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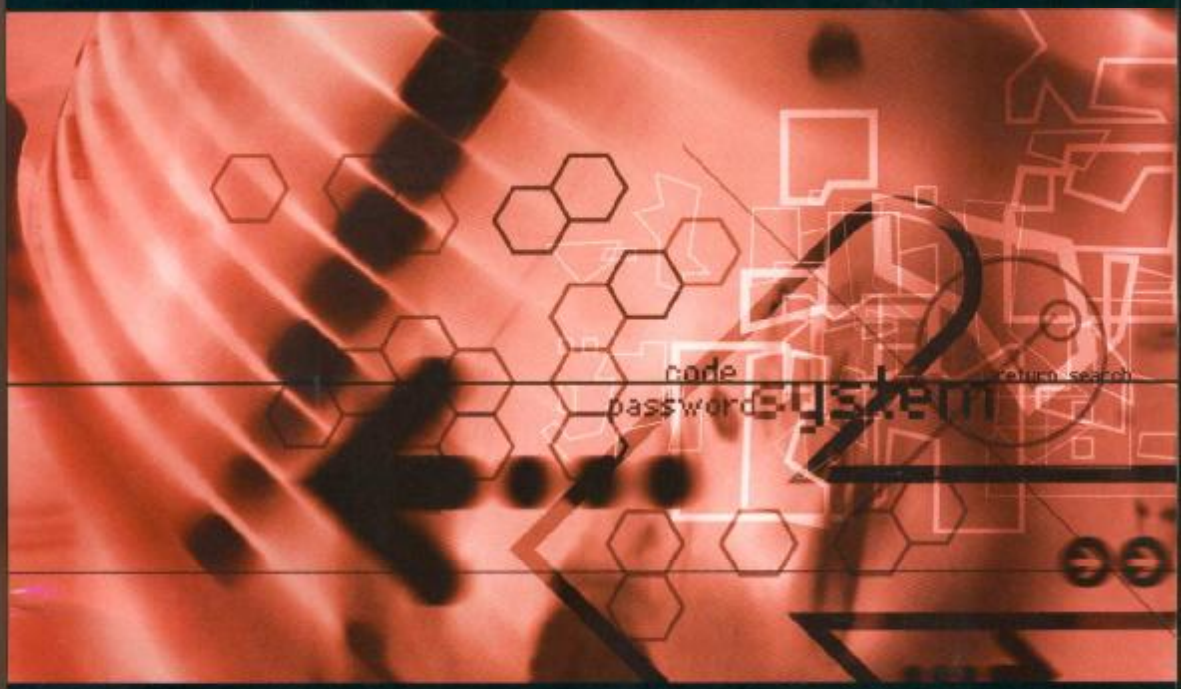

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Culture and the processes of virtual teaming for training

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Abstract Virtual teamwork is a growing mode of operation within organizations through the increasing sophistication and accessibility of computer-mediated communication. The purpose of this paper was to develop a new conceptual framework and propositions to assist understanding of a new training phenomenon. The approach used was the integration of related, but distinct, literatures and development of arguments for the important role of cultural factors in virtual training teaming. We argue that delivery of training through teamwork in virtual spaces is potentially effective, and individualist and collectivist orientations of team members are likely to be critical for the effectiveness, or otherwise, of such programs.

Keywords collaborative learning, computer-mediated communication, cross-cultural projects, virtual training teaming.

Introduction

A virtual team may be defined as a group of geographically dispersed employees who are connected using computer-mediated communication (CMC) to accomplish an organizational task (Chinowsky & Rojas 2003; Kirkman *et al.* 2004). CMC encompasses networked computing systems such as electronic mail, interactive messaging, bulletin boards, discussion groups and list servers, as well as conferencing (Gush 1999). CMC assists people, who traditionally would not be able to do so, to work in teams (Gatlin-Watts *et al.* 2007). This could influence organizations worldwide to move generally more and more to networking through CMC (Montoya-Weiss *et al.* 2001).

The number of virtual teams increased rapidly from the mid-1990s (Flavián & Guinalíu 2005). There appears to be a positive relationship between the growth in the number of virtual teams and improvement in the quality and efficacy of CMC technologies (Zakaria *et al.* 2004; Kankanhalli *et al.* 2007). For the purpose of this paper, we shall refer to the enactment of virtual teams as virtual teaming (VT).

