HARNESSING VIRTUAL TEAM PERFORMANCE BY MANAGING CONFLICT

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ABSTRACT

This paper reports on a qualitative case study on conflict management in virtual ten the software industry of South Africa. Virtual teams are common in the software industry, a main contributor to wealth creation. Failure is common, with conflict cited as a contributing factor. A purposive sample was selected, while data were collected through an electronic questionnaire and analyzed by means of content analysis. Empirical evidence suggested that conflict, with positive and negative consequences was managed within the team, preventing disharmony and supporting constructive disagreements between members; thus, facilitating team performance and competitiveness This study contributes to the emerging body of knowledge on the effective functioning of virtual teams

Keywords: Virtual team effectiveness/performance; conflict management; flexible work practices; competitive advantage

INTRODUCTION

The ever-changing environment in which firms operate heightens competition, while threating the sustainability of firms. It is especially the pace of technological change and globalisation that intensifies competition (Liu, Magjuka & Lee, 2008). Of these changes technological development, specifically related to information communication technology (ICT), is the most important factor driving change (Hitchcock, 2012). Thus, to remain relevant, firms over the world are obliged to embrace ICT as a mode of participating in the global economy. Only firms which are able to successfully utilise ICT, as a means to shape competitive advantage, will secure their future by outwitting the competition in a globalised landscape. The development of new ICT enables flexible working practices of which the virtual team is an example (Brunelle, 2013; Ebrahim, Ahmed and Taha, 2009, McWhorter, 2010). Virtual teams are growing in popularity (Au & Marks, 2012; Bergiel, Bergiel & Balsmeier, 2008; Brahm & Kunze, 2012; Brunelle, 2013; Pazos, 2012), despite the fact that little empirical evidence is available about their performance (Ebrahim et al., 2009; Gaan, 2012; Ganesh & Gupta, 2010; Gressgård, 2011; Liu et al., 2008; Pazos, 2012).

Unanimous consent about the definition of virtual teams does not yet exist. However, for the purpose of this paper, a virtual team is deemed to consist of members who are geographically and temporally dispersed, come from different disciplines, departments, and sometimes from different organizations and nations, with a shared purpose, using computer-mediated communication technologies in collaborating to achieve a common goal, for which they are jointly responsible, as well as jointly for the relationships within the team (see Bergiel et al., 2008; Berry, 2011; Brahm & Kunze, 2012; Cohen & Bailey, 1997; Ebrahim et al., 2009; Gressgård, 2011; Guades, Hamilton-Bogart, Marsh, & Robinson, 2007; Lipnack & Stamps, 1993, 1994, 1997; Lojesky & Reilly, 2008; Martins, Gilson, & Maynard, 2004; Miles & Snow, 1986; Nemiro, Beyerlein, Bradley & Beyerlein, 2008; Pazos, 2012; Peters & Manz 2007; Piccoli, Powell, & Ives, 2004 Siebdart, Hoegel & Ernst, 2009). The implications of this description of virtual teams include that members are from different global locations and diverse backgrounds (multidisciplinary and multinational); membership terminates once the goal is achieved, making the team either non-permanent/short-lived and fleeting or more durable depending on the nature of the

task at hand; and members interact in a number of time/place configurations, providing flexibility and speed, all of which can potentially facilitate team performance. The nature of virtual teams has implications for (human) relationships, because of the context and, specifically communication, which in turn affects collaboration (Brunelle, 2013; Gressgård, 2011; Jarvenpaa & Leidner, 1999; Mihhailova, Õun & Türk, 2011). Consequently, the very nature of virtual teams raises challenges that must be addressed to ensure its successful performance (Au & Marks, 2012; Brahm & Kunze, 2012; Ebrahim et al., 2009; Furumo, 2009; Liu et al., 2008; Mihhailova et al., 2011; Pazos, 2012) and the organization's competitiveness in the market.

Of these challenges, interpersonal processes need to be addressed, in particular conflict. In virtual teams conflict arises as a result of an environment that is low in social presence (distance) and interactivity (technology mediated communication) (Furumo, 2009; Ganesh & Gupta, 2010; Gressgård, 2011; Jarvenpaa & Leidner, 1999; Liu et al., 2008; Pazos, 2012).

