

**BELBIN®**

# TECHNICAL MANUAL

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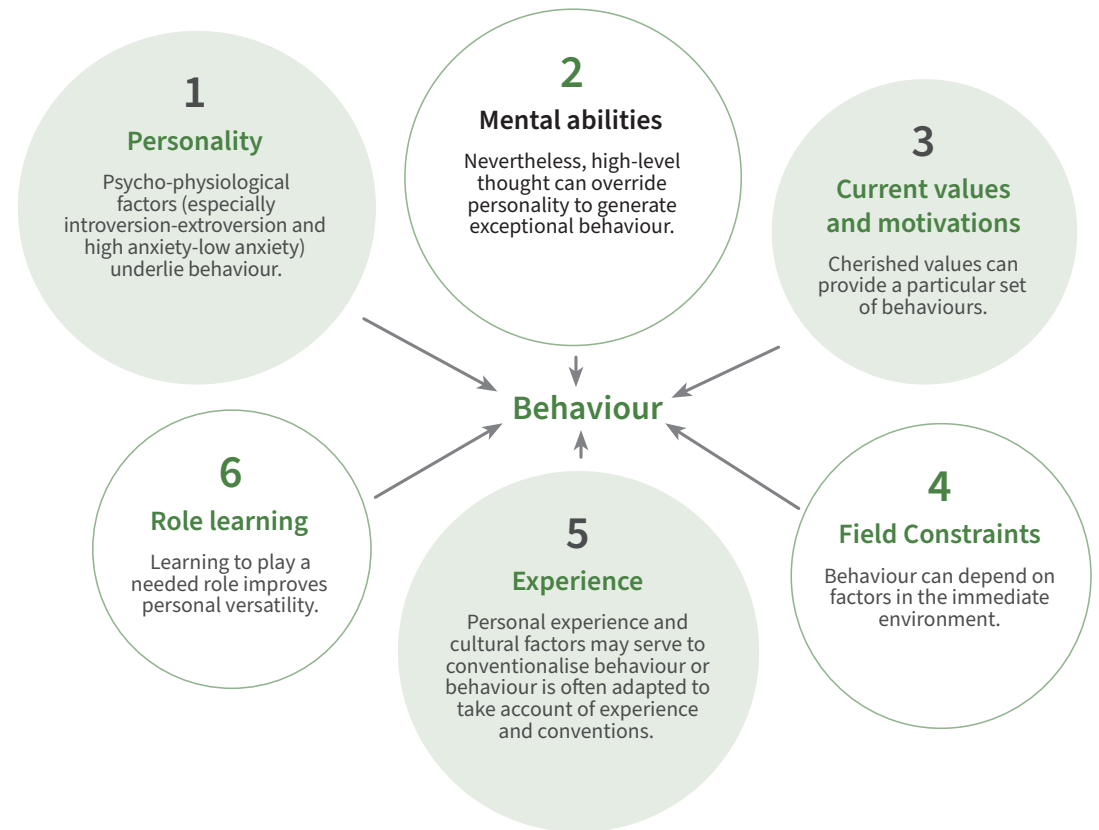
# Introduction – Measuring Behaviour

The Belbin Team Role Self-Perception Inventory (BTRSPI) was designed to measure behavioural characteristics which individuals display when working in teams. Belbin Team Role Theory was devised as a result of the studies conducted by Meredith Belbin in the 1970s. For more details of this initial research, please visit the Belbin website, [www.belbin.com](http://www.belbin.com).

Since the BTRSPI measures behaviour rather than personality, it is not considered to be a psychometric test (those which measure attributes of personality). Rather, personality is one of many factors which can influence behaviour. Other factors include internalised values and motivations, and the external working environment or “Field Constraints”.

Whilst most personality traits are acknowledged to be fairly constant, behaviour can change more readily, adapting to changes in any of those factors which influence it. As a result, Belbin expects that Team Role preferences might change over time. Whilst it is unlikely that an individual’s profile will change dramatically or be reversed altogether, some alterations are expected, in line with a change of job role or work environment, or as a result of a major life change.

The BTRSPI measures behaviour because Belbin believes that this provides the most useful and verifiable information regarding an individual to a recruiter, manager or consultant, as well as to the individual concerned. Whilst it could be argued that the individual is the authority when it comes to their personality, behaviour is observable and can be interpreted and used to predict future reactions and conduct.





## Introduction - Measuring Behaviour (continued)

The difficulty when measuring personality alone is that there may be a large discrepancy between personality and behaviour. Whilst someone may purport to be an extravert, their behaviour in the workplace may lean towards introversion. The individual's self-perception of extraversion may indicate limited self-awareness or may reflect a personality trait the individual wishes to possess. It can be argued that identifying certain personality traits does not directly help the manager concerned with recruitment or promotion. In the case of many psychometric tests, managers expend much energy understanding the psychometric dimensions or traits, rather than applying the knowledge to improve performance.

Rather than providing information regarding individual personality traits, the BTRSPI gauges behaviour in order to identify groupings or clusters (Team Roles) which characterise an individual's behavioural contribution to the workplace. For example, you might find a question in a personality test along the lines of: "When I've made a decision about something, I still keep wondering whether it's right or wrong." Here, the focus is on how the individual thinks and feels. By contrast, the BTRSPI asks questions like: "I can be relied upon to finish any task I undertake," focusing on practical contributions an individual might make.