VT, using CMC, is likely to make sense for some aspects of advanced organizational training, particularly those that relate to organizational learning and knowledge management (Brosnan & Burgess 2003). Interest in the use of CMC technologies for training has grown (Tao *et al.* 2006) to the point that in a recent survey (Brosnan & Burgess 2003), 76% of professionals surveyed claimed to engage in Internet-enabled activities to support their professional learning.

It is important to understand that VT need not only be about mediating communication but also about sharing knowledge and experience (Talukder & Yeow 2006). For example, VT projects have proved to be valuable learning experiences for both students and faculty in universities (Gatlin-Watts *et al.* 2007). These characteristics potentially make VT a good fit with organizational learning and a valuable application for training.

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For the purpose of this paper, we define VT to be a set of properties of a team whose members work collaboratively in a virtual environment to accomplish a task. When organizations apply VT in order to develop a training program there is a new type of VT that is called in this paper virtual training teaming (VTT). VTT is a specific type of VT for which the 'work' is learning and the 'task' is the specific training experienced by the employee. VTT has three main components: virtuality, training and teamwork.

Developing an effective training program may be accompanied by doubt and uncertainty (Salome & Charmes 1988; Gibb 2002; Hill 2004). Most doubts have been expressed about the effectiveness of traditional approaches to training (Noe 2002; Hill 2004). Organizations are faced with the task of selecting the most appropriate and relevant training models from the very large numbers that exist. The decision is critical because each trainee is likely to have different professional needs (Evans 1999). Outcomes of training programs may be expected to differ according to gender (Hebbar 2006), country (Rodrigues *et al.* 2000), critical organizational problems (Hedrington 1997) and work context (Bramley 1989). These should be taken into account when designing training programs if they are to be effective (Bramley 1989; Rodrigues *et al.* 2000), otherwise, scarce resources could be wasted (Gibb 2002) and the competitive advantage of organizations may be diminished (Noe 2002; Conrad & Donaldson 2004).

We argue that VTT may be more effective than some traditional training approaches whose effectiveness has been questioned (Gibb 2002). One reason for this claim is the capacity of VTT to take account of cross-cultural differences. It has become clear that what constitutes effective training in one culture may not be effective in another (Rodrigues *et al.* 2000). In spite of the importance of culture, it seems only a few recent studies have explicitly concentrated on cultural factors (Hertel *et al.* 2004). We argue that cultural differences must be taken into account if the application of VTT is to be effective. We consider collectivism–individualism to be one of the most salient cultural dimensions for VTT. This will be elaborated later.

Training by CMC

VTT, encompassing self-directed organizational learning, is likely to increase the effectiveness of training. Replacing face-to-face communication with CMC is a major change to learning (Panteli & Fineman 2005). Several experimental studies have suggested that training programs that are based on CMC can achieve typical training program objectives in organizations (e.g. Allan & Lewis 2006; Rosen *et al.* 2006; Olson-Buchanan *et al.* 2007). Findings involve a wide range of advantages for this training, including improved performance of learning (Olafsen & Cetindamar 2005), more active and equal participation (Harvey *et al.* 2005), flexibility of access and ease of use (King & Moreggi 2007), highly specific interaction (Dowling 2005), more enjoyable learning (Fong 2005), better adaptation (Alamaki & Makinen 2005), provision of a less threatening environment for individuals with special traits (such as shyness, low self-confidence, etc) (Lewis *et al.* 2005; Panteli & Fineman 2005), improvement of cultural understanding (Gatlin-Watts *et al.* 2007), and cost and time saving (Bal & Gundry 1999). However, in spite of all these positive findings, it is clear that further research is required to investigate relationships between culture and CMC-based organizational learning in general, and VTT in particular.

Culture and VTT

Hofstede (1980, p. 21) defined culture as:

> The collective programming of the mind which distinguishes the members of one human group from another . . . Culture, in this sense, includes systems of values; and values are among the building blocks of culture.

VT has been described as a 'culturally challenged' (Malhotra 2003, cited in Horwitz *et al.* 2006, p. 473) phenomenon. Cultural differences are among some of the most important factors that should be taken account of when developing virtual teams (e.g. Cinnirella & Green 2007; Gatlin-Watts *et al.* 2007; Haythornthwaite & Nielsen 2007; Murphy & Scharl 2007). Research findings show that culture can profoundly influence learning (Xing & Spencer 2008). Logically, if culture is important for virtual teams and learning in organizations in general, it should be important for VTT in particular.