Although a universally accepted definition of conflict has not yet emerged, two main schools of thought about the definition of conflict can be differentiated. Firstly, conflict as disagreement (Bendix, 2010; Gross, Hogler & Henle, 2013), which according to Laursen and Hafen (2010) as well as Bouncken and Winkler (2010) may further manifest in incompatible or opposing behaviors or views. Hon and Chan (2013) suggested that conflict viewed as disagreement could have a negative impact in the workplace, where relationship-based conflict and stress generally result to negative outcomes for the employee and the organization. This view is shared by Santos and Passos (2013) as well as Smith, Arthur, Hardy, Callow and Williams (2013), who identified additional negative consequences of conflict as disagreement such as negative task cohesion and a decline of the likelihood of an agreement in a situation of conflict. Secondly, Burger (2013) described conflict as a process. This view is shared by Leever Hulst, Berendsen, Boendemaker, Roodenburg and Pols (2010) as well as De Wit, Greer and Jehn (2012). Leever et al. (2010) further state that the conflict process begins when one party perceives that he/she has been negatively affected by another party.

Conflict, whether as a result of disagreement or process or both, is inevitable in teams, particularly in situations with high ambiguity, high stakes, and extreme uncertainty as in the case of virtual teams (Pazos, 2012). Whether conflict is harmful or beneficial to organizational performance has not yet been resolved (Bisseling & Sobral, 2010). Several authors (Paletz, Schunn, & Kim, 2013; Riaz & Junaid, 2013) have noted the advantages of conflict, including better quality of group decision, increased innovation and creativity, and team effectiveness. Some evidence shows that conflict management (prevention and handling) plays a critical role in enhancing virtual team effectiveness (Furumo, 2009; Pazos, 2012). As such, conflict management has been recognized as a particularly critical process in the context of virtual teams (Pazos, 2012).

Conflict has been studied extensively, especially in face-to-face teams, but little is known about conflict in virtual teams (Pazos, 2012). It is postulated that existing theory about face-to-face teamwork processes may not be transferable to a virtual setting, because the dynamics of the group process may be different (Brunelle, 2013; Cottrell, 2011; Furumo, 2009; Gressgård, 2011; Jarvenpaa & Leinder, 1999). Due to the nature of a virtual team, conflict may be latent for a very long period, before it is observed due to a lack of physical prompts without being noticed (Griffith, Sawyer, & Neale, 2003; Pazos, 2012). On the other hand, it is argued by Gates (2013) that conflict and conflict resolution techniques, in particular, are amplified by technological conditions facing virtual teams resulting in efficiencies or inefficiencies being exuberated Given the limited knowledge about virtual teams and especially conflict management in virtual teams, authors call for further research (Chimhanzi, 2012; Ebrahim et al., 2009; Furumo, 2009; Liu et al., 2008; Pazos, 2012).

Virtual teams in general, and conflict in virtual teams specifically, have not yet been examined in South Africa (SA), neither has any research been done on the software section of the technology industry in SA (Louw-Potgieter & Nunez 2007; Mogale & Sutherland, 2010). The software section of the technology industry is one of the largest and most prominent high-growth industries in the world (Maheshwari, Kumar & Kumar 2012), contributing to the wealth creation of nations, especially in emerging economies. However, numerous accounts of failure in the software industry are available (Maheshwari et al., 2012). The software industry lends itself ideally to virtual teams, which are negatively affected by virtualness (Ganesh & Gupta, 2010). Software development is mainly a team effort, involving complex and inter-dependent tasks, interactions among the team members as well as stakeholders and the he various processes that bring the team members together

(Maheshwari et al., 2012). Hence, it is critical to understand conflict in virtual teams in the software industry to ensure effective functioning of the teams.

The purpose of this paper is to report on conflict management in virtual teams in the software sector of the technology industry in SA with a view of facilitating virtual team performance and enhancing the competitiveness of the organization in the market. The paper aims to add to the emerging body of knowledge on the effective functioning of virtual teams, specifically by addressing conflict management in virtual teams, in response to the call by Chimhanzi (2012), Ebrahim et al. (2009), Liu et al. (2008) and Pazos (2012). The study used the adapted (purpose as an independent perspective added to process, people, technology perspectives) framework for effective virtual team working proposed by Ebrahim et al. (2009). The paper is organized as follows: a brief overview of effective virtual team working focusing on conflict management is followed by the research design and methods, a presentation of the findings and ends with conclusions.