As well as self-reporting, whereby individuals identify behaviours they believe they exhibit, the BTRSPI uses Observer Assessments (OA) to substantiate or refute these claims with the perceptions of colleagues, managers and other co-workers, to form a more rounded view of the individual's contribution. Aritzeta, Swailes & Senior write:

*"The dynamic configuration of team roles measured by the [B]TRSPI and the relative stability of traits measured by personality questionnaires leads to the conclusion that traits measured by the latter are different from those measured by the [B]TRSPI. Thus, both instruments may be tapping different but complementary constructs."*

Aritzeta, Swailes & Senior, 2007 <sup>[1]</sup>

Many individuals and organisations are concerned that the introduction of psychometric tests might lead to "pigeon-holing" or labelling of individuals. With Belbin Team Roles, the relationship between an individual and the Team Roles they exhibit is a far more complex one. An individual does not have one Team Role, but a combination of preferred, manageable and least preferred roles. The distribution and interrelation of these roles across an individual's profile have a great influence on the way the roles will be played out in practice and experienced by others. Whilst an individual may claim to prefer or enjoy a particular role, it does not necessarily mean that they can or should play only this role. The theory of Team Roles is concerned with acknowledging strengths and weaknesses, but also with cultivating strengths to becoming a model, strong example of a given Team Role type.

<sup>1</sup> Belbin's Team Role Model: Development, Validity and Applications for Team Building (Aritzeta, Swailes & Senior, 2007), p. 110.

# Construction of the BTRSPI

The BTRSPI is a behavioural test designed for use in organisational and work settings. The BTRSPI was formulated by Meredith Belbin in the 1980s following on from his research at Henley Management College and inception of Team Role Theory.

The BTRSPI measures nine dimensions or Team Roles and has one scale known as Dropped Points (DR), which measures claims about oneself rather than valid Team Role contributions. Historically, the inventory consisted of seven sections, with each section containing a heading and ten statements, one item per Team Role and a tenth item representing DR. In March 2012, the inventory was revised and extended to eight sections.

The headings give a work-based scenario or situation with which the individual can identify. This is intended to anchor the behaviours described in a familiar work context and to encourage candidates to reflect and draw on examples from their own experiences.

When completing the BTRSPI, candidates are asked to distribute ten marks in total per section of the inventory. If a candidate identifies equally with only two statements, 5 points should be allocated to each of the two statements. If four of the statements are relevant, but two more so than the other two, the allocation of points might be 3, 3, 2 and 2, as shown in the example opposite.

This process is repeated for each section of the inventory. Individuals may only allocate marks in whole numbers and are asked to avoid either extreme (allocating all 10 marks to one statement or 1 mark to each) where possible.

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### Self-Perception Inventory

I believe I can make positive contributions to a team because: Section: 1 / 8

You have 10 points to distribute across all 10 statements. You are not scoring each statement out of 10.

I am quick to see and take advantage of new opportunities.	0
I am seen as a natural team player.	3
I am happy to take on varied work as and when the team requires.	0
I can think laterally to solve problems.	0
I am good at identifying and using the potential in fellow team members.	3
I am keen to improve things by focusing on the details.	2
I am enthusiastic about applying my training and expertise.	0
I am ready to speak out in the interests of making things happen.	0
I ensure that my work is delivered on time.	0
I can offer reasoned and balanced judgements of different courses of action.	0

Total: 8 / 10

1 2 3 4 5 6 7 8

← Back Help Next →

Fig. 1: A section of the Self-Perception Inventory (SPI) being completed online via the Belbin Interplace Online Platform.

## Construction of the BTRSPI (continued)

### Is the BTRSPI an ipsative test?

The BTRSPI is designed to ascertain as much information as possible about an individual's Team Role preferences, whilst keeping the inventory manageable in terms of item length, inventory length and answering style. Many psychometric tests such as the 16PF and OPQ require the respondent to evaluate around 200 items using a Likert scale (e.g. ticking an answer along a spectrum from "Strongly agree" to "Strongly disagree", usually with a neutral option of "Don't know" or "Not sure"). In contrast, the BTRSPI asks the respondent to consider items within each section in relation to each other and to prioritise some above others. As a result, the questionnaire takes only between 15 and 20 minutes to complete, less time than many psychometric evaluations.

Since the total score achieved in the BTRSPI is always constant, it is an ipsative measure overall. This means that a respondent must express a relative preference between two or more statements measuring different characteristics, thus creating a degree of interdependence between the characteristics being measured.

However, since the items are dispersed in the eight sections such that there is one item for each role in each section, the scores given to items for any Team Role are not fully ipsative, since they do not sum to a constant value. Whilst the scores for items in the same scale are independent of each other, they are partly dependent on the scores given to other scales. In other words, the BTRSPI is ipsative within its sections (since scores always sum to 10) but not between its sections.

Some early research studies criticised the scoring style of the BTRSPI, suggesting that it "forced choice" between statements. In 1993, Meredith Belbin defended the

inventory, claiming that "some restriction of choice [was] operationally desirable" since "self-rating on independent scales yields little of value in industrial and occupational settings" (see discussion above).

