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## Trust in Culturally Diverse Teams

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## Abstract

As the Canadian Forces is becoming more culturally diverse and personnel are increasingly involved in complex multinational coalition operations, a critical issue is how military teams will be able to work efficiently and effectively despite the challenges posed by diversity. One of the major challenges for future military teams is that perceived differences among teammates could impede the development and maintenance of trust. This study investigates the impact of cultural diversity on trust in teams and on the management of trust violations within these teams.

Reserve force military personnel ( $n = 106$ ) were recruited to participate in this study. Participants were asked to imagine themselves in a specific operational context with a hypothetical teammate. Participants were provided with a demographic profile about a hypothetical teammate, purported to be either from a similar culture (United States), a different culture (Bulgaria), or a very different culture (Sierra Leone). Participants then read an operational scenario involving themselves and the hypothetical teammate. In half of the missions, the teammate was depicted as committing a potential trust violation, with the other half of the missions having no violation. Pre and post-mission questionnaires examined participants' trust and expectations about their teammate and mission success. Teammate behaviour attributions and 'willingness to risk' were assessed only post-mission.

Findings showed that cultural similarity impacted trust and expectations at the pre-mission stage, in that participants had more confidence in their partner and marginally more trust in their team when their teammate was from a similar culture. After more experience with the teammate (post-mission), trust violations had a strong and consistent impact, while the role of cultural identity became less pronounced. Overall, when teammates committed a trust violation they were seen as less trustworthy, and willingness to risk and expectations decreased.

These results suggest that culture can have a prominent impact on initial perceptions and expectations about both the trustworthiness and the performance of new teammates. Although the effects of culture were overridden by trust violations in the scenario, it may be problematic that new teammates were presumptively accredited a lower level of trust just because they had different cultural backgrounds.

Possible theoretical accounts of these findings are explored and lessons learned, future research and implications for CF training are addressed. Better understanding category-based trust will be critical as the CF moves toward increasingly dynamic, diverse and distributed operations.

## Résumé

Compte tenu que les Forces canadiennes sont de plus en plus diversifiées sur le plan culturel et que ses membres participent de plus en plus à des opérations complexes au sein de coalitions multinationales, l'un des enjeux majeurs est la capacité des équipes militaires à travailler de façon efficiente et efficace malgré les difficultés ressortissant à la diversité. L'un des principaux problèmes que rencontreront les futures équipes de militaires, c'est que les différences perçues entre les membres des équipes pourraient compromettre l'établissement et le maintien de la confiance. La présente étude a trait à l'incidence de la diversité culturelle sur la confiance au sein des équipes ainsi qu'à la gestion des abus de confiance au sein de ces équipes.

Les services de 106 réservistes ont été retenus pour participer à cette étude. Ceux-ci devaient s'imaginer dans un contexte opérationnel donné avec un coéquipier hypothétique. On leur faisait part du profil démographique d'un coéquipier hypothétique qui provenait d'une culture semblable (États Unis), différente (Bulgarie) voire très différente (Sierra Leone). Puis on leur demandait de lire un scénario opérationnel les mettant en cause ainsi que leur coéquipier hypothétique. Suivant le scénario d'une mission sur deux, le coéquipier brisait peut-être la confiance qu'on lui avait accordée. Des questionnaires ont été remis aux participants avant et après la mission pour évaluer leur confiance et leurs attentes à l'égard de leur coéquipier et du succès de la mission. Les caractéristiques liées au comportement du coéquipier et la volonté de prendre des risques ont été évaluées uniquement après la mission.

D'après les résultats, une culture commune a une incidence sur la confiance et les attentes dès avant une mission; autrement dit, les participants ont manifesté une plus grande confiance envers leur coéquipier et une confiance légèrement plus grande envers leur équipe lorsque leur coéquipier partageait la même culture. Une fois que le participant connaissait davantage son coéquipier (après la mission), les transgressions de la confiance avaient un effet marqué et soutenu, tandis que l'identité culturelle jouait un rôle moins prononcé. Dans l'ensemble, lorsque des membres de l'équipe brisaient la confiance que leur accordaient leurs coéquipiers, ils étaient perçus comme moins dignes de confiance, et la volonté de prendre des risques de même que les attentes diminuaient.

Ces résultats donnent à penser que la culture peut avoir une incidence marquée sur les perceptions et les attentes initiales concernant la fiabilité et le rendement de nouveaux équipiers. Bien que les effets de la culture aient été supplantés par une transgression de la confiance dans le scénario, il peut être problématique que de nouveaux coéquipiers aient été présumés moins dignes de confiance seulement en raison de leurs antécédents culturels différents.

On cherche une explication théorique aux résultats obtenus, on en tire des leçons ainsi que d'éventuelles répercussions sur l'instruction des FC et d'éventuelles recherches futures. Une meilleure compréhension du lien entre la confiance et divers facteurs sera de plus en plus cruciale au fur et à mesure que les FC procéderont à des opérations de plus en plus dynamiques, diversifiées et réparties.

## Executive Summary

As the Canadian Forces (CF) is becoming more culturally diverse and personnel are increasingly involved in complex multinational coalition operations, a critical issue is how military teams will be able to work efficiently and effectively despite the challenges posed by diversity. One of the major challenges for future military teams is that perceived differences among teammates could impede the development and maintenance of trust. This study investigates the impact of cultural diversity on trust in teams and on the management of trust violations within these teams.

CF reserve force personnel (n = 106) were recruited to participate in this study. Participants were asked to imagine themselves working in a multinational coalition operation with an unfamiliar teammate. They then received a profile of this hypothetical teammate that described the teammate's basic demographic information and experience, and this teammate was reported to be from a culture either relatively similar to Canada (i.e., United States), or from a different (i.e., Bulgaria), or very different (i.e., Sierra Leone) national culture. After reading this demographic information, participants read a scenario in which the teammate either did or did not commit a trust violation. Two types of potential trust violations were explored. The first trust violation, a violation of character integrity, was committed as the teammate beat an innocent civilian. The second trust violation, a competence violation, was committed when the teammate failed to return with critical ammunition without a justified cause. Pre and post-mission questionnaires examined participants' trust and expectations about their teammate and mission success. Teammate behaviour attributions and 'willingness to risk' were assessed only in post-mission questions.