Effective virtual team working

Ebrahim et al. (2009) proposed a framework for effective virtual team functioning based on a review of the literature. This framework is an extension of the work of Bal and Gundry (1999). This framework was adapted, for purposes of the study, based on the recurring themes prevalent in an extensive literature review, and reflected in the definition of virtual teams presented in the previous section. This framework is illustrated in Figure 1 below.

Figure 1 Framework for effective virtual team functioning
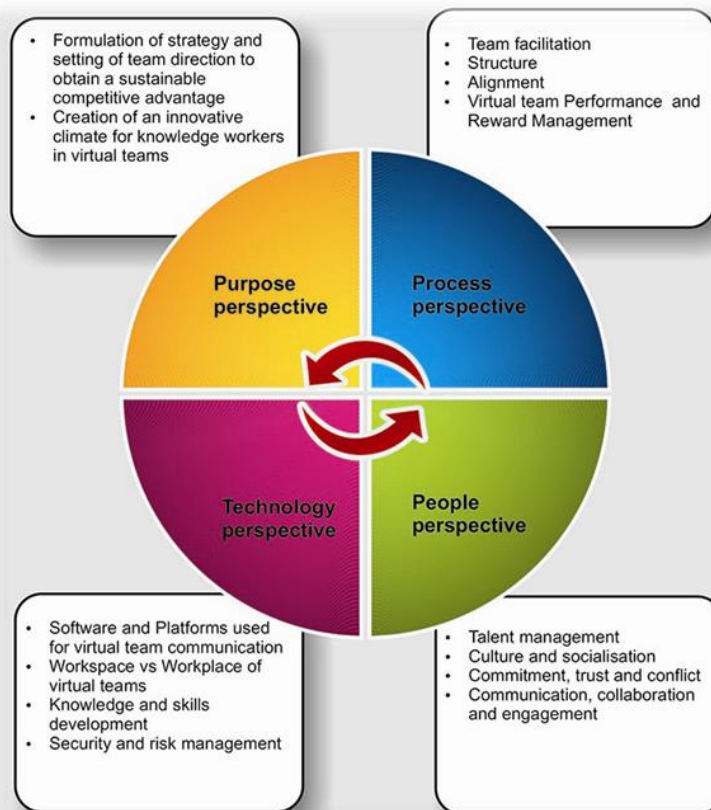
Source: Adapted from Ebrahim et al., 2009

Virtual teams have a particular objective, goal, purpose or direction (Guades, Hamilton-Bogart, Marsh, & Robinson 2007; Lipnack & Stamps, 1993, 1994, 1997; Nemiro et al., 2008; Staples & Cameron, 2005). The

purpose perspective in Figure 1 relates to the extent to which the objective is achieved, which in turn reflects the effectiveness of the team. The process perspective (fig 1) includes Team members exercising their roles and responsibilities and the way they approach their tasks, the processes followed in executing the tasks to achieve the purpose of the team and processes alignment. The people perspective (fig 1) refers to the degree to which problems are solved and team members interact, communicate and deal with differences From the technology perspective (fig 1) the extent to which technology influences teams and in particular virtual teams, would be evident in team effectiveness. Conflict can arise in any of these perspectives, with a consequent adverse effect on team effectiveness and performance. Hence, all of these perspectives should act in concert to ensure team effectiveness. Communication plays a critical part in conflict prevalence in virtual teams (Furumo, 2009; Gressgård, 2011; Liu et al., 2008; Pazos, 2012). Hence, it stands to reason that communication between members serves to either facilitate or hinder team effectiveness. According to Gressgård (2011), efficient cooperation, by means of electronic media, depends on the existence of a shared understanding among the group members regarding the purpose, including a shared understanding of norms for collecting, sharing and using of information, division of work and roles/responsibilities, and the social context for interpretation of information. A shared understanding may not exist at the time when the virtual team is established. Thus, the creation of a common social platform for interaction and for the work to be carried out is essential, and both means and the extent of communication are fundamental for a successful construction of a shared understanding among the team members (Gressgård, 2011). As pointed out in the previous section, communication in virtual teams is hampered by low social presence, which contributes to conflict in virtual teams.

