

Role of Metacognition and Coping Behaviour in Managing Virtual Teams of the Digital Age: An Exploration of Literature

Shilpa Jain* and Aarushi Singh**

Abstract

The recent pandemic of COVID-19 has changed the functioning and response process of individuals and organisations. The policy and mandatory shutdowns of businesses and industry to curb the virus's impact led to various workplace challenges. Enforcement of Mandatory Work from Home (MWFH) on employees led to the transformation of on-site teams to virtual teams. The formation of virtual teams and MWFH exposed employees to various challenges and stressful work situations. In order to deal with uncertain changes in work, professionals need to cope with these alterations. Therefore, this paper aims to highlight the theoretical linkage between the individual awareness (Metacognition) of their responses to a stressful situation in virtual teams and the importance of adopting an appropriate coping style for regulating behaviour. The above-said linkage is then conceptualized into a conceptual framework through a literature review. The paper then proposes theoretical and practical implications for the stakeholders.

Keywords: Pandemic; COVID-19; Virtual Team, Coping Styles, Metacognition, Work From Home (WFH)

*Assistant Professor, University School of Management Studies, Guru Gobind Singh Indraprastha University, New Delhi (India); shilpajain.usms@gmail.com

**Research Scholar, University School of Management Studies, Guru Gobind Singh Indraprastha University, New Delhi (India); aarushis1996@gmail.com

1. INTRODUCTION

The recent pandemic of Covid-19 has changed the functioning and response process of individuals and organisations. This global health crisis became a threat to individual health as well as the economic health of countries. The policy and mandatory shutdowns of businesses and industry to curb the virus's impact led to various workplace challenges. Many employees were laid off either temporarily or permanently due to businesses and industry's shutdown, especially in manufacturing, as the work could not be conducted remotely (online). According to Bloomberg News (Pickert, 2020), 3.28 million people applied for unemployment insurance in March-end of 2020 in the U.S. alone. The effect of the pandemic has been huge and has led to widespread and long-term challenges.

Among these challenges, there has been a sudden shift in the working style of the workforce at various organisations (Davison, 2020; Richter, 2020). During the pandemic, companies have had to implement new information technology (I.T.) frameworks. In contrast, others have had to reconsider their business model entirely, shifting to online platforms and goods, as well as expanding into new business networks. The pandemic has weakened or removed the status quo. In order to comply with social distancing criteria, several alternative workspaces were introduced (Leidner, 2020; Nguyen et al., 2020; O'Leary, 2020; Papagiannidis, Harris & Morton, 2020).

The COVID-19 pandemic led to the widespread emergence of remote work (Work from home) in organisations. A survey of 229 HR departments by Gartner (2020) revealed approximately one-half of the companies surveyed had more than 80% of employees working from home in the initial COVID pandemic stages. The survey report further estimates a long term increase in numbers after the pandemic.

The concept of WFH is not new to organisations as it has been part of the flexible work policy and has been studied in research previously. However, this sudden shift was not a preferential decision on the part of employees or employers. Instead, this Mandatory Work From Home (MWFH) was forced on employees due to a sudden shutdown in economies. This mandate has developed a few more challenges as it is not the same as remote work,

wherein individuals prefer to work from anywhere and choose it based on personal preference. It is witnessed that remote work can improve employees' productivity who perform complex tasks and require less interaction with colleagues (Allen, Cho & Meier, 2014). However, it is not the same with all types of work profiles. The division of work and nonwork domains is observed as a challenge for employees (Ramarajan & Reid, 2013). Lack of differentiation of work and home impacts the work-life balance and well being of the employees.

This mandatory WFH poses questions about whether the benefits highlighted in previous studies of WFH can be generalised in the MWFH setup.

The second challenge related to the concept of WFH is the emergence of virtual teams. Virtual teams have been prevalent with rapid globalisation and technological communication requirements across geographical boundaries and have become progressively common (Saarinen, 2016). By the mid-1990s, many companies started exporting the team concept with technology, and since then, the concept of virtual teams has gained importance in the area of research. The Coronavirus disease has again escalated the importance of the topic of virtual teams. Moving through the emerging reality of coronavirus and converting teams to 100% virtual in a few days has been a massive transition for companies and their employees. Prior studies in this area have highlighted limitations of virtual teams such as less face to face communication, barriers in communication due to less use of non-verbal cues in communication (Martins, Gilson & Maynard, 2004), conflicts and coordination issues (Mortensen & Hinds, 2001), temporal, cultural and geographical barriers.

These challenges of virtual teams and MWFH have led to the emergence of stress among employees and employers. These stressors can degrade the performance of employees and hamper their productivity. However, the literature highlights individual differences in response to stress (Bolger, 1990). Therefore, it is essential to study the individuals cognitive (Metacognitive

awareness) and behavioural characteristics (coping styles). Regulation and communication in this unique setting of remotely connected teams with the absence of social and emotional cues are essential.

Recent literature has also emphasised the role of metacognition in coping behaviour in acute stress conditions. The importance of individual awareness of their responses to stressful situations or regulation (coping) of behaviour under stress has gained importance since the development of cognitive-behavioural therapy (Meichenbaum, 1985). This study, therefore, aims to organise this linkage between emerging stress in virtual teams and the role of coping and metacognitive awareness.

The paper is categorized into the following sections. Section 1 introduces the current situation of the WFH set-up and the relevance of the role metacognition and coping styles on the team performance; Section 2 outline the objective of the study; Section 3 introduces the theoretical background of the variables explored in the review; Section 4 defines the methodology adopted for the review; Section 5 depicts the literature support for the proposed linkage and the visual conceptual model; the last section concludes the reviews and provides implications of the proposed model for various stakeholders.