Findings showed that cultural similarity impacted trust and expectations at the pre-mission stage, in that participants had more confidence in their partner and marginally more trust in their team when their teammate was from a similar culture. Diverse teammates were also expected to be less likely to share common beliefs, values, expectations, and level of training than teammates from a similar culture.

However, after reading the complete scenario (post-mission), trust violations had a strong and consistent impact, while the role of cultural identity became less pronounced. This suggests that the impact of trust violations during the mission overshadowed the impact of cultural differences. Overall, when teammates committed a trust violation they were seen as less trustworthy, and willingness to risk and expectations of teammate's behaviour decreased. Overall, teammates who had committed a trust violation were reported to be less trustworthy than teammates who had not committed such a violation.

These results suggest that culture can have a prominent initial impact on perceptions and expectations about both the trustworthiness and the performance of new teammates. Although the effects of culture were overridden by trust violations, it may be problematic that new teammates were presumptively accredited a low level of trust just because they had different cultural backgrounds.

Possible theoretical accounts of these findings are explored and lessons learned, future research, and implications for CF training are addressed. Better understanding the role of category-based trust will be critical as the CF moves toward increasingly dynamic, diverse, and distributed operations.

## Sommaire

Compte tenu que les Forces canadiennes sont de plus en plus diversifiées sur le plan culturel et que ses membres participent de plus en plus à des opérations complexes au sein de coalitions multinationales, l'un des enjeux majeurs est la capacité des équipes militaires à travailler de façon efficiente et efficace malgré les difficultés ressortissant à la diversité. L'un des principaux problèmes que rencontreront les futures équipes de militaires, c'est que les différences perçues entre les membres des équipes pourraient compromettre l'établissement et le maintien de la confiance. La présente étude a trait à l'incidence de la diversité culturelle sur la confiance au sein des équipes ainsi qu'à la gestion des abus de confiance au sein de ces équipes.

Les services de réservistes ( $n = 106$ ) des FC ont été retenus pour participer à cette étude. Ceux-ci devaient s'imaginer dans un contexte opérationnel donné avec un coéquipier hypothétique. On leur faisait part du profil démographique d'un coéquipier hypothétique qui provenait d'une culture semblable (États-Unis), différente (Bulgarie) voire très différente (Sierra Leone). Puis on leur demandait de lire un scénario dans lequel leur coéquipier tantôt brisait, tantôt ne brisait pas la confiance qu'on lui avait accordée. Deux types de transgression de la confiance étaient évoqués. Dans le premier cas, le coéquipier battait un civil innocent et n'avait donc plus une personnalité digne de confiance. Dans le deuxième cas et sans raison valable, le coéquipier ne ramenait pas des munitions indispensables et faisait ainsi preuve d'incompétence [m1].

Des questionnaires ont été remis aux participants avant et après la mission pour évaluer leur confiance et leurs attentes à l'égard de leur coéquipier et du succès de la mission. Les caractéristiques liées au comportement du coéquipier et la volonté de prendre des risques ont été évaluées par des questions uniquement après mission.

D'après les résultats, une culture commune a une incidence sur la confiance et les attentes dès avant une mission; autrement dit, les participants ont manifesté une plus grande confiance envers leur coéquipier et une confiance légèrement plus grande envers leur équipe lorsque leur coéquipier partageait la même culture. De plus, on s'attendait à ce qu'un coéquipier d'une autre culture partage moins les mêmes croyances, valeurs, attentes et niveau d'instruction qu'un coéquipier de même culture.

Cependant, une fois qu'un participant avait lu la totalité du scénario (une fois la mission terminée), les transgressions de la confiance avaient une incidence marquée et constante, tandis que l'identité culturelle jouait un rôle moins prononcé. Cela laisse à penser que l'incidence des transgressions de la confiance en cours de mission prenait plus d'importance que celle des différences culturelles. Dans l'ensemble, on disait faire moins confiance aux coéquipiers qui avaient transgressé la confiance la confiance qu'on leur avait accordée qu'aux autres coéquipiers.

Ces résultats donnent à penser que la culture peut avoir une incidence marquée sur les perceptions et les attentes initiales concernant la fiabilité et le rendement de nouveaux équipiers. Bien que les effets de la culture aient été supplantés par une transgression de la confiance dans le scénario, il peut être problématique que de nouveaux coéquipiers aient été présumés moins dignes de confiance seulement en raison de leurs antécédents culturels différents.

On cherche une explication théorique aux résultats obtenus, on en tire des leçons ainsi que d'éventuelles répercussions sur l'instruction des FC et d'éventuelles recherches futures. Une meilleure compréhension du rôle joué par la confiance en fonction de divers facteurs sera de plus en plus cruciale au fur et à mesure que les FC procéderont à des opérations de plus en plus dynamiques, diversifiées et réparties.

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# 1. Introduction

## 1.1 Background

This study follows up previous research exploring swift trust, a specific form of category-based trust (L-549). More specifically, the current study investigates the impact of cultural diversity on trust in teams and on the management of trust violations within these teams.

Trust has been defined as “*the willingness of a party to be vulnerable to the outcomes of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party*” (Mayer, Davis, & Schoorman, 1995, p. 712). Trust helps to understand others and predict their behaviour (Adams, Bryant, & Webb, 2001). Trust is especially critical in situations where risk, vulnerability, and uncertainty are concerns, and when situations require interdependence with other people (Costa, Roe, & Tailleau, 2001; Rousseau, Sitkin, Burt, & Camerer, 1998). As military teams are often required to work in highly chaotic and ambiguous environments in which they must coordinate their efforts to be effective, military systems have given increasing attention to issues of trust.