Conflict in virtual teams

Conflict, an inevitable part of teams (Bisseling & Sobral, 2010; Cottrell, 2011; Liu et al., 2008), arises owing to differences in members' ideas, opinions and ways of doing things (Liu et al., 2008) or when team members perceive that their best interests are not served (Furumo, 2009). From the foregoing description of conflict, it is evident that conflict has two dimensions. One dimension is related to the task and another to relationships between members (Furumo, 2009). Task conflict involves differences of viewpoints relating to the task that needs to be performed, while relationship conflicts pertain to feelings of anger, frustration and distrust (Furumo, 2009). Task conflict pertains to the purpose perspective in Figure 1, while the relationship perspective relates to the people and process perspective in Figure 1. Technology, especially technology associated with communication between members, representing the technology perspective in Figure 1 is also involved in conflict.

Both task and relationship conflict can have a negative effect on team effectiveness and performance, unless it is appropriately handled (Furumo, 2009; Pazos, 2012). In the case of virtual teams, task conflict arises owing to disagreement on team goals and responsibilities (Gressgråd, 2011; Pazos, 2012). Disagreement may manifest cognitively and/or behaviorally (Pazos, 2012). Behavior may not be obvious (Liu et al., 2008), as already indicated, and may be exacerbated by the uninhibited communication in the virtual team context (Gressgråd, 2011; Martins et al., 2004; Pazos, 2012). Uninhibited communication may contribute to, especially, relationship conflict. Initially, such behavior may be interpreted as a means of achieving efficiency and effectiveness (Liu et al., 2008).

Conflict management

Conflict management relates to a (virtual) team's ability to play an active role (a) in preventing conflict with inhibiting consequences before it emerges (pre-emptive), and (b) in resolving existing conflict (reactive) (Pazos, 2012). The former is known as conflict disagreement (Sonnentag, Unger & Nägel, 2013) and the latter as conflict process (De Wit, Greer & Jehn, 2012:360). Pre-emptive conflict management involves establishing conditions to prevent or guide team conflict before it occurs (Burger, 2013) while reactive conflict management involves working through disagreements among team members by utilising different conflict resolution techniques (Pazos, 2012). These techniques include mediation, conciliation and negotiation (Katz & Flynn, 2013:393-410).

In virtual teams, the potential conflict triggers relate to the purpose of the team, people practices, and processes and the technology motivated influence become more dominant (Ebrahim et al., 2009). Hence, all of

these aspects mentioned in the previous paragraph should receive proper attention from the formation of the virtual team (Liu et al., 2008; Pazos, 2012). In addition to purpose and role clarification, communication rules must be established from the outset of the virtual team (Griffith et al., 2003), as part of conflict prevention.

As for face-to-face teams, a number of conflict handling styles are available to virtual teams (Liu et al., 2008; Pazos, 2012). Cooperative conflict resolution techniques for both virtual teams and face-to-face teams, are associated with positive individual and team outcomes, more so than competitive techniques (Liu et al., 2008; Pazos, 2012).

It follows from the above exposition of conflict in virtual teams that all four perspectives of effective virtual team work, as presented in Figure 1, are to a degree interwoven. Conflict arises owing to ambiguity and/or disagreement about the purpose of the team, as well as the technology to be used to communicate, access and store information. Consequently, housekeeping protocols in connection with communication and collaboration should be in place before a member joins the virtual team (Algesheimer, Dholakia, & Gurău, 2011).

Moreover, processes should support the purpose of the virtual team and should be integrated between the organizational designs (virtual and face-to-face teams). In terms of the people perspective, conflict manifests itself as internal, intrapersonal and interpersonal (virtual team members, clients, network, manager of team, intra-organizational). Virtual team members use technology as a vehicle to discharge of their responsibilities, including their own development (Tannenbaum, Mathieu, Salas, & Cohen, 2012).Technologically mediated communication provides a source of potential conflict. The above explanation of conflict in virtual teams also supports the notions of conflict as disagreement and process. Furthermore, conflict relates to both task and relationships. The importance of preventing conflict with inhibiting consequences was addressed during the current study. Cooperative conflict handling styles are indicated as more conducive to team effectiveness than competitive styles (Wheeler, 2013).