In their 1998 research, Sommerville & Dalziel converted the BTRSPI to a Likert-type scale questionnaire. They found that 73% of participants had the same Team Role across both versions of the test, indicating that there is 'no significant difference in the prediction of Team Roles' between the two versions. <sup>[2]</sup>

In 1993, Meredith Belbin maintained that Likert-type scales caused more frustration among candidates in industry and later, in research conducted in 2004, Aritzeta, Swailes & McIntyre-Bhatty point out that Likert-type scales bring their own set of problems:

*"There is a strong controversy in the literature about the ipsative scoring of constructs, and such discussion while very interesting is still far from clear. Ipsative data is not free from criticism as neither are normative data [sic]. Likert type scales are not free from important threats as central tendency bias, acquiescence, social desirability and falsification of responses which may be much larger from these types of scales than for ipsative scales."*

**Aritzeta, Swailes & McIntyre-Bhatty, 2004** <sup>[3]</sup>

<sup>2</sup> Project teambuilding – the applicability of Belbin's team role self-perception inventory (Sommerville & Dalziel, 1998), pp. 166-167.

<sup>3</sup> Further Evidence on the validity of the Belbin Team Role Self Perception Inventory and the Observer's Assessment Sheet (Aritzeta, Swailes & McIntyre-Bhatty, 2004), p.8.

## Construction of the BTRSPI (continued)

Arguably, a Likert-type scale also forces choice by asking candidates to choose the neutral response if no other applies. For example, if a bipartite statement is presented, with the candidate agreeing to one part of the item and disagreeing with the other, a neutral response could reflect the poor wording of the item rather than the candidate's true response. Additionally, the Likert-type scale assumes that the figurative distance in "preference" between "Strongly agree" and "Agree" is the same as that between "Agree" and the neutral response or between "Disagree" and "Strongly disagree". This is an assumption which aids calculation and analysis, but again, is not reflective of true response.

Having undertaken comprehensive statistical and factor analysis on data from more than 5000 candidates who have completed the BTRSPI, Swailes & Aritzeta conclude that the scoring system of the BTRSPI has no adverse effect on its construct validity and that levels of interdependency are low (please see the "Validity" section for further discussion).<sup>[4]</sup> Since the BTRSPI's current format confers no statistical disadvantage and confers considerable advantages from the viewpoint of the candidate, Belbin has chosen to retain the format.

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4. Scale Properties of the Team Role Self Perception Inventory (Swailes & Aritzeta, 2006), p.10.

# Administering and Scoring of the BTRSPI

The BTRSPI forms part of the Belbin Interplace Online Platform (BIOP) administered and sold by Belbin Limited at <http://www.belbin.com>.

There are also a number of consultants and distributors who are licensed to resell Belbin internationally in English and other languages. The details of these distributors can be found at: <https://www.belbin.com/about/belbin-worldwide>.

When Belbin reports are purchased, the BTRSPI is completed online and Belbin's Interplace system scores the inventory, processes the data and produces Belbin reports.

In his book, *Management Teams: Why They Succeed or Fail*, first published in 1981, Meredith Belbin included a self-scoring BTRSPI designed to provide the individual reader with a "quick fix" indicator of what their Belbin Team Roles might be. As further research was conducted, this inventory was shown to be inadequate in determining Team Roles and the Interplace system was developed to handle the norming, data analysis and complex algorithms which arise from different combinations of response to the BTRSPI. Rather than simply providing a ranked order of roles, the Interplace system produces a full feedback report, integrating information gleaned from both the Self-Perception Inventory and Observer Assessments.

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**We will – and do – take legal action against individuals, educational institutions and commercial organisations using unauthorised, pirated or modified versions of our inventories.**

For more information, please visit <https://www.belbin.com/about/copyright>.

## The Belbin Interplace Online Platform (BIOP)

The Belbin Interplace Online Platform provides a reliable and valid method of establishing Team Roles. Our system analyses and norms your responses (along with those of your colleagues, manager etc) to produce a detailed, unique and informative report.

The Belbin report gives an in-depth picture of your Team Role strengths and weaknesses, along with advice for using your strengths to best effect.

### The Specialist role

Meredith Belbin's original research in the 1970s identified eight Team Roles. Following the initial research, a ninth Team Role, "Specialist", emerged. This role was discovered only after the Henley experiments had been concluded. Since the business game had been constructed to set all participants on a level playing-field in terms of knowledge and expertise, Specialist behaviours did not emerge. Whilst this premise was useful for the purposes of the experiment, it is not representative of real life. All information regarding the contribution and shortcomings of the Specialist has been gleaned from later experiences in the practical application of the theory in industry.