2. OBJECTIVES OF THE STUDY

The study aims to explore the following;

1. Highlight the theoretical linkage between the individual awareness (Metacognition) of their responses to a stressful situation in virtual teams and the importance of adopting an appropriate coping style for regulating behaviour.
2. Conceptualising the above said theoretical linkage into a conceptual framework through a literature review.
3. Providing theoretical and practical implications for the proposed model from the view of the stakeholders.

3. LITERATURE REVIEW

3.1 Virtual teams

Virtual teams are defined as teams connected by information technology as a collection of

individuals, dispersed from each other due to geographical boundaries or organisationally, to accomplish their goals (Zigurs, 2003). The teams formed can vary in their virtual levels based on different dimensions' functioning (Foster & et al., 2015).

With the advancement of technology and connectivity, collaborations within individuals and teams (Mayhew, 2020) have increased across the workplace in the 21st century (Nydegger & Nydegger, 2008). As the virtual team's members are co-located in different locations, various computer-mediated tools coordinate these team's functions. These computer-driven technologies help utilise different skills differentiated by time and space (Hacker, Johnson, Saunders & Thayer, 2019). They are essential for advancing any organisation with world expertise, 24/7 productivity and reduced overhead costs (Dulebohn & Hoch, 2017; Saarinen, 2016). However, prior research has also shown some challenges faced by virtual teams in collaboration, leading to increased work-related stress.

In the time of the pandemic, the topic of virtual teams has gained momentum. Employees were mandated to WFH and interact with team members and supervisors in flexible work arrangements with the absence of non-verbal cues. However, there has been an improvement in technology with the availability of video conferencing tools. Nevertheless, video meets cannot wholly overtake the benefits of face to face interaction among team members. Prior studies (Martins, Gilson & Maynard, 2004; Mortensen & Hinds, 2001) have highlighted the problems and conflicts they face in the virtual team setup. According to Social Information processing (SIP) theory, virtual teams require more interaction than face-to-face teams. SIP theory states that individuals can adopt mediums of communication (eg. text-based) and manage to achieve a similar communication level as in on-site located teams (Walther, 2015). Previous research has also shown that online teams appear to be more successful at brainstorming compared to face-to-face teams (e.g., DeRosa, Smith & Hantula, 2007). On the other hand, individual performance research has shown that regularly engaging teammates tend to lose out on the resourceful and creative

advantages of regular face-to-face interactions (Allen, Golden & Shockley, 2015).

There have been concerns that COVID-19's increased team virtuality can affect helping and pro-social actions as well. The physical distance between colleagues may reduce helping behaviours. Due to less interaction, individuals might find it awkward, embarrassing or uncomfortable in reaching out to colleagues for help (e.g., Bohns & Flynn, 2010). This psychological barrier could develop stress amongst employees and might hamper their productivity and performance. However, evidence from prior research has shown that distancing may reduce helping behaviour in the short term, but the same behaviour will not persist for long. Studies have shown that individuals request help from others boldly and receive better help than is usually presumed (Newark, Bohns & Flynn, 2017). This behaviour has been observed primarily in times of crisis. The fear of being uncomfortable, awkward, or embarrassing when seeking support is normal (e.g., Bohns & Flynn, 2010). The "best practises" in virtual helping can help seekers resolve these psychological barriers by preserving personal privacy (Cleavenger & Munyon, 2015), minimising stigmatisation (Ben-Porath, 2002), and instilling confidence that things will get better.

Another challenge faced due to mandate WFH and the formation of virtual teams are identified as differentiation between work and nonwork boundaries (Ramarajan & Reid, 2013). The vast number of employees are forced to work from home and may face difficulties due to fundamental issues such as a shortage of room in their home to attend to work. For example, employees who live with others (joint families) also face a more extensive set of challenges than those who live alone (or in nuclear families) because they also need to navigate others' space during work hours. Therefore, WFH can be considered appealing to employees only if there is a separation between work and home .i.e. transition between the two domains. Lack of separation between the domains can act as a burden on employees physically and mentally. This absence of differentiation between working and non-working hours can lead to frustration, anxiety, stress, and further leading to employee emotional breakdown. These stressors further hamper the productivity and performance of the employee.

These mixed views related to on-site and virtual teams' working allow developing interventions to improve teamwork in a virtual set-up.

3.2 Coping styles

The coping responses and styles of workers are another significant factor during an organisational change process. Coping refers to using thoughts and actions to handle stressful circumstances internal and external to the business (Folkman & Moskowitz, 2004, p. 745). While coping mechanisms have been formulated differently, one of the most widely used is the dichotomous classification of problem-focused and emotional-focused approaches by Bain, McGroarty & Runcie, (2015). Folkman & Lazarus, (1984) classify stress management as problem-solving or emotion-regulating. Another way of coping proposed by Skinner, Edge, Altman & Sherwood, (2003); Solberg Nes & Segerstrom (2006) is the avoidance approach of coping. This is further classified as engaged coping aimed at reducing, eliminating or managing the problem and disengaged coping, the goal of which is to avoid the problem and its emotional consequences.

Problem-focused coping aims at controlling the stressor, .ie. the situation creating stress. Herein, the individual tends to analyse the situation and aims at controlling the problem by implementing a plan to deal with it (Leiter, 1991). Therefore, evidence indicates that adverse effects of stressful situations can be reduced through problem-focused coping on health and performance, especially when the circumstances are controllable (e.g. Beasley, Thompson & Davidson, 2003; Gilbar, Ben-Zur & Lubin, 2010). Emotional focused coping aims at controlling emotional distress resulting from the stressor. This coping style is adopted by individuals when the situation is uncontrollable (Semmer, 2003). Evidence has indicated mixed findings for improvement or decrement of performance in individuals in the case of emotional coping.