Two forms of trust are frequently discussed in trust literature. The most commonly discussed form is person-based trust (Lewicki & Bunker, 1996). Person-based trust is argued to be predicated on time and direct, personal contact (Jarvenpaa & Leidner, 1999; Rempel, Holmes, & Zanna, 1985; Wilson Strauss, & McEvily, 2006). Over time, individuals obtain information regarding the disposition, motives, and values of others which allow them to make decisions about others’ trustworthiness (Kramer, 1999). However, many of the situations in which military teams must function are not necessarily conducive to the progressive growth of person-based trust, as this form of trust takes time and effort to develop.

A second form is category-based trust. Category-based trust is defined as “trust predicated on information regarding a trustee’s membership in a social or organizational category” (Kramer, Brewer, & Hanna, 1996, p.577). It emerges *a priori* as a product of an individual’s membership in groups or categories about which they have relevant information. For example, knowing that a fellow teammate is from a similar regiment may allow some team members to presumptively trust a new teammate even in the absence of direct evidence of his competence because this teammate was trained within a known and respected system. As such, category-based trust can provide a basis for trust without history or direct contact, and may assist the emergence of trust within teams even when the growth of person-based trust is not possible.

One of the major challenges for future military teams, however, is that *a priori* expectations about other teammates are not necessarily positive. Indeed, when prospective teammates are perceived to be different from oneself (on whatever dimension), these differences might also challenge the emergence of both person-based and category-based trust. This is particularly likely to be the case within the Canadian Forces because, paralleling Canadian society as a whole, the CF is becoming increasingly culturally diverse (Chief of the Defence Staff, 2002), as well as being increasingly involved in complex multinational coalition operations, and working with other military and non-military systems. This cultural diversity is likely to have a serious impact on the emergence of trust. Moreover, modern military operations are also changing in other ways that could seriously impact trust. For example, in addition to being increasingly diverse, military teams of the future will be increasingly dispersed through time, space, and may have multiple purposes. All of these



factors, then, have the potential to diminish the ability to develop direct and personal forms of trust, as well as challenge the ability of team members to make presumptive judgements about the trustworthiness of teammates from less familiar cultures. Indeed, as outlined in the *Canadian Forces Strategic Operating Concept* (2005), CF personnel will find themselves in operations that are defined by the JIMP (joint, interagency, multinational, and public) framework. Simply put, a critical issue within these contexts is to help understand how diverse teams will be best able to develop the levels of trust necessary to work efficiently and effectively despite the challenges posed by diversity. An initial step in understanding how diverse teams will develop such necessary trust levels is understanding how cultural diversity might impact category-based trust.

## 1.2 Diversity

One of the key challenges for the future, then, is to understand how these diverse teams are able to develop and maintain trust even with high levels of risk and uncertainty. Diversity has been conceptualized in a variety of ways in the literature.<sup>1</sup> An earlier taxonomy introduced by Jackson (1995; cited in Horwitz, 2005), distinguishes between detectable attributes and underlying attributes. Detectable attributes are readily apparent and include such demographic markers as ethnicity, gender, and age. Underlying attributes, on the other hand, are less apparent upon brief exposure. These attributes include ability and personality characteristics (Bowers, Pharmer, & Salas, 2000). Similarly, Harrison, Price, and Bell (1998) characterized diversity as consisting of surface-level (demographic) diversity or deep-level (attitudinal) diversity. Surface level diversity is defined as differences in observable biological characteristics, whereas deep level diversity is not readily apparent and is defined as differences in attitudes, beliefs, and values (Horwitz, 2005).

Diversity within teams is purported to have both positive and negative effects. For example, diverse teams have been argued to show less cohesiveness because of differing backgrounds, and have less interpersonal similarity and common experiences to rely on to promote mutual attraction and motivation to work together (Knouse, Smith, & Knouse, 1996). Diverse groups can also take longer to solve problems, may communicate less effectively (Knouse et al., 1996), and be less conducive to the creation of shared mental models (Knouse, Smith & Knouse, 2001). Two competing theories, namely the similarity-attraction theory and cognitive resource diversity theory (Horwitz, 2005), have been advanced in order to explain the probable effects of team diversity.

The similarity-attraction theory argues that members of homogenous groups are likely to be more productive than heterogeneous groups because of the mutual interpersonal attraction of team members with similar characteristics (Bowers et al., 2000). Conversely, heterogeneous groups are believed to be less productive because of the tensions and conflicts arising from team member differences. Although the similarity-attraction theory is plausible, some have questioned key assumptions of this theory. For instance, Bowers et al. (2000) suggest that although members of similar backgrounds may be attracted to each other, whether this attraction translates into higher levels of performance is questionable.

Contrary to similarity-attraction theory, cognitive resource diversity theory proposes that diversity has a positive impact on team performance due to the unique resources each member brings to the team (Horwitz, 2005). This theory argues that heterogeneous teams are likely to benefit from a variety of diverse perspectives within the team and to promote creativity, innovation, and problem solving. As such, it is argued they would be likely to perform better (Horwitz, 2005). Similarly,

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<sup>1</sup> Parts of this section from the Team Modelling Literature Review (Sartori, Waldherr, & Adams, 2006).

Knouse et al. (1996) argue that diversity may facilitate more creative approaches to solving problems and allow a higher level of synergistic efforts to be directed toward group goals. Diverse teams that are functioning well also seem to use the strengths of their members to enhance group performance, focusing on both commonalities and individual differences when necessary. Existing research and theory, then, seem to argue that diversity has the potential to both help and hinder team processes such as trust.

One form of diversity particularly likely to impact on the emergence of team trust in the Army of Tomorrow is cultural diversity. When working in multinational coalitions, for example, team members from different countries will bring different values and expectations into their interactions with teammates. Research has shown that groups with individuals from different cultural backgrounds are less communicative, have lower group commitment, and have more relationship conflict (cf. Krebs, Hobman, & Bordia, 2006). Krebs et al. (2006) explain these negative effects of cultural diversity in terms of social identity. The authors argue that people categorize themselves and those around them into social categories. People in similar categories (e.g., similar cultural backgrounds) are considered in-group members, whereas those in different categories (e.g., different cultural backgrounds) are considered out-group members. People perceived to be out-group members are generally perceived to be less trustworthy, less honest, and less cooperative than in-group members. This suggests that the establishment of trust will take longer in culturally diverse teams because team members will only see culturally similar (i.e., in-group) members as being trustworthy.