Hofstede (1980, 2001) has identified and measured culture by referring to its dimensions. Cultural dimensions have important implications for organizational behaviour. Hofstede (2001) described five cultural dimensions: individualism–collectivism; masculinity–

femininity; uncertainty avoidance; power distance; and future orientation.

Collectivism–individualism

The present paper is specifically concerned with the collectivism–individualism dimension, arguably the most frequently used dimension in culture-oriented studies (Fadil *et al.* 2005; Ardichvili *et al.* 2006). It should be acknowledged that the pancultural (etic) approach, which encompasses the collectivism–individualism dimension, has been challenged in recent years (Bond & Smith 1996; Hong & Chiu 2001) as not adequately taking account of the importance of situation-specific within-culture variation. Moreover, it is important not to fall into the trap of the ecological fallacy (Chao 2000) by engaging in cultural stereotyping of individuals within a society. Notwithstanding, people generally are more collectivistic in collective cultures and more individualistic in individualist cultures, and effective training should take account of this. Triandis (1996, p. 409) defined collectivism as a social pattern in which

> (. . .) personal goals are subordinated to the goals of a collective (e.g. family or tribe) and norms, duties and obligations regulate most social behaviour.

He defined individualism as a social pattern in which

> (. . .) an individual is autonomous from collectives and personal goals are given priority over the goals of collectives.

It has been argued (Earley & Randel 1997, Chao 2000) that culture is a multilevel phenomenon that exists both at the individual and societal levels. This paper is concerned with persons within societies whose collectivist or individualist orientations are consistent with their societies' cultural norms in the context of VTT. This seems to us the most practical approach for within-organization application. Moreover, while cross-cultural psychologists have tended to locate cultures on the collectivist–individualist continuum (Bond & Smith 1996; Hofstede 2001), it is arguably more practical, and has been the practice (Bond & Smith 1996), to identify cultures that can be clearly differentiated according to collectivism–individualism. That is, it is likely to be more useful to compare cultures that are distal, rather than proximal, on the continuum. To this end, the discussion here is mainly in terms of collectivists and individualists while acknowledging that cultures range across the collectivist–individualist continuum.

Collectivism and individualism are fundamentally about social relations and have different implications for organizations (Morgan & Zeffane 2003). For example, individualist or collectivist orientation may affect cooperative behaviour (Felzensztein & Gimmon 2007) when cooperation is required for teaming (Prasad 1998). Hartenian found that in business contexts, individualists exhibited less cooperation in groups (Hartenian 2003).

VTT potentially is an appropriate model for global networking of professionals beyond socio-political, organizational and cultural boundaries. For this to happen successfully, however, it must occur in ways that address cross-cultural differences. Researchers have found that people in individualist cultures generally show a higher rate of CMC acceptance than people in collectivist cultures (Lim *et al.* 2004). Furthermore, the quality of CMC is dependent on culture (Lynch & Beck 2001). For example, individualists, who typically are less concerned with context, may not be willing to consider the cultural characteristics of the message sender (Gudykunst *et al.* 1996).

Approach-avoidance behaviour

The behaviours of collectivists and individualists are likely to be important in VTT. The concept of approach-avoidance behaviour, which explains aspects of human behaviour by the tendency to approach and the tendency to avoid (Smith & Bargh 2008), is one frame for thinking about this. Approach-avoidance may relate to people's reactions to stimuli associated with a particular space, as influenced by their emotional condition (Hebert 1997). Specifically, we contend that approach-avoidance behaviours of trainees will be different in collectivist and individualist contexts. If a particular space has a cultural setting, then people from some cultures may be expected to approach it while people from other cultures may be expected to avoid it. For example, in a study involving US and Japanese workforces, Suzuki (1998) found in-group and out-group differences in communication patterns in terms of the use of multiple types of networks. Arguably, because it incorporates CMC, one may generally expect individualists to exhibit more approach-avoidance behaviours in relation to VTT than collectivists (Gush 1999; Lahenius &

Järvenpää 2004), because generally, they do not have the same needs for social contact as collectivists. However, one may expect a collectivist to exhibit avoidance behaviours depending on whether the distant correspondent is considered an in-group or out-group member. For an in-group member, the collectivist could need to have face-to-face contact to affirm the close relationship with the in-group member (Sung & Tinkham 2005) and hence not find the use of CMC desirable. However, a collectivist may be expected to approach VTT if the virtual team member is considered an out-group member and the potential impersonality associated with CMC is not an issue.