In contrast to the above two mentioned coping styles avoidance coping style escapes the coping approach rather than tackling the problem or emotion. Previous research in psychology indicates that emotional and avoidance coping can only offer temporary relief from confronting the

traumatic situation but not solve the issue entirely (Bigatti, Steiner & Miller, 2012). Consequently, control (Problem-focused) coping is often linked to positive employee outcomes, while escape (Emotional and avoidance-focused) coping tends to be linked to negative work-related outcomes (Srivastava & Tang, 2015).

Individuals' coping mechanisms and methods vary based on whether they feel they can improve the situation by their efforts or not (Folkman & Lazarus, 1984; Folkman et al., 1991; Zellars, Liu, Bratton, Brymer & Perrew, 2004). The availability of organisational resources in the job field tends to shape the expectations of certainty and control of employees concerning a difficult work situation, thereby allowing employees to evaluate the use or choice of specific coping strategies (Holton, Barry & Chaney, 2016). Therefore, the coping approach is an outcome of the availability of coping resources (Holton, Barry & Chaney, 2016). When workers experience positive emotions (such as hope, joy, support etc.) linked to changes at work, scholars propose that they prefer to cope actively (control strategy) in the light of organisational change (Fugate, Kinicki & Prussia, 2008). Such situations are considered a challenge by the employee (Fugate et al., 2008). A sense of belonging, support, and inclusion from the supervisor and organisation also encourages using a control strategy while coping with situations (Lawrence & Callan, 2011). However, in the absence of these positive emotions, employees experience threats from stressful situations (Jordan et al., 2002).

Despite the importance of coping styles, there is scarce literature regarding developing coping styles among employees. Prior research focused on academic coping strategies and styles adopted by children to regulate emotions and behaviours (Skinner & Zimmer-Gembeck, 2007). Some literature has contributed to investigative coping style development in acute stress situations among military and police professionals (Ippolito, Adler, Thomas, Brett & Hölzl, 2005; Luria & Torjman, 2009).

Therefore, it is crucial to investigate the role of coping styles in the workplace, especially among newly formed virtual teams at times of uncertainty.

3.3 Metacognition

Metacognition is the understanding of one's cognitive processes and the capacity to consciously monitor and regulate these processes (Schraw, 1998; Favell, 1979). The term metacognition is used today to refer to all aspects of a person's thought processes and knowledge schema (Leader, 2008), implying the inclusion of both cognitive and psychological phenomena in metacognition. Today, the term metacognition refers to all aspects of an individual's thinking processes and his information schema (Leader, 2008). Social psychologists assert that metacognitive processes are all-pervasive in personal and interpersonal life, although they haven't been recognised (Jost, Kruglanski & Nelson, 1998). Martinez (2006) believes that metacognition entails regulating the affective states of individuals. Furthermore, help people persist and remain motivated in problem-solving situations.

Metacognitive ability is traditionally defined to have two components, i.e., Metacognitive Knowledge (Awareness) and Metacognitive Regulation (Skill). The presence of metacognitive ability in individuals enables them to engage in self-monitoring and regulation of their cognitive processes. Metacognitive awareness or knowledge of an individual accounts for their individual beliefs (Flavell, 1979) and thoughts to judge individuals or tasks performed (Eklides, 2008).

However, individuals might face biases of inaccurate estimation of their knowledge and may underestimate or overestimate their competencies (Veenman, Van Hout-Wolters & Afflerbach, 2006). The ability to be metacognitively conscious of one's success without underestimating or overestimating one ability is thought to be a reasonably stable personality trait. That can be quantified and strengthened through preparation and development (Knox, Lugo, Jsok Helkala & Sütterlin, 2017).

Literature has linked metacognition to intellectual skills (Veenman, Kok & Blote, 2005), problem-solving (Gardner, 1991; Karmiloff & Smith, 1992; Lee & Teo, 2011); self-efficacy (Ghonsooly,

Khajavy & Mahjoobi, 2014; Pellas, 2014); confidence (Kleitman & Stankov, 2007) and motivation (Sungur & Senler, 2009). Studies have also emphasised the role of metacognition in decision making Greene (2003) and evaluation of alternatives to achieve a task.

Metacognition has been considered a motivator for the effective performance of teams. A study by Dierdorff & Ellington (2012) showed the role played by metacognition across teams. The results indicated effective and quality decision making among teams with greater metacognitive ability. These members also showed better cooperation. Similar results were observed in teams of nursing students attending online classes.

Studies have indicated that metacognitively constrained individuals engage less in alternative strategies and are less adaptable in uncertain situations (Batha & Carroll, 2007). Studies have linked metacognitive capacity to workplace self-managed learning. It has been related to many workplace activities, such as creativity (Kim & Lee, 2018), teamwork (Brinol & Marree, 2012) and transfer of learning (Davis & Arend, 2013). Horowitz et. al (2019) found the members of better performing foreign policy teams employed metacognition and therefore have better awareness regarding their team. Employees' metacognitive knowledge and abilities are therefore becoming an increasingly important asset at work (Braun, 2004).