Theoretical work by Doney, Cannon, and Mullen (1998) also suggests that cultural diversity may negatively impact trust development. Doney et al. (1998) define culture as

*“a system of values and norms that are shared among a group of people and that when taken together constitute a design for living”* (p. 607)

These theorists argue that a culture’s values and norms serve as a basis for people’s behaviours and beliefs. Because different cultures have different values and norms, the processes that people use to make judgements about the trustworthiness of others may vary between cultures. In fact, the extent to which the behavioural assumptions associated with each trust-building process are tenable within a given culture will determine the likelihood of developing trust using that process. For example, within individualistic cultures, people are more likely to form trust using calculative processes because the values and norms within an individualistic culture are likely to be consistent with an exchange orientation or with self-serving motives. Therefore, people in individualistic cultures are more likely to use a person’s capability in order to gauge their trust in this person. On the other hand, within collectivist cultures that value group rather than individual achievement, people are less likely to use their opportunistic motives as a guide for their trust judgements. In collectivist cultures, behavioural conformity is more important than distinctiveness, and predictability is likely to be influential on trust judgements. Therefore, in any given culture or cultural group the processes people use to develop trust are a product of the values and norms that define proper behaviour within the culture.

Doney et al. (1998, p. 616) argue that

*“when trustors and targets share the same norms and values, there is a greater chance that a trusting relationship will form because the direction the target takes to trust is the same route the trustor follows to establish whether the target is trustworthy”.*

If two people share the same values, they are more likely to trust because they are using the same processes in order to gauge each others’ trustworthiness. On the other hand, cultural diversity is



likely to hamper trust development. As cultural differences are also associated with different values and norms, developing trust is likely to be more difficult and a greater amount of time may be needed to bridge dissimilar values and norms.

Theoretical work argues that trust is likely to be hindered by cultural diversity and this assertion has been supported by empirical research. A study conducted by Yuki, Maddux, Brewer, and Takemura (2005) explored the role of cultural norms in trust development processes. Specifically, they were interested in understanding differences in depersonalized trust (trust toward a relatively unknown target person) across Eastern and Western cultures. Yuki et al. had students from an American university (Western culture) and a Japanese university (Eastern culture) take part in two studies, one involving hypothetical trust scenarios and one involving a money allocation game requiring risk. Results showed that whereas people from Western cultures base their trust on whether the target belongs to an in-group or an out-group (e.g., come from the same university), trust in Eastern cultures emphasizes the more complex relational structure within the in-group and is based on the network within the in-group system. That is, trust within Eastern cultures is based on both direct (e.g., share a common in-group) and indirect (e.g., target is related in some way to a known in-group member) links. This suggests that trust in unfamiliar people is qualitatively different across Eastern and Western cultures.

Taken together, the work reviewed suggests that how trust emerges in military teams of the future may depend to some extent on the cultural composition of the teams. Team members with diverse backgrounds and experiences may have less to draw upon in order to make confident predictions about other teammates. Similarly, when team members come from dissimilar ethnic backgrounds, differences in value systems and established norms may make trust development more difficult, may change both the qualities that they look for in judging the trustworthiness of others, and may alter the ways in which team members work to establish trust.

Another potential challenge within diverse teams is not just that team members from different cultures may have different standards for trust, but that their a priori beliefs and attitudes about members of specific cultural groups may influence their interactions with teammates from these groups. When these beliefs and attitudes are negative, they have the potential to influence interactions in very prominent ways. Negative beliefs and attitudes about another teammate, for example, can change both the behaviours toward this person as well as how this person's behaviour is interpreted. For instance, even the way in which a simple behaviour is interpreted can be influenced by whether the perceived perpetrator is seen as belonging to one's own group or to an out-group. An analysis by Kunda and Thagard (1996), for example, showed that a simple behaviour such as pushing another person was interpreted as a violent shove when the perpetrator was a member of an out-group, but as a playful push when the perpetrator was a member of one's in-group. In the context of diverse teams, this research suggests that how diverse teammates are perceived will be influenced both by whether they are seen as being members of one's own in-group or as outsiders, and by the beliefs and attitudes associated with each of these groups. Therefore, understanding the role of cultural diversity in diverse teams is a critical area of exploration.

The primary focus of the current study, then, is the impact of cultural diversity on trust in ad hoc teams. To explore this, participants were asked to imagine themselves working in a multinational coalition operation with an unfamiliar teammate. They received a profile of this hypothetical teammate that described the teammate's basic demographic information and experience, and this teammate was reported to be from a culture that is either relatively similar to Canada (i.e., United States), or from a different (i.e., Bulgaria), or very different (i.e., Sierra Leone) national culture.

The impact of this cultural diversity on the perceived trustworthiness of the teammate and expectations about the teammate before and after reading about the teammate's behaviour within the scenario will be explored.

### 1.3 Trust Violations

Another critical issue explored in this research is how perceptions of a teammate will be impacted by trust violations that occur in the course of working together. In any team, trust violations have the potential to impact negatively on team dynamics. Given the challenges already faced by diverse teams, managing potential violations of trust may be a critical determinant of team effectiveness. This section explores some available research relevant to trust violations within diverse teams.

When working with other people, violations of expectations seem inevitable. However, the attributions that people make about a violation can help to determine the actual impact of the violation. Some research, for example, suggests that the impact of violations will depend on the victim's attributions about the reason for the trust violation, as well as the perceived frequency of the violation. Research by Elangovan, Auer-Rizzi, and Szabo (2007) argued that a victim's attribution of responsibility has a critical influence on trust erosion. If the victim, for example, believes that the violator was genuinely unable to prevent the violation because of low competence, the victim might ascribe low responsibility to the violator for the trust violation. However, people would ascribe more responsibility to violators perceived to be able but unwilling to prevent the violation.

