The benefits and value of metacognitive awareness in the workplace: developing the 'thinking performer'

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Abstract

In this qualitative research study, four teams comprising twenty-five participants from non-managerial posts in a local government organisation completed the occupational psychometric instrument Thinking Styles®. They subsequently took part in a one-day group workshop with individual and team feedback designed to explore the implications of their cognitive profiles. This paper details both the immediate feedback from participants regarding the perceived benefits and value of their greater metacognitive awareness, and the longer-term benefits and value as evaluated by the same participants one year later. The paper also briefly reviews and summarizes the academic work in the field of metacognitive awareness in the workplace to date and ends with some suggestions as to the relevance of metacognition to the CIPD's new standards and to the Thinking Performer.

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Please note that Appendix 1, Internal Correlations, accompanies this paper and is in an Excel format

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Principles and objectives of the research

The qualitative benefits of any training intervention are notoriously difficult to quantify and assess. The longer term value and benefits of understanding and appreciating our own and others' thinking styles have never before been evaluated, which is one of the reasons that this research is so interesting and valuable. There are two main features of this research: firstly, the research was based on an occupational study of a non-managerial general population sample; secondly, there was one training intervention and then no subsequent direct contact with participants for a period of one year. There were two objectives of the research: one being to identify the perceived value and benefits of metacognitive awareness at work over the short and longer terms, and the second being to identify whether even well-received training interventions require reinforcement.

Research methodology

Four teams comprising twenty-five participants from non-managerial posts in a local government organisation completed the occupational psychometric instrument Thinking Styles®. They subsequently took part in a one-day group workshop with individual and team feedback designed to explore the implications of their cognitive profiles for their behavioural working styles and for teamworking.

The training intervention comprised three clear elements and was partly plenary presentation in format and partly an interactive workshop. The first of these elements was an exploration of the concepts of cognitive style and metacognition. Messick defined cognitive styles as *"consistent individual differences in preferred ways of organizing and processing information and experience"* (Messick, 1976, p.5). In other words, differences and similarities in the ways people think, some of which are habitual preferences and some of which may be actively disliked. Metacognition can be defined as our understanding of our own and others' thinking styles and mental strategies.

The second element of the workshop comprised a brief explanation of the twenty-six dimensions of cognitive style measured by Thinking Styles terms of their cognitive, linguistic and behavioural implications for participants (Appendix 2). This was followed by an exploration of the statistical correlations between some of these dimensions into recognizable personality 'types' (Appendix 1).

For example, if someone has a preference for Left Brain (logical) thinking (as defined by Thinking Styles, see Appendix 2), they are also statistically significantly likely to have a preference for Detail Conscious thinking and statistically unlikely to have a preference for either Big Chunk (strategic) thinking or Right Brain (creative) thinking. This means that the majority of people who pay attention to details are also likely to think sequentially and are unlikely to multi-task or be considered to be particularly creative. It also means that it is statistically unlikely that an HR practitioner will have the natural cognitive preferences for thinking both strategically and operationally. These are two somewhat 'opposite' thinking styles, whereby operational thinking concerns present details and strategic thinking is focused on future planning. An individual will probably have a natural preference for one of the cognitive styles and have to work quite hard at developing the cognitive and behavioural flexibility necessary for the other.

One of the CIPD's competencies which comprise their vision and relate to their new standards is 'analytical and intuitive / creative thinking'. Although statistically, intuitive (Kinaesthetic) and creative (Right Brain) thinking are highly correlated, both intuitive thinking and creative thinking correlate negatively with analytical (Digital) thinking. This means that finding someone who is naturally flexible in all three types of thinking is statistically very unlikely, and as in the example above, they will have to work hard at consciously developing the cognitive and behavioural flexibility necessary to fulfil the requirements of the competency.

The third element of the workshop continued with group feedback designed to explore the implications of participants' cognitive profiles for their working relationships within their team. This consisted of a number of small group exercises after which participants were asked to present,

in their teams and to a plenary review, their team's perception of the value and benefits of the workshop. This list was written up and distributed to all participants and their line managers (summarized in Appendix 3). Individual feedback was given as requested throughout the day or immediately post-workshop via the telephone to those participants who requested it.