RESEARCH DESIGN AND METHODOLOGY

The study reported on here formed part of a larger study investigating best practices in the effective functioning of virtual teams in the software sector of the technology industry in South Africa. The research philosophy is indicated by the problem under investigation (Denzin & Lincoln 2013; Saunders. Lewis, & Thornhill, 2012). The purpose of the (main) study was to understand best practices in the industry in question, including conflict management. As such, the inquiry reported on was situated in an interpretivist research philosophy, with the emphasis on experience and interpretation (Richards & Morse 2013; Seymore 2012). The interpretive philosophy seeks to produce descriptive analyses that emphasize understanding of the phenomenon studied, rather than searching for broadly applicable laws (Denzin & Lincoln 2013; Richards & Morse 2013; Saunders et al., 2012). An interpretivistic research philosophy holds that knowledge is created (Seymore, 2012). This means that the understanding of reality is not a simple account of what is, but rather that insight needs to be obtained of how people in societies and groups interpret reality (Seymore 2012), from a subjective perspective.

The above explanation of the interpretivist philosophy alludes to the application of a qualitative research approach in collecting and analyzing data for this research (Denzin & Lincoln, 2013; Richards & Morse, 2013; Saunders et al., 2012). In this instance, the use of a qualitative research approach was appropriate to the purpose of the inquiry conducted. Furthermore, the qualitative approach was in line with the predominant research approach within the interpretivist philosophy (Denzin & Lincoln 2013; Richards & Morse 2013). The problem was studied by means of a qualitative case study (design), which was deemed appropriate to this inquiry as it explored a contemporary phenomenon in its real-life context (Denzin & Lincoln 2013; Marshall & Rossman 2011; Saunders et al., 2012; Seymore 2012).

The population in this study as per definition of Salkind (2012), comprised all the companies in the software sector of the technology industry of South Africa as listed on the Johannesburg Stock Exchange (JSE).To be practical and with due regard for time and budget constraints, a non-probability (purposive/judgment) sample was chosen based on the problem at hand (Salkind 2012; Saunders et al., 2012).

In total, 16 companies, comprising 13 JSE-listed companies and the three most significant software role-players in the international software industry (according to Forbes, 2009), were approached. No ideal sample size for studies using a qualitative approach has been established and guidelines are available for case studies. Myers (2009) suggested that one case suffices, while Eisenhardt (1989) proposes between four and 10 cases.

Data were collected by means of an open-ended questionnaire in a semi-structured data collection method and qualitative content analysis was used (Salkind 2012; Saunders et al., 2012). Questionnaires as a method of data collection ar not uncommon in qualitative research (Fisher et al. 2010). Guiding and probing questions, to gain depth and insight into the experiences and views of virtual team members, were included to ensure the usefulness of the data collected (Fisher, 2010). Access to participating organisations was secured through consultation with gatekeepers, namely the human resource (HR) practitioners in the selected organisations (Kreitner & Kinicki, 2010).

A self-administered electronic questionnaire, using the Lime Survey 2.0+ tool, was used. Thus, the data collection method simulated the virtual teams' operating methods, namely virtuality. Participants expressed their preference for this kind of data collection method. The questionnaire was available via a web-link to the HR gatekeeper in the participating organisations. Participants completed the questionnaire in their own time using computers or smartphones. Lime Survey 2.0+ allows the researcher to design the questionnaire, electronically captures the data and has basic data analysis capabilities (Salkind, 2012; Saunders et al., 2012).

The questionnaire consisted of different question types with varying response formats, including multiple choice, text input, drop-down lists, numerical input, slider input, and simple yes/no input. Questions were arranged in a two-dimensional array, with options along one axis based on the questions on the other axis. Qualitative content analysis protocol was utilized in the formulation of the questions rooted in theory, as well as to code, categorize and thematically analyze and interpret the data from the participants (Richards & Morse 2013). In phrasing the questions, the categories namely purpose, process, people and technology were utilized to phrase the questions in order to explore the experiences of the participants. Each category and theme received an identification code, developed by the researchers.

Following the completion of the questionnaire, the data presented by the participants were downloaded to an Excel spreadsheet. An overall impression of the data was done before each analysis. The descriptions of the participants' perceptions and experiences of best practices in virtual teams provided data, which formed the basis of themes and categories regarding variables affecting best practices in the effective functioning of virtual teams in the software sector of the technology industry in South Africa. As such, the themes could be generalized, rather than generalizing laws from sample to population.