Elangovan et al. (2007) had 120 employees from diverse organizations in Austria and Germany read trust violation scenarios and provide ratings of trust and distrust toward the violator. Results showed that making internal attributions about the violator (i.e., that the violator "did not want to meet expectations") damaged trust to a greater extent than making external attributions (i.e., that the violator "could not meet expectations"). In addition, trust eroded significantly more when it was violated two or three times than when it was violated only once. This suggests that trustors' attributions of responsibility impact levels of trust erosion. Given these results, it is crucial to understand if this is even more problematic when the violator is from an out-group rather than an in-group.

In addition to attributions, research suggests the component of trust being violated impacts levels of trust erosion. The three key components of trust are competence, benevolence, and integrity. People are considered to be competent if they are perceived to have the skills, characteristics, and competencies to meet the demands of a situation (Adams et al., 2001). Benevolence is "the extent to which a trustee is believed to want to do good to the trustor, aside from egocentric profit motives" (Mayer et al., 1995). Finally, integrity is the perception that a person adheres to a set of principles that a trustee finds acceptable (Adams et al., 2001).

Ferrin, Kim, Cooper and Dirks (2007) conducted two experiments to explore trust erosion after integrity- and competence-based trust violations. In particular, these researchers were interested in understanding the effects of violator reticence, apology and denial as responses to trust violations. Ferrin et al. define reticence as "a statement in which the accused party explains that he or she cannot or will not confirm or disconfirm the veracity of an allegation, as a means of responding to a trust violation" (p.893). Apologizing, on the other hand, involves acknowledging responsibility and regret for the violation, whereas denial involves rejecting culpability. Previous research (e.g., Kim, Ferrin, Cooper, & Dirks, 2004) suggests that denial is the most effective response to integrity-based violations because people weigh negative information about integrity more heavily than positive

information. As such, even if a breach of integrity occurred, the trustee would be better served by denying the infraction. Breaches of competence, on the other hand, are better mitigated by apologizing, because a competence failure is more likely to be seen as an isolated event and an apology offers the potential for redemption. Ferrin et al. (2007) hypothesized that reticence would be a suboptimal response to both integrity-based and competence-based trust violations.

In their first experiment, Ferrin et al. (2007) had participants view a videotape of an employment interview during which the applicant was informed that a reference alleged that the applicant was guilty of either an integrity- or a competence- based trust violation related to failing to file a correct tax return. The applicant offered one of the three responses to this allegation: reticence, apology or denial. Participants' trust in the applicant was measured before and after the allegation using measures of perceived integrity, perceived competence, willingness to put oneself at risk with the candidate, and willingness to hire the candidate. The second experiment used the same trust measurements, but required participants to view a videotape of a CEO promising to take a 10% pay cut along side the employees of a company experiencing financial difficulties. A newspaper article dated a month later was then read stating that the CEO had failed to take the pay cut for either integrity- or competence-based reasons. A response to the allegations using one of the three strategies followed.

Overall, results showed that reticence was less effective than the optimal response in a specific situation (i.e., denial in the case of an integrity violation and apology in the case of a competence violation) and equivalent to the inferior response in each form of trust violation. More importantly, the findings suggest that people perceive the violations to each component of trust differently. Specifically, the fact that participants were able to identify different optimal responses to competence and integrity violations suggests that the component of trust being violated impacts our perceptions of trust violations.

Lapidot, Kark and Shamir (2007) further illuminate the consequences of trust violations in a study exploring trust building and trust erosion in a military context. The researchers had 74 teams of 15 to 20 cadets taking officers' training courses with the Israel Defence Forces recall and write about an event that either strengthened or reduced trust in their team commander. These responses were then coded as reflecting the leader's ability, benevolence and integrity. Ability-related behaviours consisted of manifestations of leadership, decision making, instruction, and competence. Benevolence-related behaviours consisted of behaviours such as giving or withholding help, encouragement, support, sensitivity to the cadet's needs, involvement with the team, availability, and approachability. Finally, integrity-related behaviours consisted of behaviours such as promise keeping, fairness or discrimination, taking responsibility for mistakes, and honesty or dishonesty.<sup>2</sup> The situations that participants described were also coded in terms of the level of vulnerability faced by the participant to be either low (e.g., routine activities) or high vulnerability (e.g., operational activities).

This study showed a number of interesting results. First, the researchers found that two-thirds of the examples provided were related to trust eroding, but only one-third of the examples were related to trust building. This suggests that the negative events that influence trust are more likely to be salient and easily recalled than the positive events, supporting what some researchers have argued is a fundamental asymmetry in interpersonal perceptions (e.g., Kramer, 1999). Importantly, however, although trust building and trust erosion events were mentioned with equal frequency in

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<sup>2</sup> Two other dimensions (namely, personal example and openness/flexibility) were also coded, but are excluded from this discussion.

routine situations, in situations with higher levels of vulnerability, the events that were reported were more likely to be associated with the erosion of trust. Clearly, trust losses are more salient than trust gains in vulnerable situations. The dimensions that influenced leader trust also showed some interesting patterns. Specifically, benevolence was mentioned more often in responses related to trust building events, whereas integrity was most common in trust eroding events. Ability (or competence) was also associated more often with trust erosion than trust building examples. These results further reinforce the notion that the component of trust being violated impacts on how trust violations are perceived.

The discussion above highlights the potential impact of trust violations on perceptions of trustworthiness. Clearly, the attributions made about the violation will help to determine its impact. To explore this, the secondary focus of the current study is on the impact of trust violations on trust in ad hoc teams. Participants read a violation in which trust was violated and a scenario in which trust was not violated. Half of the trust violations were an integrity violation and half of the trust violations were a competence violation. This aspect of the study was hoped to provide insight into how trust violations are perceived in diverse teams.

## 1.4 Overview of Current Study

While it is accepted within the military community that trust is fundamental, to date there is only speculation as to how diversity will impact trust in newly formed teams. With the Canadian Forces moving toward increasingly joint, interagency, and multinational operations, understanding trust within diverse ad hoc teams is increasingly important.

A previous study (Adams, Waldherr, Sartori, & Thomson, 2007) showed common regimental identity to be one antecedent to the emergence of category-based trust. Participants who believed that they were working with team members from the same military regiment showed higher initial levels of trust in their teammates than when they believed they would be working with team members from a different regiment. This suggests that common identity such as that promoted by shared regimental background may be a critical contributor to trust within teams.