No direct training intervention regarding metacognitive awareness was made in the interim period of one year after which participants were contacted and asked to individually review the original list, adding further responses after personal reflection (summarized in Appendix 4).

Findings and Results

Participant's combined individual and team perceptions of the immediate value and benefits of the training workshop regarding the increase in their metacognitive awareness are detailed in Appendix 3. Their additional responses one year later are detailed in Appendix 4. In response to the question 'What have you learnt?' immediate feedback from teams included "*To value people. To understand ourselves. A realisation of how many thinking styles there are. To view people differently. Our perception of others has changed",* and that *"People have different ways of thinking and we now know what these are*".

In response to the question 'What are the benefits and value of what you have learned?' immediate team responses included "*To be more aware of others' styles. Tolerance. The realisation of team potential. Improved communication and therefore an improved working environment. By understanding peoples' reactions and our own reactions, we can change our way of relating to each other",* and "W*e can respect and appreciate colleagues' thinking styles".*

Personal responses on reflection one year later included *"The workshop encouraged teamwork and we have been more aware of different personalities which is an advantage. There is better communication and people understand themselves and others better. It has helped people to stop and think before rushing to conclusions about situations and different people's parts in those situations. A better understanding of motivations, behaviours etc. has given me more confidence and has validated my ways of being, (I am very Externally Referenced!), so I am less likely to be*

buffeted about by other people's opinions and actions." And**, "***A big benefit has been to apply 'science' to gut feelings … to check and balance my own perceptions".*

It is interesting to note that at least two participants have integrated the language patterns used by Thinking Styles to describe themselves. One described themselves as being Externally Referenced, i.e. they are more likely to believe that what other people say is correct, rather than believing themselves to be right about something. The other noted that they now realise that they exhibit both Left and Right Brained behaviours. Note that these labels are metaphorical descriptions rather than physical or neurological ones and mean for this participant their recognition that they can think both sequentially using lists, and creatively by multi-tasking, depending on their circumstances and the requirements of the task at hand.

One participant lamented the lack of subsequent follow-up and post workshop support from their management and hoped that the research would rekindle interest in Thinking Styles and metacognition within the organisation. However this situation was not true for all of the participants. One team member said *"We use it as part of our planning process for team workshops, so we have integrated it into our team working",* and another participant added *"As a team, we built on the workshop when we got back, developing our understanding of each other and using each other better".* A third participant echoed these new cognitive behaviours and said *"We use Thinking Styles as a building block for our team sessions".*

Discussion of Findings and Results

The short-term findings are consistent with prior research by Leonard & Strauss (1997). They used the Myers Brigs Type Indicator (MBTI) and the Herrmann Brain Dominance Instrument (HBDI) with teams to explore how cognitive preferences influenced the effectiveness of their managers in the areas of creativity and innovation. The longer term benefits of understanding and appreciating our own and others' thinking styles have never before been evaluated which is one of the reasons that this research is so valuable.

There is no doubt that workshop participants enjoyed the workshop and found it interesting, relevant and useful, both immediately and over the longer term. Evidence suggests that for individuals, receiving their Thinking Styles profile and the workshop feedback contributed to a greater understanding of their own, and others' thinking processes, and that this in turn, increased their tolerance and regard for people with different thinking styles to their own.

There is also qualitative evidence that for some teams the workshop led to more effective communication, greater respect for colleagues, an improved working environment and better teamworking in both the short and longer terms. This was particularly evident after subsequent changes in the composition of a team and where the team dynamics were difficult.

Two of the four teams beneficially integrated their understanding of team members' thinking styles and associated behaviours into their daily working lives and team processes. Interestingly, participants from teams where the team leader had integrated Thinking Styles reported the highest levels of satisfaction and the most benefits from the training workshop. In contrast, participants from teams where the team leader lamented the lack of follow-up and looked towards their managers or the organisation to integrate Thinking Styles reported the lowest levels of satisfaction and benefits from the training intervention.

This concept of the team leader who is a 'self-starter' and who takes it upon themselves to integrate useful learning into their teams compared with the team leader who relies on someone else or the organisation to do it is outside the scope of this research project. If we make the assumption that the 'self-starter' is at least in part, a "thinking performer", it becomes an interesting and relevant concept worthy of further CIPD research.