## Administrating and Scoring of the BTRSPI (continued)

### Observer Assessments

Belbin strongly recommends the use of Observer Assessments or OA (our own integrated form of team feedback) to qualify the individual's self-perception. Whilst many psychometric tests rely entirely on self-reporting, Belbin points to the limitations of this approach. An individual may have little self-awareness, especially if new to the workforce. Meredith Belbin argues that the need for such corroboration arose from a demand for a more robust way of assessing the potential Team Role contribution of individuals:

*“Line managers were usually wary of using self-reporting measures when reaching crucial decisions about people. That reservation is seldom connected with technical issues of test construction but more with the recognition that people are subject to illusions about the self and are also tempted to distort their responses once they believe that their answers affect job and career prospects. Line managers place a greater emphasis on observations of others, believing that such material has greater validity, in terms of effective decision making, providing it is properly gathered.*

Meredith Belbin, 1993 <sup>[5]</sup>

As well as validating an individual's self-perception with observations of “real-world” behaviour, Observer Assessments provide learning and personal development opportunities. For example, where individuals indicate different Team Role preferences than are identified by their team, discussion may arise as to whether the individual in question is able to achieve full potential or is asked to play other roles for the benefit of the team. For more information on the use of Observer Assessments, please view the “Criterion Validity” section below.

### Norming

We are sometimes asked how Belbin data might vary between countries. In 2017, Belbin commissioned an in-depth statistical study to analyse data from 26 countries.

This study found that neither within-role or between-role differences were significant. Within-role distributions were found to vary between countries, but there was no overarching pattern which suggested bias. Whilst some countries show more variability than others, the effect was not consistent and does not affect the higher end of distributions used in many of the calculations for the Team Role reports.

Where anecdotal differences have been noted in the past, these are likely to be a result of using datasets which are too small to produce reliable norms, rather than owing to cultural differences.

Since Belbin is sold and used internationally, the Belbin Interplace system makes provision for this, using an international normbase of more than 250,000 SPIs and more than 640,000 Observer Assessments from 32 countries.

<sup>5</sup> A reply to the Belbin Team-Role Self-Perception Inventory by Furnham, Steele and Pendleton (Belbin, 1993), Journal of Occupational and Organizational Psychology (1993), 66, p.259.

## Administrating and Scoring of the BTRSPI (continued)

### Team Role Advice

The Belbin Interplace system uses the data gained from the BTRSPI to produce a full feedback report, interpreting Team Role data in textual and graphical forms. The Belbin Individual report derived from Self-Perception only includes:

- Cover sheet and Team Role Descriptions
- Your Team Role Preferences
- Team Role Feedback
- Placement Suggestions
- Suggested Work Styles
- Glossary of Terms

With the addition of four or more Observer Assessments, an extended report analysing individual and observer feedback can be provided. This includes the report pages listed above, plus:

- What Others See
- Comparing Self and Observer Perceptions
- Team Roles in a Ranked Order
- List of Observer Responses

For more information and to view sample Belbin Team Role reports, please visit: <https://www.belbin.com/about/belbin-reports>.

# Description of the Nine Team Roles

The nine Belbin Team Roles are shown below, along with the strengths and allowable weaknesses for each role. According to Belbin Team Role theory, as each Team Role makes an individual contribution to the team, so each Team Role has an allowable weakness which is the flipside of the strength.

Team Roles are clusters of behaviour, rather than individual traits or characteristics. As mentioned above, it is envisaged that a candidate will have more than one preferred Team Role. In the Self-Perception Team Role Profile, an individual's Team Roles are sorted into three categories:

- **Preferred Roles** – those roles which the individual is comfortable playing and which come naturally. (N.B. We only refer to 'preference' in relation to SPI only results.)
- **Manageable Roles** – those roles which an individual can play if required for the benefit of the team. These may be cultivated to broaden the individual's teamworking experience.
- **Least Preferred Roles** – those roles which the individual does not naturally or comfortably assume. It is generally recommended that the individual avoids contributing in these areas, so that the pitfalls of the behaviour do not outweigh the strengths.




Role	Team Role contribution	Allowable weaknesses
 Plant (PL)	Creative, imaginative, unorthodox. Solves difficult problems.	Ignores details. Too preoccupied to communicate effectively.
 Resource Investigator (RI)	Extrovert, enthusiastic, communicative. Explores opportunities. Develops contacts.	Overoptimistic. Loses interest once initial enthusiasm has passed.
 Co-ordinator (CO)	Mature, confident, a good chairperson. Clarifies goals, promotes decision-making, delegates well.	Can be seen as manipulative. Delegates personal work.
 Shaper (SH)	Challenging, dynamic, thrives on pressure. Has the drive and courage to overcome obstacles.	Can provoke others. Hurts people's feelings.
 Monitor Evaluator (ME)	Sober, strategic, discerning. Sees all options. Judges accurately.	Lacks drive and ability to inspire others. Overly critical.
 Teamworker (TW)	Co-operative, mild, perceptive, diplomatic. Listens, builds, averts friction, calms the waters.	Indecisive in crunch situations. Can be easily influenced.
 Implementer (IMP)	Disciplined, reliable, conservative, efficient. Turns ideas into practical actions.	Somewhat inflexible. Slow to respond to new possibilities.
 Completer Finisher (CF)	Painstaking, conscientious, anxious. Searches out errors and omissions. Delivers on time.	Inclined to worry unduly. Reluctant to delegate. Can be a nit-picker.
 Specialist (SP)	Single-minded, self-starting, dedicated. Provides knowledge and skills in rare supply.	Contributes on only a narrow front. Dwells on technicalities. Overlooks the 'big picture'.