Building on these results, the current study seeks to understand the impact of cultural identity on trust within teams. Trust theorists have argued that teams whose members come from diverse cultural backgrounds may face more challenges in building and maintaining trust, perhaps because they are also likely to embrace different value systems and beliefs (Doney et al., 1998). Additionally, team members belonging to a similar culture may evidence greater category-based trust, as there is likely to be stronger group identity and presumptive expectations about the trustworthiness of other teammates. Therefore, this experiment seeks to further understand how diversity in background impacts judgments of trust, when team members are likely to have a shared common identity versus when they are unlikely to have a common identity.

How trust violations are handled within a team context may also be influenced by different perspectives and expectations about teammates from diverse countries. If the dimensions that influence trust are unique for people from different cultures, how they perceive potential violations of trust may also differ. For example, as the Kunda and Thagard analysis (1996) suggests, if a new teammate violates another teammate's trust, the fact that this teammate is from a similar country could buffer the impact of this violation if this action is interpreted in a more benign way. On the other hand, a similar action committed by a teammate from a different or very different culture could be interpreted as being more problematic either because the person violated simply has less



information about the teammate (and hence, less ability to dismiss actions as unintentional), or has more a priori negative expectations about a person from a diverse culture.

The impact of shared cultural background on trust assessments were examined by experimentally manipulating whether team members were described as being from a country similar to Canada (i.e., United States), a country different from Canada (i.e., Bulgaria), or a country very different from Canada (i.e., Sierra Leone). These differences in team members were expected to promote varying levels of common identity, ranging from higher levels with team members from a similar country and progressively lower levels with team members from different and very different countries.

Potential violations of trust also occurred in half of the mission scenarios. We predicted that participants' initial trust levels would vary as a product of the cultural backgrounds of their new teammates. That is, participants who believed their team member was from a similar country would initially show higher trust (i.e., will exhibit higher levels of category-based trust) than participants who believed their team member was from a different country or a very different country. Once potential trust violations occur, however, the key issue was how these violations influence subsequent perceptions of one's teammate. Trust violations committed by teammates from dissimilar or very dissimilar countries were hypothesized to be perceived more negatively than those committed by soldiers from a similar country. The current study examined trust within culturally diverse teams, and how trust levels (and related expectations) are influenced by violations committed by one's teammate.

## 2 Method

### 2.1 Participants

Participants in this study were 106 reserve force military personnel (99 male and 7 female) from an infantry regiment in Southern Ontario. Participants ranged in age from 17 to 55 years with a mean age of 24.6 years (std. dev. = 10.0). Half of the sample (51%) had attended either college or university, 52% had served between 1 and 5 years in the military, and the majority were either a Private (52%) or a Corporal (28%). Almost all of the participants (95%) spoke English as a first language. The majority of participants were from the Army (and specifically, infantry). Full demographic information is shown in Table 1.

**Table 1: Demographic Information**

Variable	Category	N	%
First Language (n = 106)	English	101	95.3
	Other	5	4.7
Country of Residence (n = 106)	Canada	106	100
Level of Education (n = 106)	High School	52	49.0
	College/University	54	51.0
Rank (n = 104)	Private	54	51.9
	Corporal	29	27.8
	Master Corporal	3	2.8
	Sergeant	2	1.9
	Warrant Officer	3	2.8
	Chief Warrant Officer	1	0.9
	Lieutenant	2	1.9
	Second Lieutenant	3	2.9
	Captain	1	0.9
	Major	4	3.8
	Lieutenant-Colonel	1	0.9
	Military Occupation (n = 103)	Infantry	86
Other		17	16.5
Years of military service (n = 106)	Less than 1 year	19	17.9
	1 – 3 years	41	38.7
	3 – 5 years	14	13.2
	5 – 10 years	15	14.2
	More than 10 years	17	16.0

## 2.2 Experimental Procedures

This study involved a total of 106 participants, individually completing the study tasks in groups of about 20 at a time over the course of 5 days. Participants were solicited for the study in advance. This solicitation process involved contacting senior military personnel who had authority over taskings, and who approved their regiment's participation in this research. Once participation was confirmed, the research team travelled to the reserve unit to seek voluntary consent from participants. Participants were told that their participation was voluntary and they were provided an opportunity to seek clarification or further information. In order to ensure that participants were truly volunteering, it was made explicitly clear to them that they would be viewed as having fulfilled their obligation to participate even if they decided to discontinue their participation at any point during the study. Signed informed consent forms were obtained from those who wished to continue (Annex A16). During the informed consent procedure, participants read and were provided with an Information Sheet (Annex A17).

At the beginning of the data collection period, participants were briefed on:

- 1) the broad objectives of the study;
- 2) its relevance and potential benefit to the military; and,
- 3) the nature of their participation (i.e., format of the study, time commitment).

Participants were informed about the nature of the relationship between the researchers and DRDC, that their responses during the study would be kept strictly confidential, and that only aggregate results (i.e., no individually identifying information) would be reported.

Data collection took place at the regiment's building. Prior to starting the experiment, participants were informed that the study would explore factors influencing the effectiveness of teams. Participants were informed that they would be reading scenarios, imagining that they were part of the two-person team described in the scenarios, and responding to questions about the scenario.

After this briefing, participants completed questions related to their demographic information and their military experience (Annex A1), and their generalized trust in others (see Annex A2). Participants were also asked to complete questions meant to tap the strength and salience of their identity as a member of the Canadian Forces and as a Canadian (see Annex A3).

Participants were first asked to read an introductory paragraph to the scenario, which provided a brief introduction to the hypothetical situation (see Annex A4-1 and A4-2). This part of the scenario was intended to capture their interest and to assist their ability to imagine themselves in the hypothetical situation before the experimental manipulation. Participants were then provided with a demographic profile of their hypothetical team member. The cultural background of this hypothetical teammate was experimentally manipulated to be either similar to Canada (i.e., United States), somewhat different (i.e., Bulgaria) or very different (i.e., Sierra Leone). All other demographic information (e.g., age, experience) about this teammate was balanced to be equivalent within each condition.