Feedback from participants suggests that although most people found the principles of metacognitive awareness fairly easy to grasp, the behavioural implications of the variety of cognitive styles detailed within Thinking Styles is considerably more difficult to understand and integrate. In other words, metacognitive awareness and metacognitive development are complex and require a supportive environment.

Review and summary of academic research to date

Although much has been written on the areas of cognitive style and metacognition within an educational setting, very little has been published on metacognitive awareness in the workplace and there seems to have been nothing published to date within academia regarding the development of the 'thinking performer'.

Riding (1997) notes that early on in the development of psychological scientific study psychologists such as Galton (1883) and James (1890) investigated the idea that some people seemed to represent information in a predominantly verbal way, whereas others seemed to have a predominantly visual or 'imaginal' mode. The psychologist Allport used the term cognitive style in 1937 when investigating and describing personality. This suggests that an interest in understanding different thinking styles from a psychological perspective is not new.

Riding and Cheema (1991) found over thirty different labels of cognitive style represented in the literature by different theorists. After an extensive review they concluded that these could be fundamentally grouped into the two dimensions of the 'wholist-analytic' style, which differentiates whether an individual processes information as a whole or in parts, and the 'verbal-imagery' style, which differentiates whether someone tends to internally represent information verbally or in pictures. They suggested that all of the other style labels were either used synonymously or were sub sets of these two styles.

In contrast to this assertion, the psychometric instrument Thinking Styles which was used in this research study, comprises 26 conceptually and statistically independent dimensions of cognitive style. Tables 1 and 2 give the internal reliability data and test re-test figures relating to the dimensions, while Appendix 1 details the statistical internal correlations between the dimensions. Appendix 2 details the cognitive and behavioural traits associated with each cognitive style. All of which provide evidence to suggest that more than two styles exist.

This evident disagreement between two theorists is indicative of the current state of play in the area of cognitive style research. Messick (1984) writes that "*style research is peppered with ...*

inconsistent findings", whilst Riding and Cheema (1991) cite Lewis (1976, pp. 304-5) who noted that *"Different groups of researchers seem determined to pursue their own pet distinctions in cheerful disregard of one another".* Riding and Cheema (1991) add that "*the cognitive style construct has been elusive ... different theorists have been working with different concepts and have referred to them as a 'cognitive/learning style'. ... Attempts to unite these scattered schools of thought have been extremely rare".*

This research adds to the information currently available regarding cognitive styles and metacognitive awareness. Moreover, it is a practical, occupational study compared to the more common theoretical or educational studies and therefore immediately adds practical value for any HR practitioner committed to learning more about developing the thinking performer.

Interest and Applicability to HR Professionals

The distinctive contribution of this research is fourfold. Firstly, it is a qualitative workplace study in the areas of metacognition and the development of people's awareness of thinking preferences, which historically has been the domain of educational psychologists and has not been well researched or documented in an occupational setting. Secondly, it is a qualitative training evaluation which compares immediate participant feedback with feedback received by the same cohort more than 1 year later. Thirdly, it briefly summarizes the academic work in the field of metacognition in the workplace to date and fourthly, it links metacognitive awareness to the CIPD's new competencies for achieving their vision and to how the development of the thinking performer can be achieved.

The relevance of metacognition to the CIPD's new Professional Standards

So how is this research relevant to the CIPD's new professional standards and to developing the 'thinking performer'? The CIPD has identified ten competencies that comprise their vision, many of which are directly related to the thinking skills and abilities of HR practitioners. In summary, these are: Personal drive and effectiveness. People management and leadership.

Business understanding. Professional and ethical behaviour. Added-value result achievement. Continuing learning. Analytical and intuitive / creative thinking. 'Customer' focus. Strategic thinking. Communication, persuasion & interpersonal skills. More information regarding these competencies and their cognitive and behavioural implications is available from the CIPD's library.

The first step towards becoming a thinking performer is self-awareness of ones own thinking styles and cognitive preferences. Using a metacognitive instrument such as Thinking Styles is an effective way of gaining that initial understanding. Becoming aware that other people think similarly or differently to ourselves and then going on to develop an understanding of the implications which that has for their thinking strategies and their behaviour is the next conscious progression towards becoming a thinking performer. The third step is the deliberate integration of this understanding into team processes and people management activities.