4. RESEARCH METHODOLOGY

This narrative review aims to conceptualise the current state of research by addressing the linkage between metacognitive awareness, coping styles on team performance in a virtual team setup based on the methodology adopted by Neumann (2017). The review first focuses on the sudden change in the working of teams due to the COVID pandemic and its effect on the performance of teams. Second, the review explores the role of metacognition on the performance of teams in such a setup. Third, the paper investigates the role of coping styles in dealing with the mandate WFH and its impact on the performance of the teams. At last, this linkage is formulated into an integrated conceptual framework based on the literature evidence. Figure 1 depicts the stages adopted by the authors to conduct the review.

A selective, qualitative methodology was adopted for the review because of scarce literature evidence available in this domain. Metacognition is an emerging topic in the management field therefore, the below depicted four-phase analysis was adopted to identify the relevant literature. A search query with the following BOOLEAN criteria was conducted on the google scholar and WoS databases. The criteria included the following keywords; metacognition, metacognitive ability, virtual teams, coping styles, performance, team performance and virtual work.

Boolean Criteria:

Metacognition AND Performance;
Metacognition AND Team Performance;
Metacognition AND Coping patterns; Coping styles AND Performance; Coping Styles AND Team Performance; Virtual team AND Performance

The search BOOLEAN query resulted in a total of 205 entries from the databases. These articles were from the field of *Applied Psychology; Management, Psychology; Multidisciplinary Economics, Behavioural Sciences; Business; Business Finance; Psychology Applied; Industrial Relation and Labor Psychology*. These result entries were then scanned in the second phase of the review. The abstract and full-text of the papers were reviewed as per the objective of the review.

The following Inclusion and Exclusion criteria were used to analyse and select the study. The papers reviewed were required to meet one of the below-stated inclusion criteria.

Inclusion Criteria:

- 1 Authors included the study which used the term Metacognition; Coping styles; Virtual teams in their title, abstract and keywords.
- 2 The studies explored the term metacognition and coping styles in the context of teams.
3. Studies in Journals of Applied Psychology; Management, Psychology; Multidisciplinary Economics, Behavioural Sciences; Business; Business Finance; Psychology Applied;

Industrial Relation and Labor Psychology.

Exclusion Criteria:

1. Studies that used the term Metacognition; Coping styles; Virtual teams in their title, abstract and keywords, but didn't address the construct specifically.
2. Research studies written in a language other than English
3. Studies did not explore the linkages expected as per the objectives of the study.

The selected 15 papers were then categorized further as per the linkages highlighted in the objectives of the study.

- WFH & Team Performance
- Metacognition and Team Performance
- Coping Styles and Team Performance

Figure 1. Selection Process

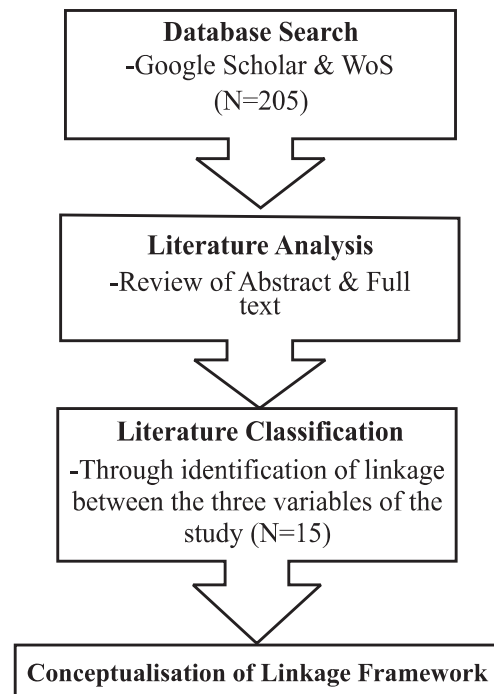
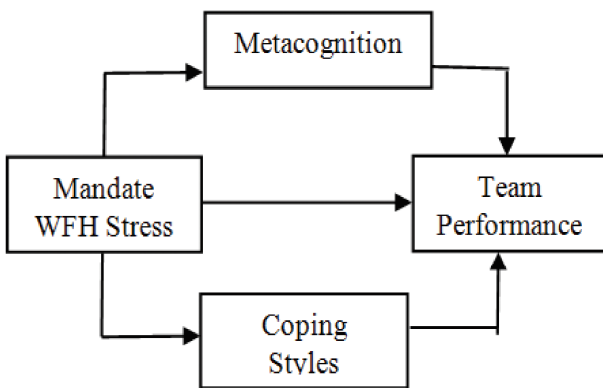


Table 1. Key features of studies selected after review

Work-from-home and Team Performance			
S.No.	Authors (year)	Linkage Study	Findings
1.	Waizenegger et al. (2020)	Forced WFH and team collaboration goals	Affordances result in a positive and negative impact on team collaboration.
2.	Nguyen (2020)	Technology use and working from home	Technologies open many new solutions and directions to deal with problems in WFH.
3.	Kniffin et al. (2020)	Virtual setup and workspace	Focuses on the emergent changes in the work practices and workers. Provides implications for work, workers and organisations.
4.	Hacker (2019)	Virtual teams and trust	Suggests how trust develops differently across different virtual teams.
Metacognition & Team Performance			
1.	Horowitz et al. (2019)	Metacognitive Ability and Team Performance	The positive impact of metacognitive ability on foreign policy team performance.
2.	Sevimli (2018)	Metacognitive Ability and Team Performance	Positive correlation between metacognition and team performance of volleyball team members.