After reading the hypothetical teammate's profile, participants completed the pre-mission questionnaire, which was designed to tap relevant dimensions of category-based trust and participants' estimates about team performance (see Annex A5). At the pre-mission level, questions tapped the extent to which the teammate is seen as being likely to share common values, and the extent to which the teammate's behaviour is likely to be consistent with the Canadian Forces code of conduct. Issues of reputation, training, experience, as well as perceptions of being

“on the same page” might also signal cultural differences, so these were also addressed. The last questionnaire items at the pre-mission stage related to confidence in team members (self and teammate) and trust in the team’s ability to complete the mission successfully. The items at this stage reflect a priori expectations about the teammate. As the only difference in the teammate’s profile, by design, is the cultural background of the teammate, this pre-mission questionnaire provides insight as to whether culture gives rise to varying expectations about teammates’ performance and trustworthiness in the absence of other information.

Participants then read the main portion of the mission scenario. One scenario involved ammunition problems during a fire fight (Annex A6 and A7); the other scenario involved an encounter with a lone, male civilian (Annex A9 and A10). In the first scenario, the two teammates had been tasked to conduct a mounted patrol in an unidentified multinational coalition operation. As the patrol progresses, however, the road becomes impassable and they must disembark from their patrol vehicle and continue on foot. They unexpectedly become engaged in a firefight with the enemy. As their ammo is running low, the team decides that the teammate must go back to the vehicle to get more ammo, leaving one teammate (i.e., the participant in this study) to face the firefight alone. In the violation condition, the teammate fails to return and fails to provide a good explanation of why he did not return with the ammo, whereas in the no violation condition, he explains that he was prevented from returning by enemy forces. In the second scenario, two teammates are again tasked with conducting a patrol. They encounter a local civilian who speaks only a little English. In the violation condition, the teammate interacts in a disrespectful way toward the civilian and ends up kicking him and stealing from him. In the no violation condition, the teammate has a respectful conversation with the civilian. The scenarios were designed with both a violation and no-violation condition in order to explore the relationship between cultural identity and trust violations that may occur within diverse teams.<sup>3</sup>

After reading the second portion of the scenario, participants completed questionnaires at the post-mission stage. The first question at this point was intended as a check on the success of the violation manipulation (Annex A8 and A10). Specifically, participants were asked whether the teammate did anything that might have put their team at risk (in the “ammo” scenario) or whether the teammate did anything that they disagreed with (in the “civilian” scenario). Subsequent questions on this page explored the positivity and negativity of the teammate’s behaviour during the scenario as an indicator of the severity of the violations. The next set of questions paralleled the pre-mission questions related to shared values and beliefs, training, and experience (Annex A12). An additional set of questions (interspersed with the initial set) attempted to explore the attributions that participants made about the violation that had occurred. These questions (e.g., “My teammate’s behaviour during the scenario may not reflect the person he really is” and “My teammate’s actions during the scenario were probably consistent with his character”) were intended to show whether participants had made an internal dispositional attribution or an external situational attribution for the violation, their level of trust in their teammate, their perceptions about their teammate, and the extent to which they felt their trust was violated. The next set of questions explored participants’ willingness to risk trusting their teammates in operational contexts (Annex A13). In order to check whether participants properly attended to the information about the cultural background of their teammate, participants were also asked to recall information about their teammate and the scenario (see Annex A14 and A15). These measures are described in more detail in Section 2.3.

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<sup>3</sup> The scenarios used were based on previous work conducted to develop realistic trust violation scenarios within a military context (Sartori, Adams, Waldherr, & Lee, 2007) and were refined in conjunction with a military SME.



This procedure was then followed again such that each participant read both the ammo and the civilian scenario, with the order of scenario presentation, the cultural background of the teammate, and the violation condition counterbalanced.

## 2.3 Measures

*Category-based trust.* Questions were included at pre-mission and post-mission to measure category-based trust. Category-based trust was measured by asking participants the extent to which they agreed with five statements; “My teammate seems to share my beliefs and values,” “My teammate seems to have good training,” “My teammate seems to have a high level of experience,” “My teammate seems likely to have a good reputation,” and “My teammate performed with professionalism.” All questions were rated on a scale ranging from 1 (completely disagree) to 7 (completely agree).

*Trust dimensions.* Questions were also included to reflect the three most prominent trust dimensions, namely competence, benevolence, and integrity. Competence was measured by asking participants to rate the extent to which they agreed with the statements “My teammate knew what he was doing” and “My teammate was competent.” Benevolence was measured by asking participants to rate the extent to which they agreed with the statement “My teammate displayed concern for others.” Integrity was measured by asking participants to rate the extent to which they agreed with the statements “My teammate did what he said he was going to do”<sup>4</sup> and “My teammate did not show integrity.” All questions were rated on a scale ranging from 1 (completely disagree) to 7 (completely agree).

*Attributions.* Two questions were included to identify participants’ attributions for the teammate’s behaviour. These questions were “My teammate’s behaviour during the scenario may not reflect the person he really is” and “My teammate’s actions during the scenario were probably consistent with his character”. Questions were rated on a scale ranging from 1 (completely disagree) to 7 (completely agree).

*Willingness to risk.* Benefits associated with trust is that it enables higher levels of willingness to risk, to put one’s own life on the line, and the belief that a trusted person will “cover my back” (Adams et al., 2001). We measured willingness to risk by asking participants “If asked to do a high risk mission with this teammate...” and measuring the degree to which they agreed with “I would be willing to rely on him to watch my back,” “I would be willing to rely on him to keep my best interests in mind,” “I would be willing to rely on him to protect me,” “I would be willing to rely on him to do the right thing,” “I would be willing to rely on him to behave predictably,” and “I would be willing to rely on him to do what he says he’s going to do”. Participants were also asked to measure the degree to which they agreed with the statement “In a high risk mission, I believe my teammate would look out for me.” All questions were rated on a scale ranging from 1 (completely disagree) to 7 (completely agree). The questions were found to have very high reliability ( $\alpha = .97$ ).