Research findings have suggested that cultural factors have an impact on communication behaviours (Large 2005) and that there is a relationship between communicative behaviour and approach-avoidance behaviour (Johnson 2007). For example, North Americans, in a low-context, individualist culture, generally need relatively little information about a person or company before completing transactions, while Russians, in a high-context, collectivist culture, generally need relatively rich contextual information about a person or company before doing so (Matveev & Nelson 2004).

Figure 1 shows the qualities of VTT components and their culture dependence based on trainees' behaviours and with reference to approach-avoidance behaviours.

VTT components / Three relevant characteristics	Virtuality	Training	Teaming
Ap-Av trainees' behaviour (culture dependence	Influenced less	Moderate	Influenced more
Achievability	High	Moderate	Low
Importance	Least	Moderate	Most

Fig 1 Qualities of virtual training teaming (VTT) components regarding culture dependency, achievability and importance. Ap-Av, approach avoidance.

Virtuality is the most achievable component because it is primarily technology-dependent (Potter *et al.* 2000; Pauleen & Yoong 2001), and teaming is the most important component because it plays an essential role for VTT (Gatlin-Watts *et al.* 2007). When a component is more culture-dependent, its operation is more difficult.

According to Fig 1, components are all influenced by culture but to differing degrees. Virtuality is certainly not culturally neutral, but arguably, the least influenced by culture. Teaming is the most culture-dependent component because it involves inter-relationships in a social setting. The strength of approach-avoidance behaviours in relation to virtuality is likely to be more limited than for teaming. Virtuality, training and teaming elicit specific behaviours from team members. This is argued below based on each VTT component separately.

Virtuality and collectivism/individualism

It is the virtuality component that primarily distinguishes VTT from traditional face-to-face training. From a technical perspective, virtuality is likely to play a key role in VTT. However, some researchers have asserted that technical barriers are not the most important issues for Internet access. Rather, the principal barriers relate to cultural perceptions about Internet possibilities and the nature of Internet activities (e.g. Haythornthwaite & Nielsen 2007). Research findings have also identified a relationship between cultural differences and differences in the perceptions of, and the ways individuals use, the Internet (e.g. Elbeltagi 2007). For instance, Lippert and Volkmar (2007) found attitudinal and behavioural differences between US and Canadian technology users.

The use of communication technologies may result in various behaviours (Leah 2006; Penz 2007; Roy & Siva Kumar 2007). Individualist societies appear to be more accepting of digital activities than collectivist ones (Gush 1999; Lahenius & Järvenpää 2004; Gatlin-Watts *et al.* 2007). In general, contextual cues in communication are important for collectivists so that they tend to disregard written information (Li *et al.* 2007). They tend to communicate more by face-to-face or by phone calls than individualists (Ardichvili *et al.* 2006) who prefer e-mails or online discussion boards (Puck *et al.* 2006). Consequently, collectivists may not perceive that VTT meets their social needs. This leads to the proposition below.

Proposition 1: In the specific context of VTT, individualist trainees will perceive that VTT meets their social needs more than collectivist trainees.

Furthermore, it should be emphasized that high quality CMC technology may be expected to facilitate VTT interactions but not necessarily ensure teaming (Von Krogh 2000). Teamwork is a social activity, and CMC technologies cannot create a team. Indeed, technology is not the principal determining factor for VTTs to be effective. A team that is motivated well is likely to rise above the limitations of the technology (Fong 2005). Hambley *et al*. (2007), based on their empirical research about interacting in virtual teams, contended that richer communication media do not necessarily achieve higher task performance than less rich media. In spite of the absence of face-to-face interactions in chat rooms, their participants, undergraduate students from a mid-sized Canadian university, did not show better team interactions during videoconferencing, a communication medium, which is rich visually and aurally, than working in chat rooms.

Proposition 2: Effective VTT cannot be guaranteed by enriching CMC technologies.