Fig. 2: The nine Belbin Team Roles

## Description of the Nine Team Roles (continued)

The nine Team Roles may also be categorised as Action, Social and Thinking roles:

- **Action** – Completer Finisher (CF); Implementer (IMP); Shaper (SH)
- **Social** – Co-ordinator (CO); Resource Investigator (RI); Teamworker (TW)
- **Thinking** – Monitor Evaluator (ME); Plant (PL); Specialist (SP)

As mentioned above, no individual Team Role or characteristic should be considered in isolation. Rather, the specific combination and interaction of an individual's Team Roles – along with observer input and style of response to the BTRSPI – help to shape and inform the Team Role profile, with the intricate interplay of Team Roles handled by the Belbin Interplace system. Whilst Team Roles are not likely to change dramatically, individuals who are new to a job or to the world of work may discover more fluctuation in their preferences than those who have been working for much longer. Some individuals may find that only two or three roles come into play, whilst others may find that the variety of their job calls upon four or five different roles, which can be played as the situation demands.



Fig. 3: The Team Role Circle

# Reliability

In psychometric testing, a reliable test is one which will produce consistent results when the same individual is tested on different occasions (often referred to as ‘test-retest’ reliability). Often, psychologists and statisticians analyse the internal consistency of a test to verify that different parts of a test are all measuring the same quality or trait (in this case, they are measuring ‘internal consistency’). When evaluating a test, reliability is generally measured before validity, since the reliability of a test places an upper limit on its validity – in other words, a test cannot measure what it purports to measure unless it is stable and consistent in its measurement.

## Test-retest reliability

As discussed in “Measuring Behaviour” above, Belbin is not a psychometric test, since it measures behaviour rather than personality. Whilst personality may remain fairly consistent, we would expect behaviour to change, along with a change in job role, for example. Indeed, it is desirable that an individual’s behaviour should adapt to suit the demands of the job. Although it is unusual for a Team Role profile to become entirely reversed, it is highly likely that preferred and manageable roles may move around within an individual’s profile during his or her career.

## Internal consistency

Internal consistency is also known as scale homogeneity, in other words, the ability of items in a scale to measure the same construct or trait. Belbin measures nine Team Roles, which are clusters or constellations of behavioural characteristics, rather than individual traits. As a result, Belbin does not repeat items but rather looks to identify strata of different Team Role behaviours displayed by an individual.

Since Belbin differs from psychometric tests in both its underlying theory and its format and scoring mechanism, measuring its reliability has presented a challenge to researchers over the years. The most common measure of internal consistency is Cronbach’s Alpha ( $\alpha$ ), which, when applied to the BTRSPI during early research, produced variable results. In their research papers, “The Reliability of the (Belbin) Team Role Self-Perception Inventory: Cronbach’s alpha and ipsative scales”<sup>[7]</sup> and “Uses and Abuses of Reliability Estimates: The Case of the Belbin TRSPI”<sup>[8]</sup>, Stephen Swailes and Tim McIntyre-Bhatty explored limitations to Cronbach’s alpha in general and explained why existing measures of reliability were inadequate to evaluate the BTRSPI.

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<sup>7</sup> The Reliability of the (Belbin) Team Role Self-Perception Inventory: Cronbach’s alpha and ipsative scales (McIntyre-Bhatty & Swailes, 2000).

<sup>8</sup> Uses and Abuses of Reliability Estimates: The Case of the Belbin TRSPI (Swailes & McIntyre-Bhatty, 2001).



## Reliability (continued)

Firstly, the researchers point out a generic limitation of Cronbach’s alpha – that simply increasing the length of the inventory (i.e. the number of items) can increase  $\alpha$ . In addition, inter-item correlations (the link between items) can remain low, but can achieve a high  $\alpha$  value, so long as they are consistently low. Since the BTRSPI is neither fully ipsative nor non-ipsative, whilst the total score achieved is always the same, the score for each Team Role can vary.

Secondly, respondents do not allocate a value to every item in the inventory. In the past, researchers have assigned zero to all items without a response, rather than assigning a null value, thereby contaminating the results. Researchers have also made use of the obsolete self-scoring version of the inventory and have used small or inappropriate sample sizes when analysing data and drawing conclusions.

Having recognised these limitations to Cronbach’s Alpha and its applications to the BTRSPI, Swailes et al. formulated and proposed a new measure of reliability,  $IR_{\alpha}$ , which offers a weighted mean of average inter-item correlation scores. Using a large dataset of respondents, they calculated  $\alpha$  by contaminating null responses with zeros, as earlier researchers had done, for the sake of comparison. Next, they chose only those responses for which every Team Role received a score across the seven sections of the inventory, so as to avoid the problem of assigning values of zero to null responses.  $\alpha$  was calculated again, without contamination of null and using weighted inter-item correlation. In June 2012, these tests were repeated for the new, eight-section version of the inventory. The results are shown in Table 1 opposite.

Team Roles									
Team Role	CF	CO	IMP	ME	PL	RI	SH	SP	TW
Cronbach $\alpha$ (8 scored items)	.77	.75	.80	.77	.84	.71	.77	.67	.72

**Table 1:** Reliability figures (Cronbach  $\alpha$  for the latest version of the BTRSPI)

A  $\alpha$  score of 0.6 or above is considered acceptable. 0.7 is good and 0.8 is very good. This study helps to explain why earlier research produced inaccurate results for the BTRSPI’s reliability. In summary, earlier studies made erroneous use of  $\alpha$  in relation to the BTRSPI, used much smaller and inappropriate samples and contaminated data by assigning zeros to null responses.