Strategies to ensure trustworthiness

To ensure the scientific value of the empirical qualitative study, the researchers endeavored to follow the guidelines proposed by Guba and Lincoln (1989), Marshall and Rossman (2011) and Richards and Morse (2013).

To achieve credibility, the researchers entered into prolonged engagement with the assigned HR gatekeepers, through weekly contact either telephonically or electronically. Credibility in the questioning technique and researcher authority in the utilization of the data generation technique were achieved through the assistance from the qualified assigned university support staff to create the electronic questionnaire. Further, a pilot study of the questionnaire was conducted to test the questionnaire before distributing it to the sample. The information obtained from both the pilot and empirical research were verified, by both the researchers and the qualified assigned university support staff. A field journal was kept, and experiences during the research process were captured to increase reflexivity. The researchers obtained structural coherence of the data by utilizing the themes and aligning the questions with the research method. Member checking of this research occurred at two international conferences, to establish whether any important aspect in either theory or application had been omitted and whether the study was "fit for purpose". No misfits were identified. A three-tier triangulation process was utilized to enhance credibility of the study: theoretical, investigator and researcher–participant

triangulation. Multiple theories were utilized to phrase the research question. Data were cross-examined by three parties and deemed an accurate reflection of the information presented by the participants. Triangulation of information was obtained by utilizing both the principle of following more than one theory and source of data, and referential adequacy was achieved by citing the authors in the adapted conceptual framework (Guba & Lincoln, 1989; Pazos 2012). Referential adequacy was achieved in that all research utilized to formulated questions was cited in the study and noted in the bibliography of the study.

Dependability of this research was ensured as an audit trail of the process, coding procedures and dalk responses of each participant are available for audit purposes on Lime Survey 2.0+, but owing to ethical prescriptions purposes cannot be published in this article. Further, an Excel spreadsheet was used to download the information by an institutional software technician, and confirmation is available on request. Coding of question groups and questions was created automatically and electronically via the Lime Survey 2.0+ electronic questionnaire data collection instrument. Reasonable precaution was taken to ensure authenticity of the voices of all participants and companies who participated in this empirical study, and the original response document was verified by both researchers. The coding system of the researchers to link unique participants to a specific organization, as well as the industry's risk alert to secure usernames and password for participants' email accounts may be considered to have contributed towards to the non-occurrence of duplicate participants.

Ethical consideration as suggested by Saunders et al. (2013, p. 236) was utilized. Knowledge sharing was considered a great risk to the companies in the industry; therefore, the coding of the responses from particular companies and the participants were kept anonymous to respect their privacy and protect them against possible harm. The researchers did not at any stage coerce or incentivize the assigned company's human resource representative (gatekeeper) or participants to obtain access or obtaining information.

FINDINGS AND DISCUSSION

Participation

Of the 16 organizations initially approached to participate, four finally agreed to allow one virtual team each to participate. The most senior human resource professional in each of these companies selected the most effective virtual team based on their own selection criteria (which does not form part of this study). Operational availability of the virtual team members to complete the questionnaire was an imperious organizational consideration. The time frame from requiring access to the organizations to completion of the data generation period was eight months (4 February to 6 September 2013).

A total of 55 questionnaires, of which ten were useable, were returned, which is in line with the norm for qualitative case studies as pointed out in a previous section. Taking into consideration the nature of the industry and the nature or the questionnaire, the low response rate is acceptable (Saunders et al., 2012). The nature of the technology industry as experienced by the researchers is reflective of the true character of the industry: fluid and with little formal structure, usage of informal networks and associations and high talent turnover. A turnover of key staff was experienced as entrance to companies had to be re-negotiated several times. There was a very quick participant reaction, once the key role players (HR gatekeepers) requested participation.

Unlike many industries in South Africa, the technology industry is not formally structured, making it difficult to obtain reliable information regarding the role-players. The Johannesburg Stock Exchange (JSE) was therefore considered to be the most reliable indicator of participants in the industry as it represents listed companies that complies with specific criteria. The scope, extent and activities of international participants in the technology industry in South Africa, are speculative and have not yet be formally established, Hence the international indicators were utilized. A turnover of key staff was experienced as entrance to companies had to be re-negotiated several times. There was a very quick participant reaction once the key role players (HR gatekeepers) had requested participation.