In the research study, at least two of the four teams took this third step and integrated their understanding of team members' thinking styles and associated behaviours into their daily working lives leading to improvements in areas such as communication and teamworking.

At present there seems to be no useful framework for HR practitioners to evaluate their performance against the standards and the new competencies in the sense of developing the 'thinking performer'. This research provides evidence of one methodology which has been proven to assist in the development of the understanding of the different types of cognitive styles that exist and the thinking strategies associated with them. This adds to the available information regarding the development of the thinking performer.

Conclusions

The objectives of the research were to identify the perceived value and benefits of metacognitive awareness at work over the short and longer terms and to identify whether even well-received training interventions require reinforcement.

The qualitative evidence from participants suggests that the benefits and value of increasing people's understanding of their own and others thinking styles and cognitive strategies are

significant in areas such as personal effectiveness, communication and teamwork over both the short and the longer terms. As HR practitioners, we know that these are critical to departmental and organisational success and therefore the value of impacting on them is considerable.

This research suggests that even well-received training interventions do require reinforcement if the beneficial learning is to be integrated into individual and team working practices. It also shows that by developing thinking performers, real long-term tangible benefits can be realised at both the operational and strategic levels within teams and organisations.

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Table 1: Internal Reliability Data

sample size: 142 general working population

Sensory Focus	
Visual	0.86
Auditory	0.68
Kinaesthetic	0.78
Digital	0.73
People Focus	
Internal	0.68
External	0.64
Self	0.73
Others	0.90
Match	0.66
Mismatch	0.72
Collaborative	0.89
Competitive	0.60
Task Focus	
Detail Conscious	0.85
Big Chunk	0.82
Left Brain	0.65
Right Brain	0.71
Procedural	0.88
Options	0.76

Table 2: Test – Retest Reliability Data

over 3-6 month period

Sensory Focus	
Visual	.71
Auditory	.69
Kinaesthetic	.63
Digital	.74
People Focus	
Internal	.72
External	.72
Self	.68
Others	.59
Match	.62
Mismatch	.72
Collaborative	.71
Competitive	.69
Task Focus	
Detail Conscious	.62
Big Chunk	.66
Left Brain	.69
Right Brain	.73
Procedural	.65
Options	.54

Move Away From	0.73
Move Towards	0.80
Reactive	0.68
Proactive	0.76
Sameness	0.73
Difference	0.66
Simplicity	0.62
Complexity	0.95

Move Away From	.57
Move Towards	.57
Reactive	.58
Proactive	.65
Sameness	.73
Difference	.60
Simplicity	.59
Complexity	.63

Appendix 2: Summary explanations for each of the cognitive styles:

Sensory focused dimensions exploring sensory representational systems:

Visual thinking: the use of pictures, diagrams and visual imagery internally and externally.

Auditory thinking: a focus on words and language, listening and talking things through.

Kinaesthetic thinking: the use of feelings, emotions, intuition and physical exercise.

Digital thinking: involves a focus on the facts, and/or the use of data and statistics.

People focused dimensions; exploring interactions with people:

Internal thinking: relies on own judgements, believes oneself to be right, ignores feedback.

External thinking: relies on feedback from others, believes that others are right.

Self referenced thinking: puts their own needs first and ignores the needs of other people.

Others referenced thinking: responsive to the needs of others and willing to help other people.

Matching thinking: wants to fit in, dislikes confrontation and takes a non-challenging approach.

Mismatching thinking: dislikes being told what to do, will challenge and confront.

Collaborative thinking: involves others, shares information, prefers a team environment.

Competitive thinking: wants to win and better either the competition or ones' own performance.

Task focused dimensions; exploring approaches to tasks and problem solving:

Detail Conscious thinking: believes details are important and attends to detailed information.

Big Chunk thinking: focuses on general principles and summary information in terms of key points.

Left Brain thinking: thinks systematically and sequentially, ordered, completes one task at a time.

Right Brain thinking: creative, multi-tasks, has an untidy workspace, thinks 'backwards'.

Procedural thinking: procedures are important, follows instructions, learns the 'correct way'.

Options thinking: explores opportunity and possibility, seeks choice and alternatives, adds to work..