3.	Hamilton et al. (2017)	Metacognitive Experiences and Team Performance	Results indicated that while actual situation awareness enhances task performance, awareness in relation to judgments or feelings of other team members impedes performance.
4.	Nonose, Kanno & Furuta (2014)	Metacognitive Ability and Team Performance	A positive relation between metacognitive ability and team performance in a simulation task performed by students in teams.
5.	Kwon, Hong & Laffey (2013)	Metacognitive Ability and Team Productivity	Improvement in team productivity while learning in teams.
6.	Crotty & Brett (2012)	Metacognitive Ability and Creativity in Teams	A positive relation between metacognition and creativity amongst cross-cultural teams
7.	Lee & Minhee (2012)	Metacognitive Ability and Team effectiveness	A positive relationship between metacognitive ability and team effectiveness among nursing graduates.
Coping Styles and Team Performance			
1.	Li et al. (2021)	Transparent communication, coping styles and organizational change.	Transparent internal communication encourage problem-focused coping style to reduce uncertainty and change organisation
2.	Delahajj & Van-Dam (2017)	Coping styles and coping behaviour	Coping styles are directly related to coping behaviour in a stressful situation.
3.	Delahajj & Van-Dam (2016)	Goal-orientation and coping system	Individuals with learning goal-orientation developed more effective coping styles.
4.	Delahajj & Van-Dam (2011)	Coping styles, coping behaviour and performance in stress.	Coping styles are found to be predictors of performance in times of stress. This linkage is mediated by coping behaviour.

Figure 2. Conceptual linkage model



Literature Classification:

Research in the educational field has highlighted the relevance of metacognitive ability among students and learning outcomes (Pintrich, 2000). Studies have highlighted individuals' better engagement in alternate strategies, collaborations, self-managed learning, innovation and effective decision making with high metacognitive abilities (Batha & Carroll, 2007; Kim & Lee, 2018 and Brinol & Marree, 2012). These traits are essential in the workplace among employees. Recent research in specialised teams (military, firefighters) has shown a positive relationship between metacognitive awareness and performance (Frye & Wearing, 2016; Entin & Entin, 2000). A positive relation is also observed in recent studies investigating the relationship between metacognition and employee performance at the workplace in various managerial processes (Cho & Linderman, 2019; Yoo, Choo & Lee, 2018; Lok et al. 2016).

Some military profession studies have recently highlighted the linkage between an individual's awareness of stress responses and coping strategies for regulating stress (Delahajj et al. 2011; Delahajj & van Dam, 2016). The study results highlight how metacognitive awareness about stress and coping contributes to developing and adopting effective coping styles.

This emerging stress in newly formed virtual teams and the regulation strategies adopted by employees need to be acknowledged for employees' compelling performance. It is essential to identify whether the

literature supports individuals' coping styles in controllable (problem-focused coping) and uncontrollable circumstances (emotion and avoidance-focused coping) in the case of virtual teams. It will be empirically interesting to find the role of individual metacognitive awareness on stress responses and further on virtual team performance.

5. CONCLUSION AND DISCUSSION

Therefore, this paper provides a theoretical overview for researchers to establish a relationship among the above-stated linkages empirically. It is evident that the pandemic has led to various changes in employees' fundamental working styles in co-located settings. This setup might exist for a long because of cost-savings concerning office space and health risk, which persists even after the pandemic ends (Pejtersen et al., 2011). Therefore, it is vital to develop and learn to work in this restructured format. As the literature findings suggest the positive role of metacognitive ability among teams, managers need to provide training to employees to build their metacognitive ability, which will improve individual and team performance. A study by Hamilton, Mancuso, Mohammed, Tesler & Mcneese (2017) supported the enhancement of team performance for individuals aware of their judgements and feelings.

Acute events often help recognise and understand important dynamics that might not be visible in normal circumstances (Kniffi et al., 2021).

6. IMPLICATIONS AND FUTURE DIRECTIONS

The findings of the review highlight the importance of metacognition and coping styles in improving performance in times of stress and uncertainty. The metacognitive awareness of stress can help workers and managers cope with stress along with the use of coping styles in a virtual team setup. Metacognitive experiences and training techniques can also be used to enhance active learning and error management skills among professionals to cope with the changes in the working environment (Bell & Kozlowski, 2008; Keith & Frese, 2005). Team reflexivity is

also considered important for sharing observations about the aims of teams, strategies and future action plans. Metacognition in teams can therefore be developed via team reflexivity (West, 2000). Therefore, improving metacognitive ability and the use of problem-focused coping styles will enhance individual and team performance. Managers should, therefore, incorporate training modules to enhance individuals cognitive and behavioural characteristics.

This theoretical outline linking virtual teams, coping styles, and metacognitive awareness of stress can help employees and managers at the workplace cope with the challenges faced in the virtual team set-up. Further empirical advancement would help training & development teams support and develop coping styles among employees in uncertain and stressful situations.