**Using weighted inter-item correlation to calculate reliability via Cronbach’s Alpha ( $\alpha$ ), Belbin Team Roles as measured by the BTRSPI show good or very good reliability overall.**

# Validity

A test is said to be valid if it measures what it claims to measure. There are different kinds of validity: face validity, construct validity and criterion validity. These are explored below in relation to the BTRSPI.

## Face validity

Face validity asks the question: does the test measure what it claims, at face value? In their 1996 study, Balderson & Broderick state that the BTRSPI has “very high face validity” and comment on the “acceptability of the measures” or Team Roles “particularly using the Interplace system expert reports”.<sup>[9]</sup>

## Construct validity

Construct validity assesses whether the characteristic which a test is actually measuring is meaningful and consistent with what the test is intended to measure overall. Convergent validity is concerned with whether a test is similar to those to which it should theoretically be similar. Discriminant validity is the extent to which a given scale can be distinguished from other scales which are measuring different concepts or traits. Concordant validity has to do with the level of agreement (or concordance) between one test and another, in this instance, the BTRSPI and Observer Assessment (OA).

Much research has been conducted into the construct validity of the BTRSPI. A comprehensive overview of these studies is provided in a paper by Aritzeta, Swailes & McIntyre-Bhatty.<sup>[10]</sup>

## Convergent validity

Aritzeta et al. (2004) comment that the Team Role model has acceptable convergent validity. They explain that previous empirical studies which have found less favourable results have fallen victim to effects caused by small or inappropriate sample sizes. They write:

*“[This] leads us to conclude that the team role model has acceptable convergent validity. Factor structures for the TRSPI are coherent in its ipsative and normative forms as well as with personality measures.”*

**Aritzeta, Swailes & McIntyre-Bhatty, 2004** <sup>[11]</sup>

<sup>9</sup> Behaviour in Teams: Exploring Occupational and Gender Differences (Balderson & Broderick, 1996), p.33.

<sup>10</sup> Further Evidence on the Validity of the Belbin Team Role Self Perception Inventory and the Observer’s Assessment Sheet (Aritzeta, Swailes & McIntyre-Bhatty, 2004), pp.3-6.

<sup>11</sup> Belbin’s Team Role Model: Development, Validity and Applications for Team Building (Aritzeta, Swailes & Senior, 2007), p.111.

## Validity (continued)

### Discriminant validity

It is important to note once more that the BTRSPI has significant, distinct differences to psychometric tests. However, 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>[12]</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. When this analysis was repeated by Aritzeta in September 2012 with the updated version of the Observer Assessment, 89.7% of 16408 observations showed significant Team Role agreement.

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.<sup>[13]</sup>

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<sup>12</sup> The distribution of Belbin team roles among UK managers (Fisher, Hunter & Macrosson, 1998), p.132.

<sup>13</sup> In-depth information on analysing and providing feedback on Belbin reports is available via our Belbin Accreditation course, please see <https://www.belbin.com/belbin-training/accreditation> for details.

## Validity (continued)

### 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 [sic], 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>[14]</sup>

Subsequent studies in 2012 demonstrated “a general improvement across the inventory”.<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.

Aranzabal, Epelde and Artetxe’s 2022 paper found that understanding their Belbin Team Roles and using Belbin reports as part of reflective practice improved the performance of a cohort of chemical engineering students at the University of the Basque Country. Working in Belbin selected teams and with Belbin interventions, students: obtained better individual and group grades; had higher class attendance and engagement, and demonstrated greater accountability and more effective working relationships with staff members.<sup>[16]</sup>

<sup>14</sup> Belbin Team Role Model: Development, Validity and Applications for Team Building (Aritzeta, Swailes & Senior, 2007), p.108.

<sup>15</sup> Further Evidence on the Validity of the Belbin Observer Assessment (OA) (Aritzeta, 2012)

<sup>16</sup> Team formation on the basis of Belbin’s roles to enhance students’ performance in project based learning (Education for Chemical Engineers 38 (2022) 22-37, Elsevier)

## Validity (continued)

In 1995, Dulewicz investigated the association between Team Role and responsibility or status.<sup>[17]</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>[18]</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.