Moving Away From thinking: focuses on problems, makes contingency plans, may worry.

Moving Towards thinking: motivated by goals and targets, has a positive 'can do' attitude.

Reactive thinking: waits, reviews all the relevant information and considers consequences.

Proactive thinking: initiates action, gets on with things, proactive approach.

Sameness thinking: seeks stability and the familiar, prefers gradual change, notices similarities.

Differences thinking: notices differences, seeks variety, has a high capacity & tolerance for change.

Simplicity filter: will simplify complex issues, keeps things simple and prefers things to be easy.

Complexity filter: enjoys the challenge of difficulty and is motivated by complex issues.

Appendix 3: Cumulative List, Team Responses on Workshop

1. What have you learned?

- That people have different ways of thinking
- A realisation of how many different styles of thinking there are
- To understand ourselves very much better
- To realise that Self/Others perceptions may be different
- To value people

2. What were the main benefits and value of the workshop for your team?

- Finding out about ourselves and others
- Tolerance
- Realising our team's potential
- Improved communication and an improved environment
- To provide clear instructions to people in their preferred ways of thinking
- That we have the potential to change our working styles for the better

3. What are the implications of Thinking Styles for you and your team?

- A better understanding of members of our team
- Respect and appreciation for other colleagues' "thinking styles"
- Awareness of others and understanding the team better
- Provide more flexibility

4. What would you like to do next?

- Compare our profiles against our managers
- Re-do the questionnaires in the light of what we now know
- Communicate our team values and mission to the IAS
- To communicate vertically and horizontally within the department
- To change our working patterns

Appendix 4: Cumulative List, Individual Comments, 1 Year post-workshop

1. **What have you learned?**

- It has helped me look at how I behave and how other people see my behaviour. I try to understand more of the reasons for people's behaviour.
- It has made me more open in meetings, understanding that people have different styles.
- It complemented my understanding of Learning Styles, helping me understand how people work and respond in different ways.
- That we each have individual ways of thinking, I could do more than I thought which gave me more confidence in my abilities. I hadn't realised that I am both Left and Right Brained; writing lists and juggling different things at home and work, so it gave me more self-awareness.

2. What were the main benefits and value of the workshop for your team?

- It gave us a clear idea of how we worked, and the effect of different styles of communication.
- We found we had a lot in common – it was good for the team.
- It helped us cope with changes in team membership since the workshop.
- The main benefit was being more aware of each person's preferences.
- Our team gelled anyway, but it would be valuable for teams that are not working well together.
- We had been working together for some years, so knew each other well, but for a new team it would be very valuable.
- One of our team members left soon after the workshop and they had been a source of conflict. It did help us understand that.
- As a team, we built on the workshop when we got back, developing our understanding of each other and using each other better.

3. What are the implications of Thinking Styles® for you and your team?

- We learned we had to clarify things and put them in different ways to help people understand.
- It helped us work better together.
- We use Thinking Styles as a building block for our team sessions.

- It told me things about other members of the team and I found the insights into their behaviours helpful. It improved my relationship with one member of the team.
- I now think about my approach to others and think about my impact on them more.

4. What would you like to do next?

- We use it as part of our planning process for team workshops, so we have integrated it into our team working.
- Unfortunately there was no follow on, we would have liked a more personal and focused team based session

5. How has an understanding of Thinking Styles made a difference to your personal and / or professional relationships?

- It has made me more confident.
- Talking with others has made me aware of how I work – your own perception can vary from other peoples – I found that very valuable.
- It has helped me deal with clashes between members of our team, helping me not to personalise issues and to understand the impact of thinking styles on behaviour.
- It was interesting to hear differing opinions on how people would handle different situations depending on their styles – it's helped me understand other perspectives more.
- I know to vary my style of communication.
- I am more aware of my areas of possible weakness and I am developing flexibility.
- This has given me more confidence and validated my ways of being (as I am strongly externally referenced). I am less likely to be buffeted about by other people's opinions and actions.
- I am likely to be patient with those who operate differently.

6. What else would you like to add?

- The workshop has not really been taken advantage of. It would have been useful to integrate the content, preparation and outcomes into a management or departmental development plan.
- A follow up with our own team would have been useful.