7. REFERENCES

- Allen, T. D., Cho, E., & Meier, L. L. (2014). Work–family boundary dynamics. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 99–121. <http://dx.doi.org/10.1146/annurev-orgpsych-031413-091330>
- Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest*, 16(2), 40–68.
- Bain, S. A., McGroarty, A., & Runcie, M. (2015). Coping strategies, self-esteem and levels of interrogative suggestibility. *Personality and Individual Differences*, 75, 85–89.
- Batha, K., & Carroll, M. (2007). Metacognitive training aids decision making. *Australian Journal of Psychology*, 59(2), 64–69.
- Beasley, M., Thompson, T., & Davidson, J. (2003). Resilience in response to life stress: The effect of coping style and cognitive hardiness. *Personality and Individual Differences*, 34, 77–95.
- Ben-Porath, D. D. (2002). Stigmatization of individuals who receive psychotherapy: An interaction between help-seeking behavior and the presence of depression. *Journal of Social and Clinical Psychology*, 21, 400–413. <http://dx.doi.org/10.1521/jscp.21.4.400.22594>
- Bigatti, S. M., Steiner, J. L., & Miller, K. D. (2012). Cognitive appraisals, coping and depressive symptoms in breast cancer patients. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 28(5), 355–361.
- Bohns, V., & Flynn, F. (2010). “Why didn’t you ask?” Overestimating the willingness to seek help and underestimating discomfort in help-seeking. *Journal of Experimental Social Psychology*, 46, 402–409. <http://dx.doi.org/10.1016/j.jesp.2009.12.015>
- Bolger, N. (1990). Coping as a personality process. A prospective study. *Journal of Personality and Social Psychology*, 59, 525–537.
- Braun, N.M. (2004), ‘Critical thinking in the business curriculum’, *Journal of Education for Business*, Vol 79, No 4, pp 232–236.
- Briñol, P., & DeMarree, K. (2012). Social metacognition. *Psychology Press*.
- Cartwright, K. (2012). Insights from cognitive neuroscience: The importance of executive function for early reading development and education. *Early Education and Development*, 23, 24–36.
- Cho, Y. S., & Linderman, K. (2019). Metacognition-based process improvement practices. *International Journal of Production Economics*, 211, 132–144.
- Cleavenger, D. J., & Munyon, T. P. (2015). Overcoming the help-seeker’s dilemma: How computer-mediated systems encourage employee help-seeking initiation. *Organisation Studies*, 36(2), 221–240.
- Davis, J. R., & Arend, B. D. (2013). Facilitating seven ways of learning. *Sterling, VA: Stylus*
- Davison, R. M. (2020). The transformative potential of disruptions: A viewpoint. *International Journal of Information Management*. <https://doi.org/10.1016/j.ijinfomgt.2020.102149> p. 102149.
- Delahaij, R., & van Dam, K. (2016). Coping style development: The role of learning goal orientation and metacognitive awareness. *Personality and Individual Differences*, 92, 57–62.
- Delahaij, R., Van Dam, K., Gaillard, A.W.K., & Soeters, J. (2011). Predicting coping under acute stress: The role of person characteristics. *International Journal of Stress Management*, 18, 49–66

- DeRosa, D. M., Smith, C. L., & Hantula, D. A. (2007). The medium matters: Mining the long-promised merit of group interaction in creative idea generation tasks in a meta-analysis of the electronic group brain-storming literature. *Computers in Human Behavior*, 23, 1549–1581. <http://dx.doi.org/10.1016/j.chb.2005.07.003>
- Dierdorff, E. C., & Ellington, J. K. (2012). Members matter in team training: Multilevel and longitudinal relationships between goal orientation, self regulation, and team outcomes. *Personnel Psychology*, 65(3), 661-703
- Dulebohn, J. H., & Hoch, J. E. (2017). Virtual teams in organisations. *Human Resource Management Review*, 27, 569–574.
- Efklides, A. (2008). Metacognition: Defining its facets and levels of functioning in relation to self-regulation and co-regulation. *European Psychologist*, 13(4), 277-287. doi:10.1027/1016-9040.13.4.277
- Entin, E. B., Entin, E. E., & Serfaty, D. (2000). Organisational structure and adaptation in the joint command and control domain. TR-915, Burlington, MA: ALPHATECH.
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 34(10), 906-911.
- Folkman, S., & Lazarus, R. S. (1984). Stress, appraisal, and coping (pp. 150–153). *New York: Springer Publishing Company*.
- Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55, 745–774.
- Folkman, S., Chesney, M., McKusick, L., Ironson, G., Johnson, D. S., & Coates, T. J. (1991). Translating coping theory into an intervention. The social context of coping (pp. 239–260). *Boston, MA: Springer*.
- Foster, M. K., Abbey, A., Callow, M. A., Zu, X., & Wilbon, A. D. (2015). Rethinking virtuality and its impact on teams. *Small Group Research*, 46, 267–299. <http://dx.doi.org/10.1177/1046496415573795>
- Frye, L. M., & Wearing, A. J. (2016). A model of metacognition for bushfire fighters. *Cognition, Technology & Work*, 18(3), 613-619.
- Fugate, M., Kinicki, A. J., & Prussia, G. E. (2008). Employee coping with organisational change: An examination of alternative theoretical perspectives and models. *Personnel Psychology*, 61(1), 1–36.
- Gardner, H. (1991). The unschooled mind: How children think and how schools should teach. *New York: Basic*.
- Gartner. (2020). Gartner HR survey reveals 41% of employees likely to work remotely at least some of the time post coronavirus pandemic. *Newsroom*. Retrieved from <https://www.gartner.com/en/newsroom/press-releases/2020-04-14-gartner-hr-survey-reveals-41-of-employees-likely-to->
- Ghonsooly et al. (2014) Self-efficacy and Metacognition as Predictors of Iranian Teacher Trainees' Academic Performance: A Path Analysis Approach. *Procedia - Social and Behavioral Sciences* 98 (2014) 590–598
- Gilbar, O., Ben-Zur, H., & Lubin, G. (2010). Coping, mastery, stress appraisal, mental preparation, and unit cohesion predicting distress and performance: A longitudinal study of soldiers undertaking evacuation tasks. *Anxiety Stress Coping*, 23, 547–562.
- Greene, J.O. (2003). Models of adult communication skill acquisition: Practice and the course of performance improvement. In J.O. Greene & B.R. Burleson (Eds.), *Handbook of Communication and Social Interaction Skills* (pp. 51-91). Mahwah, NJ: Lawrence Erlbaum.
- Hacker, J. V., Johnson, M., Saunders, C., & Thayer, A. L. (2019). Trust in virtual teams: A multidisciplinary review and integration. *Australasian Journal of Information Systems*, 23.
- Hacker, J., Johnson, M., Saunders, C., & Thayer, A. (2019). Trust in Virtual Teams: A Multidisciplinary Review and Integration.
- Hamilton, K., Mancuso, V., Mohammed, S., Tesler, R., & McNeese, M. (2017). Skilled and unaware: The interactive effects of team cognition, team metacognition, and task confidence on team performance. *Journal of Cognitive Engineering and Decision Making*, 11(4), 382-395.
- Holton, M. K., Barry, A. E., & Chaney, J. D.