Training and collectivism/individualism

Training, the second VTT component, is a culturally sensitive activity (Howe *et al*. 1990). Learning in organizations is mainly a social activity through work that is most often carried out by people in concert with others (Mavin & Cavaleri 2004). It follows that how people learn is affected by culture. Culture can not only affect the extent to which an individual values the development of personal proficiencies but also can influence the way he or she chooses to meet his or her perceived personal needs, for example, a need for achievement or personal growth. In addition, cultural differences are likely to affect learning preferences. We propose that, in general, collectivistic trainees from countries such as Japan and Thailand are likely to prefer a 'teacher-centered' learning approach (Garant 1997; Lohsiwanont 2001). Individualistic trainees from nations like Finland and the US, are likely to prefer a 'trainee-centred' approach (Garant 1997; Lohsiwanont 2001). Team learning is generally more conducive to a 'trainee-centred' orientation. In addition, different cultural characteristics may affect trainees' encoding and decoding of information. While individualists tend to see each piece of information as independent of context, and emphasize written information and codified forms, collectivists tend to look for contextual cues in information and place less emphasis on written information (Bhagat *et al*. 2002, cited in Ardichvili *et al*. 2006). Accordingly, we consider the following are achieved by VTT.

Self-directed learning

VTT may involve self-direction (Kirkman *et al*. 2002; Paul *et al*. 2004). Self-direction is generally valued for professional learning because it may influence goal achievement (Kramarski & Gutman 2006). It caters for differing individual preferences for learning and is emphasized by many researchers (e.g. Gibb 2002; King & Moreggi 2007).

VTT can create opportunities for self-directed learning. It can shift primary responsibility for the training to the trainee. There is some evidence that self-development is a very important goal for individualists (Birenbaum-Carmeli 2001), and employees in individualist societies generally tend to be responsible for their own development (Rodrigues *et al*. 2000). Arguably, being autonomous is consistent with being individualistic, (Wrenn 2006), and we are confronted with two realities: first, autonomy places trainees in an active role (Tamkin 1996), and second, Internet-based learning can provide autonomy (Fry 2002). Therefore, the following proposition is formulated.

Proposition 3: In the specific context of VTT, individualist trainees will engage in more self-directed learning than collectivist trainees.

Collaborative learning

Collaboration is one of the most referred to concepts in the virtual teams' literature. Teamwork, whatever the context, requires collaboration (Peters & Manz 2007). CMC technologies are increasingly being used to support collaborative learning in groups (Stahl 2005). These technologies can increase the rate of interaction and cooperation within teams when geographical and organizational dispersion would otherwise limit opportunities for direct interpersonal communication (e.g. Harvey *et al*. 2005; Berry 2006).

Some scholars have identified the importance of collaboration for virtual team effectiveness (e.g. Solomon

2001). Others (e.g. Kirkman *et al.* 2002; Allan & Lewis 2006; Gatlin-Watts *et al.* 2007) have claimed that collaboration takes a particular form in VTT. There is evidence that developing collaborative learning generally is more feasible in collectivist cultures than in individualist cultures (Talja *et al.* 2005), and an emphasis on individualism tends to dampen collaboration (Churchman & Stehlik 2007). Indeed, some researchers have suggested that placing a high value on individualism may reinforce non-collaborative behaviour (McDermott *et al.* 1999). Although VTT may facilitate collaboration in a wide range of contexts, this generally leads to the following proposition.

Proposition 4: In the specific context of VTT, collectivist trainees will be more collaborative than individualist trainees.

Teamwork and collectivism/individualism

The third component, teaming, is about team members' willingness to join with, and work with, others as a team. Culture directly affects teamwork (Gatlin-Watts *et al.* 2007) and is likely to be particularly influential in the initial stages of teaming. The collectivism and individualism dimension is likely to have many organizational consequences for team-based work (Workman 2001; Alavi & McCormick 2004).

Willingness to work in a team is unlikely to be the same for all tasks. Participating in training programs is an organizational task. The social-relatedness of learning can potentially increase organizational members' willingness to work with others, as learning in a team and satisfying the team's needs can give each member the opportunity to meet his or her social needs. Team-based training presents opportunities for effective learning according to many researchers (Yang & Chen 2005; Rassuli & Manzer 2005; Wilson 2005).

Teamwork may actually be more important in virtual settings (Johnson *et al.* 2002; Chinowsky & Rojas 2003) than in face-to-face communication environments (Whatley 2006). The forming and working of many teams are related to team members' collective orientation (Alavi & McCormick 2004). VTT can provide a sense of 'learning community within which participants collaborate with others to negotiate and share meanings' (Chamberlain & Vrasidas 2001, cited in Conrad & Donaldson 2004). In addition, CMC technologies may enhance knowledge and skill sharing (Winter & McGhie-Richmond 2005). Learner engagement with learning is likely to enrich cooperation and participation (Silins & Mulford 2002), and VTT is a beneficial way of cooperating (Lahenius & Järvenpää 2004) because it develops a context in which colleagues who are not located in the same space can work in a virtual team. Consequently, even people with an individualistic orientation may appreciate a team learning approach.