One of the main organizational elements suggesting an area of conflict creation, relates to the remuneration practices between organizations and between individuals within organizations. These practices

among organizations and even within organizations are fluid and not standard. Although it was mentioned by a number of participants that they understood that their remuneration was above market expectations, a further contributing factor to conflict may be signaled by union membership as noted by two participants. Remuneration as cause of conflict was not prominent in the literature reviewed.

Processes influencing conflict in virtual teams

With respect to conflict resolution, the team construction was central to the lessening and/ or prevention of conflict. Virtual team participants indicated a number of positive reasons for belonging to virtual teams, which underpinned the characteristics of these teams such as "every member is treated equal[ly] and can be trusted when using his own judgment in the particular situation", "we are a group of likeminded people!", "I have been working with them for 10 years and therefore know them well" and "all team members are available". These statements indicate that the foundation of relationships such as trust, dependency and expectations are aligned.

The virtual team members had a throughout understanding of how the organizational design of a virtual team enables its functionality. The following accounts confirm the participants' understanding: "Collaboration and communication and communication is [sic] varied over varied over multi-media and traditional meetings, and guidance is given, not by a single individual, but rather by various team members, depending on their subject-matter expertise" and "make use of technologies such as UCS, Live Meeting". These multi-facets would in a face-to-face (FTF) team or conventional teams typically be the root of major conflict areas, but are experienced by virtual team members as enablers to function effectively.

The individual advantage of working within a virtual team supports theory with relation to the individual such as health, family matters, time management, personal space and comfort. The deep-rooted composition of these people, which requires them to seek knowledge, corresponds with another section of the questionnaire referring to their qualifications and the nature of their work and also with theory regarding knowledge workers, as indicated by the following statements: "I gain experience and knowledge from peers", "easy access to intellectual property", and "there is an abundance of knowledge from many different technology areas". This also explains why it was so difficult to obtain access to information from these companies, as knowledge in this environment presents a competitive advantage in the market. Another dimension of the benefit for individuals to work in a virtual team relates to the removal from daily social interaction between colleagues in FTF team "politics" and the value that team members accord to "trust" where team members can practice "focus leading to quality" instead of focusing on relationship re-alignment.

Purpose establishment influencing conflict in virtual teams

Six participants confirmed that purpose and formal role clarification were essential at the on-boarding phase of a virtual team. The best practice is to establish the initial task and role clarification in the forming stages of the group as well as with each new member joining the team subsequently. However, as the main feature of virtual teams is flexibility, the ability to adjust swiftly necessitates renewed purpose establishment each time the direction or the function of the team changes. Therefore, timeous purpose and role re-affirmation in virtual teams are critical for smooth transitions and reducing potential areas of future conflict.

People practices influencing conflict in virtual teams

The majority of the participants indicated that communication in the team was imperative and specifically mentioned transparency in communication as a critical component of communication. Transparent communication was illustrated by responses such as "without communication, we will be working blindly, and not towards a common goal" and "if you don't communicate you can't function". Meetings and social gatherings were viewed as a "waste of time". A potential area of conflict highlighted by participants, was that membership of the virtual team should be based on skill and "not [be] result of politics", which supports the notion that these participants valued knowledge rather than social affiliation. In this context, it is understandable that virtual team members valued "tighter management communication", a strong focus on "measuring the delivery of the project rather than the process", and the option to decide what is best for themselves and the team "based on function/project/solution, use the best fit framework (ITIL, COBIT, TOGAF) to fulfill responsibilities". Trust,

tolerance, collaboration and involvement were highlighted as contributing to good working relationships, which is aligned with FTF teams and supported by the literature (Gressgård, 2011).

Virtual team members placed a high regard on specialized knowledge, for all activities associated with the team. Although the majority of members valued social interaction with others in the team, the formalized impersonal attachment to colleagues could be viewed as practice to lessen conflict in the team. It was noted that comments provided by the participants were very short, providing merely the critical information required and this form of communication s aligned across the companies, indicating a protocol of communication in virtual teams. Personal FTF intervention was only suggested where a member failed to perform. In no other function of the team was such intervention suggested, which supports the notion that virtual teams really do work virtually.