- (2016). Employee stress management: An examination of adaptive and maladaptive coping strategies on employee health. *Work*, 53(2), 299–305.
- Ippolito, J., Adler, A.B., Thomas, J.L., Brett, L., & Hölzl, R. (2005). Extending and applying the demand-control model: The role of soldier's coping on a peacekeeping deployment. *Journal of Occupational Health Psychology*, 10, 452–464
- Jordan, P. J., Ashkanasy, N. M., & Hartel, C. E. J. (2002). Emotional intelligence as a moderator of emotional and behavioral reactions to job insecurity. *Academy of Management Review*, 27, 361–372.
- Jost JT, Kruglanski AW, Nelson TO. 1998. Social metacognition: an expansionist review. *Personality and Social Psychology Review* 2(2): 137–154.
- Karmiloff-Smith, A. (1992). *Beyond Modularity: A Developmental Perspective on Cognitive Science*, Cambridge, MA: MIT Press.
- Kim, D., & Lee, D. (2018). Impacts of metacognition on innovative behaviors: Focus on the mediating effects of entrepreneurship. *Journal of Open Innovation: Technology, Market, and Complexity*, 4(2), 18.
- Kleitman, S., & Stankov, L. (2007). Self-confidence and metacognitive processes. *Learning and Individual Differences*, 17(2), 161–173.
- Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., ... & Vugt, M. V. (2021). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American Psychologist*, 76(1), 63.
- Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., ... & Vugt, M. V. (2021). COVID-19 and the workplace: Implications, issues, and insights for future research and action. *American Psychologist*, 76(1), 63.
- Knox, B. J., Lugo, R. G., Jøsok, Ø., Helkala, K., & Sütterlin, S. (2017, July). Towards a cognitive agility index: the role of metacognition in human computer interaction. In *International Conference on Human-Computer Interaction*, 330–338. Springer, Cham.
- Lawrence, S. A., & Callan, V. J. (2011). The role of social support in coping during the anticipatory stage of organisational change: A test of an integrative model. *British Journal of Management*, 22(4), 567–585.
- Leader, W. S. (2008). *Metacognition among Students Identified as Gifted or Nongifted Using the Discover Assessment*. Unpublished Doctoral Dissertation. Tucson, AZ: Graduate College of the University of Arizona.
- Lee, C. B., & Teo, T. (2011). Shifting pre-service teachers' metacognition through problem solving. *The Asia-Pacific Education Researcher*, 20(3), 583–590.
- Leidner, D. E. (2020). Editorial reflections: Lockdowns, slow downs, and some introductions. *Journal of the Association for Information Systems*, 21(2), 10. <https://doi.org/10.17705/1jais.00600>.
- Leiter, M. P. (1991). Coping patterns as predictors of burnout: The function of control and escapist coping patterns. *Journal of Organizational Behavior*, 12(2), 123–144.
- Li, J. Y., Sun, R., Tao, W., & Lee, Y. (2021). Employee coping with organizational change in the face of a pandemic: The role of transparent internal communication. *Public Relations Review*, 47(1), 101984.
- Luria, G., & Torjman, A. (2009). Resources and coping with stressful events. *Journal of Organizational Behavior*, 30, 685–707.
- Martinez, M. E. (2006). What is metacognition? *Phi Delta Kappan*, 87(9), 696–699.
- Martins, L. L., Gilson, L. L., & Maynard, M. T. (2004). Virtual teams: What do we know and where do we go from here? *Journal of Management*, 30, 805–835. <http://dx.doi.org/10.1016/j.jm.2004.05.002>
- Mayhew, R. (2020). Chron. Retrieved from *Workplace Trends in the 21st Century*: <https://smallbusiness.chron.com/workplace-trends-21st-century-1105.html>
- Meichenbaum, D. (1985). *Stress inoculation training*. New York: Pergamum.
- Mortensen, M., & Hinds, P. J. (2001). Conflict and shared identity in geographically distributed teams. *International Journal of Conflict Management*, 12, 212–238. <http://dx.doi.org/10.1108/eb022856>
- Neumann, F. (2017). Antecedents and effects of emotions in strategic decision-making: a literature