Oudhuis (2004) has written about individualized teams, which consist of multifunctional individuals who are eager to learn and who are flexible and keen to take on more responsibilities. A training approach that takes advantage of both learning in groups and self-directed learning is likely to be effective. This approach encompasses teams of autonomous, responsible individuals who are eager to learn, take the initiative and to help each other (Ratcheva & Vyakarnam 2001; Oudhuis 2004).

Rationally, people with individualistic orientations may work in a team (Birenbaum-Carmeli 2001) because they understand that doing so may achieve individual goals, while the quality of participation of a person with a collectivist orientation is likely to be affected by whether the team is perceived as an in-group. Therefore, the following proposition can be posited:

Proposition 5: The closer the team goals in VTT are to individualist team members' personal goals, the more they will collaborate in VTT.

Conclusion

The development and working of VTT may be expected to vary under different cultural conditions. This paper focused on VTT as an approach that is able to enmesh collaborative learning and self-directed learning. We have argued that the success or otherwise of VTT will depend to some extent on cultural orientation, particularly focusing on collectivism–individualism. It is also argued that VTT can be an effective training approach because of its potential to respond to both cross-cultural and individual differences. The first requirement for VTT to be effective is that members should perceive a need for training. Of the many training models that could meet this need, team-based learning is a possibility. We have argued that collectivism–individualism is a cultural dimension that will influence this selection. We described a model of VTT with three essential components: virtuality, training and teaming. Evidence sug-

gested that individualists may find CMC a reliable, operative mean to communicate with people. CMC helps trainees to overcome physical, social, temporal and psychological boundaries, and allows one-to-one, one-to-many and many-to-many interactions. It has been argued that an individualist orientation generally fits more comfortably with virtuality than a collectivist orientation.

VTT is appropriate for self-directed collaborative learning. In addition, it presents training that is sensitive to individual needs' assessment, presents a context for teams comprising members with various cultural backgrounds, and potentially can have a focus on socio-cultural and technical aspects of training. Moreover, these qualities are sensitive to the cultural context in which VTT is developed.

VTT may be more challenging than other forms of teamwork. Collectivists may be expected to be more embracing of teamwork in general, but there may be subtle differences in different contexts. On the one hand, collectivists prefer to deal with in-groups, which are usually relatively few in number. On the other hand, individualists tend to be members of many fluid groups. They feel autonomous and are less likely to subordinate their goals to be goals of groups. These lead us to conclude that social behaviours of individualists as team members are more relevant with teaming for virtual training.

There are a number of educational implications that can be drawn from the theoretical arguments presented. The phenomenon of globalization has resulted in supra-national organizations operating in multiple cultural contexts, and their educational and training programs should reflect this. While acknowledging that there is likely to be a multitude of cultural variables that may be relevant, collectivism–individualism is a dimension that is likely to be especially salient for the effectiveness of teams, and hence, VTT. First, organizations should not only focus on the quality of the technology by which VTT is delivered but also on the quality of the social interactions of team members. Second, organizations should take account of the majority cultural orientation when implementing VTT. However, we caution again against cultural stereotyping. In some circumstances, collectivism–individualism of employees may need to be assessed sensitively by means of a psychometrically appropriate instrument. Third, while the idea that teaming fits comfortably within an individualist context appears counter-intuitive, the way in which teaming is enacted in VTT may actually suit such a context, provided the goals of the trainee and the virtual team are aligned. Hence, VTT should be self-directed in the individualist context, within parameters set by the organization. Fourth, to encourage collaboration, VTT tasks should be interdependent. This, however, is likely to be more important in an individualist, than in a collectivist, context. Fifth, VTT delivered in a collectivist context should be structured, with an appointed team leader. Sixth, VTT is a relatively new phenomenon, and the propositions developed in this paper provide a framework for future research. Finally, by gaining a better understanding of VTT processes, researchers may be able, systematically, to investigate within-culture (emic) differences in the VTT context and further improve the effectiveness of VTT.

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