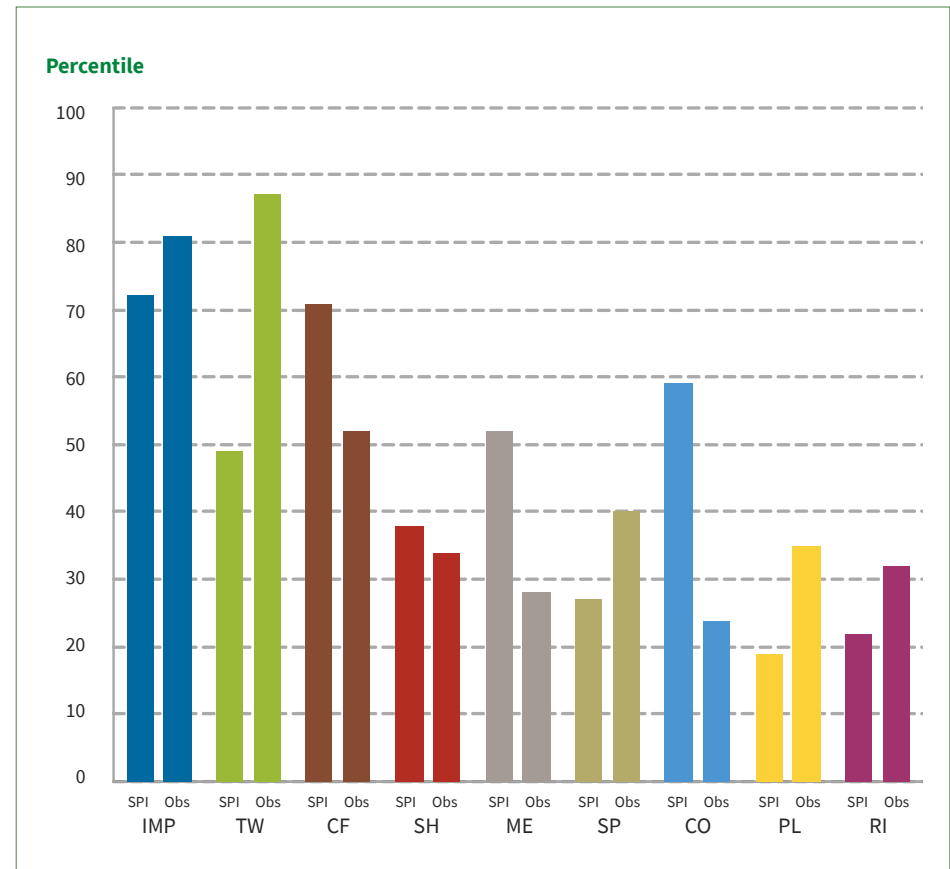


Fig. 4: Graph from the Belbin Individual report showing SPI and Observer percentile scores for each Team Role.

<sup>17.</sup> A Validation of Belbin's Team Roles from 16PF and OPQ using Bosses' Ratings of Competence (Dulewicz, 1995)

<sup>18.</sup> Team role behaviour and task environment: An exploratory study of five organizations and their managers (Shi & Tang, 1997), p.93.



## Validity (continued)

### 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 feedback from the team. For example, a bar graph presents 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

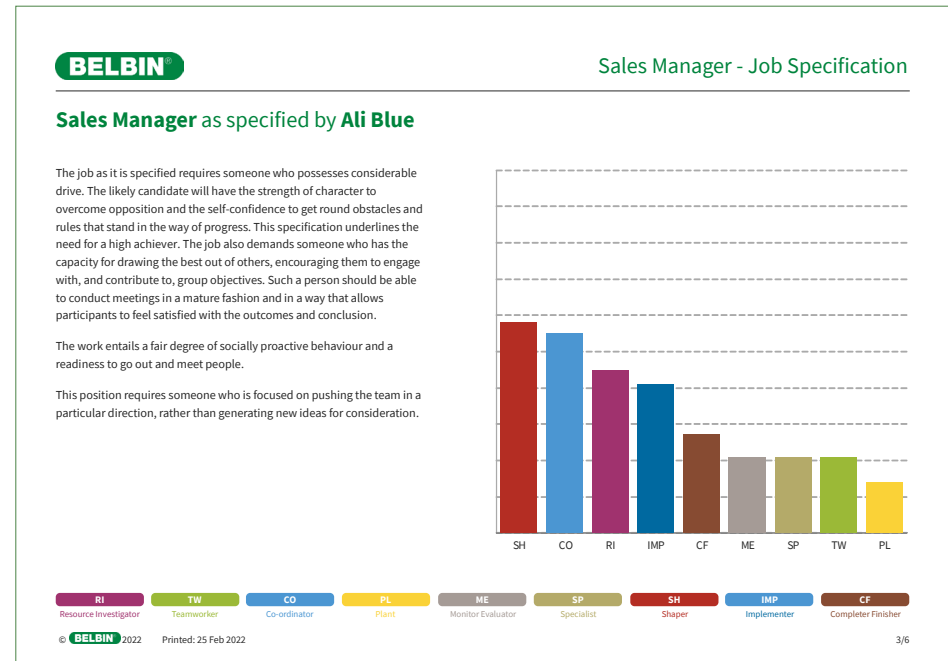


Fig. 5: Graph from the Belbin Job report showing the Team Role profile for a sample job of Sales Manager.

## Validity (continued)

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: <https://www.belbin.com/about/belbin-reports/individual-reports>