- review and conceptual model. *Management Review Quarterly*, 67(3), 175-200.
- Newark, D., Bohns, V., & Flynn, F. (2017). A helping hand is hard at work: Underestimating help quality. *Organisational Behavior and Human Decision Processes*, 139, 223–226. <http://dx.doi.org/10.1016/j.obhdp.2017.01.001>
- Nguyen, C. T., Saputra, Y. M., Van Huynh, N., Nguyen, N. T., Khoa, T. V., Tuan, B. M., Nguyen, D. N., Hoang, D. T., Vu, T. X., Dutkiewicz, E., & Chatzinotas, S. (2020). Enabling and emerging technologies for social distancing: A comprehensive survey. *IEEE Access* arXiv preprint arXiv:2005.02816.
- Nguyen, C. T., Saputra, Y. M., Van Huynh, N., Nguyen, N. T., Khoa, T. V., Tuan, B. M., ... & Ottersten, B. (2020). A comprehensive survey of enabling and emerging technologies for social distancing—Part I: Fundamentals and enabling technologies. *IEEE Access*, 8, 153479-153507.
- Nydegger, R., & Nydegger, L. (2008). Challenges In Managing Virtual Teams.
- O’Leary, D. E. (2020). Evolving information systems and technology research issues for COVID-19 and other pandemics. *Journal of Organizational Computing and Electronic Commerce*, 1–8. <https://doi.org/10.1080/10919392.2020.1755790>
- Papagiannidis, S., Harris, J., & Morton, D. (2020). WHO led the digital transformation of your company? A reflection of I.T. related challenges during the pandemic. *International Journal of Information Management*. <https://doi.org/10.1016/j.ijinfomgt.2020.102166>.
- Pejtersen, J. H., Feveile, H., Christensen, K. B., & Burr, H. (2011). Sickness absence associated with shared and open-plan offices—A national cross sectional questionnaire survey. *Scandinavian Journal of Work, Environment & Health*, 37, 376–382. <http://dx.doi.org/10.5271/sjweh.3167>
- Pellas, N. (2014). The influence of computer self-efficacy, metacognitive self-regulation and self-esteem on student engagement in online learning programs: Evidence from the virtual world of Second Life. *Computers in Human Behavior*, 35, 157-170.
- Pickert, R. (2020). U.S. Jobless Claims Jump to 3.28 Million, Quadruple Prior Record. Accessed 26 March 2020. <https://www.bloomberg.com/news/articles/2020-03-26/u-s-jobless-claims-surged-to-record-3-28-million-last-week>
- Pintrich, P. R., Wolters, C. A., & Baxter, G. P. (2000). Assessing metacognition and self-regulated learning.
- Ramarajan, L., & Reid, E. (2013). Shattering the myth of separate worlds: Negotiating nonwork identities at work. *Academy of Management Review*, 38, 621–644. <http://dx.doi.org/10.5465/amr.2011.0314>
- Ramarajan, L., & Reid, E. (2013). Shattering the myth of separate worlds: Negotiating nonwork identities at work. *Academy of Management Review*, 38, 621–644. <http://dx.doi.org/10.5465/amr.2011.0314>
- Rhodes, J., Lok, P., & Sadeghinejad, Z. (2016). The Impact Of Metacognitive Knowledge And Experience On Top Management Team Diversity And Small To Medium Enterprises Performance. *World Acad. Sci. Eng. Technol. Int. J. Soc. Behav. Educ. Econ. Bus. Ind. Eng*, 10, 2842-2846.
- Richter, A. (2020). Locked-down digital work. *International Journal of Information Management*. <https://doi.org/10.1016/j.ijinfomgt.2020.102157> p. 102157.
- Saarinen, J. (2016). Managing global virtual teams (Doctoral Dissertations). *Aalto University publication series, Department of Management Studies*.
- Schraw, G. (1998). Promoting general metacognitive awareness. *Instructional Science*, 26(1-2), 113-125.
- Semmer, N.K. (2003). Individual differences, work stress and health. In M.J. Schabracq, C.L. Cooper, & J.A.M. Winnubst (Eds.), *The handbook of work and health psychology*, 83–120. Chichester, UK: Wiley.
- Skinner, E. A., & Zimmer-Gembeck, M. J. (2007). The development of coping. *Annual Review of Psychology*, 58, 119–144. doi:10.1146/annurev.psych.58.110405.085705
- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for

- classifying ways of coping. *Psychological Bulletin*, 129, 216–269.
- Solberg Nes, L., & Segerstrom, S. C. (2006). Dispositional optimism and coping: A meta-analytic review. *Personality and Social Psychology Review*, 10, 235–251.
- Srivastava, R., & Tang, T. L. P. (2015). Coping intelligence: Coping strategies and organisational commitment among boundary spanning employees. *Journal of Business Ethics*, 130(3), 525–542.
- Sungur, S. & Senler, B. (2009). An analysis of Turkish high school students' metacognition and motivation. *Educational Research and Evaluation*, 15(1), 45-62.
- Veenman, M. V. J., Kok, R., & Blöte, A. W. (2005). The relationship between intellectual and meta-cognitive skills in early adolescence. *Instructional Science*, 33, 193–211. doi: 10.1007/s11251-004-2274-8.
- Veenman, M. V. J., van Hout-Wolters, B. H. A. M., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition and learning*, 1(1), 3–14.
- Waizenegger, L., McKenna, B., Cai, W., & Bendz, T. (2020). An affordance perspective of team collaboration and enforced working from home during COVID-19. *European Journal of Information Systems*, 29(4), 429-442.
- Walther, J. B. (2015). Social information processing theory (CMC). In C. R. Berger & M. E. Roloff (Eds), *The International Encyclopedia of interpersonal communication* (pp. 1–13). New York, NY: Wiley. <http://dx.doi.org/10.1002/9781118540190.wbeic192>
- Yoo, W. J., Choo, H. H., & Lee, S. J. (2018). A Study on the sustainable growth of SMEs: The mediating role of organisational metacognition. *Sustainability*, 10(8), 2829.
- Zellars, K. L., Liu, Y., Bratton, V., Brymer, R., & Perrew'e, P. L. (2004). An examination of the dysfunctional consequences of organisational injustice and escapist coping. *Journal of Managerial Issues*, 528–544.
- Zigurs, I. (2003) Leadership in virtual teams: oxymoron or opportunity?. *Organizational Dynamics*, 31, 339-51.