: The Case of the Belbin TRSPI (2001)*

*van Dierendonck & Groen, Belbin Revisited: The Construct Validity of the Interplace II Team Role Instrument (2008)*

\* = Contains a comprehensive literature review of the research to date on the BTRSPI.

## Other Articles

The following studies were conducted using the obsolete self-scoring version of the BTRSPI and without approaching Belbin Associates to request the use of a large dataset. Please note that evidence is largely affected by the use of a non-sanctioned BTRSPI and smaller datasets, as outlined above.

Anderson & Sleep, *An Evaluation of Gender Differences on the Belbin Team Role Self-Perception Inventory* (2004)

Arroba & Wedgwood-Oppenheim, *Do Senior Managers Differ in the Public and Private Sector?: An Examination of Team Role Preferences* (1994)

Balderson & Broderick, *Behaviour in Teams: Exploring Occupational and Gender Differences* (1996)

Blignaut & Venter, *Teamwork: can it equip university science students with more than rigid subject knowledge?* (1998)

Dulewicz, Victor, *A Validation of Belbin's Team Roles from 16PF and OPQ using Bosses' Ratings of Competence* (1995)

Dulewicz & Higgs, *Can emotional intelligence be measured and developed?* (1999)

Fisher, Hunter & Macrosson, *The Distribution of Belbin Team Roles Among UK Managers* (1998)

Fisher, Hunter & Macrosson, *Belbin's Team Role Theory: For Non-Managers Also?* (2001)

Fisher, Macrosson & Semple, *Control and Belbin's team roles* (2000)

Fisher, Macrosson & Sharp, *Further Evidence Concerning the Belbin Team Role Self-Perception Inventory* (1996)

Fisher, Macrosson & Wong, *Cognitive Style and Team Role Preference* (1998)

Henry & Stevens, *Using Belbin's leadership role to improve team effectiveness: An empirical investigation* (1999)

Lessem & Baruch, *Testing the SMT and Belbin inventories in top management teams* (1999)

Macrosson & Hemphill, *Machiavellianism in Belbin team roles* (2000)

Prichard & Stanton, *Testing Belbin's team role theory of effective groups* (1999)

Rushmer, *Is Belbin's shaper really TMS's thruster-organizer? An empirical investigation into the correspondence between the Belbin and TMS team role models* (1996)

Shi & Tang, *Team role behaviour and task environment: An exploratory study of five organizations and their managers* (1997)

Sommerville & Dalziel, *Project teambuilding – the applicability of Belbin's team-role self-perception inventory* (1998)

For more information on any aspect of Belbin, please visit <http://www.belbin.com>.