According to nine of the participants, leadership is not perceived as a requirement for effective virtual teams. In fact, some of the organizationally assigned managers had to indicate their official job title as manager, but did not explain their job content as managerial in nature (two participants). Participants referred to "team dynamics" and "clear goals" as better practices than the appointment of a team leader to harmonize team functions. Cultural differences in virtual teams were bridged by clarification of the individual's world, work and people perspective from the on-boarding of the team (seven participants).

The greater number of participants identified 'performance of team members' as the primary cause of conflict in virtual teams. This was reflected by the following responses of participants: "members not delivering", applying wrong skillset (person), and "incompetence of team members". The participants' impersonal reference to colleagues as opposed to "a qualified person" was noted. As knowledge in virtual teams is particularly valued it is not surprising that all the participants indicated the selection criteria for a virtual team as "specialist" knowledge as opposed to experience or other criteria (such as the main focus of the legislation to influence recruitment practices through legislation).

Technology practices influencing conflict in virtual teams

The availability of technology infrastructure was noted as the greatest cause of conflict and should be corrected if not in place. Only three participants indicated that a virtual team could work without technology. One participant suggested working on a cell phone and the other qualified their statement by saying only for a short period, in the absence of computer technology. The qualifying statements of two of the participants reflected that a computer is viewed as a technology enabler and that virtual teams really need technology to work meaningfully. The only practice perceived by the team as worthwhile to stay updated with was collaboration tools (nine participants). This implies that organizations pursuing successful implementation of virtual teams need to realize that expenditure on up-to-date custom collaboration tools will be a necessity.

CONCLUSIONS

The empirical evidence has revealed that conflict do surface virtual teams in the software sector of the technology industry in South Africa. Conflict in the four virtual teams studied was linked to the four perspectives of effective work in virtual teams as proposed by Ebrahim et al. (2009). Responses of participants suggested that conflict with both positive and negative consequences was encountered, supporting the literature that conflict may be beneficial (Riaz & Junaid, 2013; Paletz et al., 2013). It was reported that conflict arose owing to remuneration practices, non-performance of team members and the availability of technological infrastructure. These causes of conflict were not dominant in the literature reviewed.

Conflict may be prevented by ensuring formal role clarification at the onset, and reaffirming it with changes owing to the flexibility of the work. Members should be selected on the basis of the skills needed to complete the project. Trust, based on prior knowledge and experience of team members, was noted as another conflict prevention mechanism. Collaboration and communication, using a variety of multi-media, were indicated as enablers of effective team work. These factors are congruent with the literature. Distance was shown to prevent conflict, which is contrary to the literature. The use of formalized, impersonal attachments to colleagues was reported as the main means of coping with the handling of conflict. This observation is at odds with the literature.

The responses to the empirical studies alluded to the fact that conflict as disagreement and process was prevalent in the participating teams. The empirical evidence closed the gap in terms of conflict management in virtual teams in the software sector of the technology industry of South Africa. Although a small number of companies and team members participated in this study, the number of respondents complied with the norm for qualitative research and specifically the case study design.

The best practice to deal with the primary cause of conflict in a virtual team is noted as "individualised mediated FTF discussion where previous virtual interventions failed". Meaningful engagement by appointing the "right skills set" to the team was highlighted as reducing tension in the team. Finalising general housekeeping as to the electronic communication beforehand greatly reduced conflict later on. Hence to be effective, it is recommended that virtual teams heed these best practices.

Three main limitations of this study were identified: The literature research was only conducted on scholarly peer reviewed articles and books in the English language which implied that articles outside this language was excluded. The return rate of the study was low due to the access restrictions by the organisations in the form of Human Resource gatekeepers. Despite the gatekeepers, the study met the findings of Saunders (2012), who indicates a benchmark of 30% as an acceptable response rate for electronic surveys. Thirdly, empirical research should ideally be collected by means of an interview, focus group or individualised email as the more appropriate research methods to address this research question. However, given the virtual nature of the phenomenon under investigation, working in harmony with virtual team members, namely electronically, to obtain descriptive information, the length and the questions within the questionnaire may have contributed towards the complexity of the questionnaire. Regardless though, the questionnaire was received as trustworthy but could be shortened if researchers only wish to focus on a single theme or element, which could attract a greater response rate.

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