### 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.

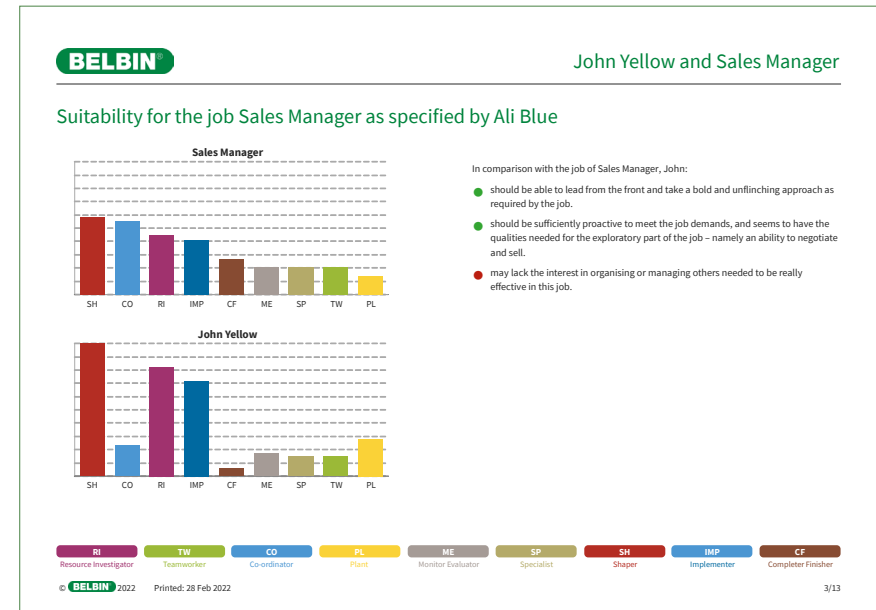


Fig. 6: Graph from the Belbin Job Comparison report showing the Team Role profile for a sample job of Sales Manager compared with the Team Roles of an individual, Ali Blue.

## Validity (continued)

In any situation where matching an individual to a job 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.

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: <https://www.belbin.com/resources/books>.

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.

### Belbin in practice

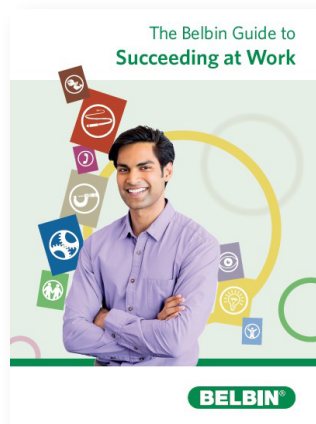
There is much evidence of the use of Team Role theory in general to promote self – and mutual understanding, more effective management and even significant culture change, which, in turn, translates into higher performance and evidential commercial and organisational success.

From teambuilding to personal development, via change management and communication and conflict in virtual teams, more information on real-world outcomes from the application of Team Role theory can be found in the case studies on the Belbin website and in Meredith Belbin's book, *Management Teams: Why They Succeed or Fail*. See <https://www.belbin.com/resource-library?q=&rt=Case+Study&a=#resources> for more information.

# Further Reading

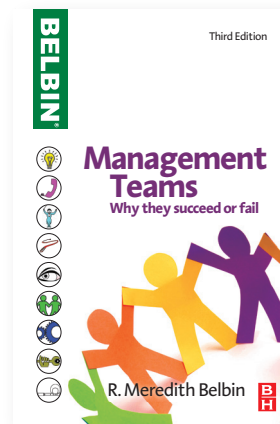
## Books from Belbin

Please visit <https://www.belbin.com/resources/books> for more information.



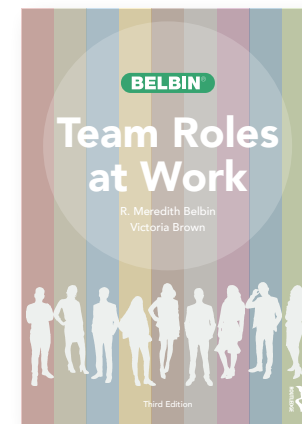
Belbin's latest book, *The Belbin Guide to Succeeding at Work*, ISBN: 978-0955297953), provides an ideal introduction to Belbin Team Roles, helping you to understand yourself, and how to project your behaviour to your advantage.

It makes an ideal handout for any teambuilding or self-development course.



**R. Meredith Belbin**, *Management Teams: Why They Succeed or Fail* (Butterworth Heinemann, 3rd ed., 2010.) ISBN: 978-1-85617-807-5 (Originally published, 1981)

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.



**R. Meredith Belbin**, *Team Roles at Work* (Butterworth Heinemann, 3rd ed., 2022.) ISBN 978-1-85617-800-6 (Originally published, 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. The third edition, published in 2022, includes a new chapter on Team Roles in virtual and hybrid teams.

## Further Reading (continued)

### 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 a deprecated version of the BTRSPI.
- Many studies were conducted using a deprecated version of the BTRSPI which is not used in the production of Belbin reports, is protected by copyright and cannot be reproduced. 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 <https://www.belbin.com/about/copyright>.

- 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.



## Further Reading (continued)

### Interplace Research Articles

The following studies were conducted using Belbin Interplace data. The authors asked Belbin for access to this data, which is fully normed.

Stephen Swailes et al. are independent researchers based at the University of Hull. Swailes et al's 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 are particularly recommended.

- A. Aranzabal, E. Epelde, M. Artetxe, *Team formation on the basis of Belbin's roles to enhance students' performance in project based learning* (2022)
- 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)

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

## Further Reading (continued)

### 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 & Sleaf, *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>.

The only sanctioned way of finding out your Belbin® Team Role strengths and weaknesses is by completing the official Belbin® Self-Perception Inventory online, and receiving a Belbin® Individual report.

Over 3 million Belbin® reports have been generated worldwide for individuals, managers, teams and organisations.  
We can help you every step of the way.

Contact us at [belbin.com](https://belbin.com) to start your Belbin® journey.  
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