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<sup>4</sup> Preliminary analyses showed that participants interpreted the ammo scenario as literally reflecting that the violator did not do what he had said he was going to do. This literal interpretation (although accurate) means that this question did not reflect the nuanced form of integrity that was intended.

## 3 Results

### 3.1 Initial Analyses

The study had initially been designed to have a sample of 100 participants (about 25 participants per week over 4 weeks), each reading two scenarios with 2 different teammates. One-third of these participants would read about a similar teammate and a different teammate, one-third of would read about a similar teammate and a very different teammate, and one-third would read about a different teammate and a very different teammate. However, as data collection was starting, the exact number of participants for this study was uncertain. In order to ensure a high enough N in the two most critical conditions (similar/different and similar/very different), the first 2 data collection periods focused on these conditions first. As data collection progressed and it became clear that we would have a sample of 100 participants, the latter sets of participants focused on completing all three combinations.

Scenarios were intended to present either a trust violation or no trust violation. One of the questions at the post-mission stage served as a manipulation check to explore whether participants perceived trust violations when they were intended. Specifically, the question asked whether one’s teammate had done anything that might have put the team at risk (in the ammo scenario) or whether the teammate had done anything with which they disagreed (in the civilian scenario). After we had collected roughly two-thirds of the data, this check showed an unexpected pattern in that a number of participants reported that a violation had occurred when no violation had been intended. To try to adjust for this finding, the final 16 participants were given two no violation scenarios rather than a violation and a no violation scenario. This had been done to increase the sample size in the correctly perceived no violation condition, as well as increase the sample size if a “perceived violation in no violation” condition had to be created. Consequently, more participants completed no violation scenarios than violation scenarios, resulting in a somewhat unbalanced N. The number of participants in each condition can be seen in Table 2.

**Table 2. Experimental matrix: Number of participants**

	Similar Culture	Different Culture	Very Different Culture	Total
Violation	33	32	24	89
No Violation	41	38	42	121
Total	74	70	66	210

A manipulation check was undertaken to explore whether participants had properly attended to the information presented in the demographic profile about their teammate’s home country. It was important to ensure that participants were aware of where their teammates were from. Specifically, the post-mission questionnaire asked participants to answer “What country does your teammate live in?” They were provided with the options of “Canada” or “Other” and were asked to specify the country if they chose “Other”. Frequencies are shown in Table 3.

**Table 3. Recall of teammate’s country**

	Correct recall	Incorrect Recall	Total
Similar Culture	72	2	74
Different Culture	67	3	70
Very Different Culture	55	11	66
Total	194	16	210

Participants had no difficulties recalling their teammate’s home country when the teammate was described as being from the USA (97% correct recall) or from Bulgaria, the designated ‘different culture’ within this study (96% correct recall). Participants had more difficulty recalling their teammate’s country of origin when the teammate was described as being from Sierra Leone, the designated ‘very different culture’ within this study (83% correct recall). However, four of these incorrect guesses were from other African countries (e.g., Senegal, Sri Lanka, Siera Cota, South Africa). For the remaining participants (n=7) who had incorrectly recalled their teammates’ nationality, their pre- and post-mission scores were compared to the responses of participants’ scores using one-way ANOVAs. No significant differences were found in the scores. Therefore, the scores for these participants were retained.

### 3.2 Pre-Mission

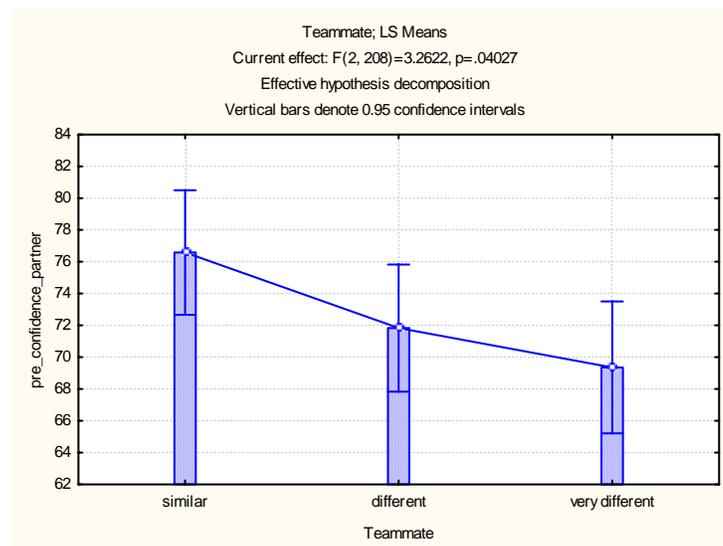
As noted earlier, trust theorists have argued that culturally diverse teams may face additional challenges in building and maintaining trust. The aim of this study is to understand how diversity in background might impact judgments of trust when team members have a similar cultural background compared to when they have dissimilar or very dissimilar cultural backgrounds. One way to explore the impact of cultural diversity on trust judgements is to assess levels of category-based trust immediately after participants learn the cultural background of their teammate but before they have had the chance to interact with this teammate. To that end, a pre-mission questionnaire was designed to tap category-based trust. Additional questionnaires also explored expectations about teammates and team performance. As these questionnaires were administered immediately after participants had read their teammate’s country of origin but before they had read the scenario, any significant differences among groups at the pre-mission level should reflect primarily category-based trust. In order to analyze the data, one-way ANOVAs were used to compare scores for teammates from similar, different, and very different cultures.

The first pre-mission questions explored participants’ confidence in themselves and in their new teammates.

**Table 4. Pre-mission confidence in team members**

N = 210 (0 = not at all confident to 100 = extremely confident)	Similar Culture (Mean,StDev)	Different Culture (Mean,StDev)	Very Different Culture (Mean,StDev)
Me	88.5 ± 10.7	86.1 ± 15.0	87.2 ± 15.0
My team partner	76.6 ± 14.6	71.8 ± 18.4	69.4 ± 18.1

As expected, the cultural background of one’s teammate had no impact on confidence in oneself. However, ratings of confidence in one’s teammate did vary significantly as a product of the cultural similarity of the teammate, as shown in Figure 1.



**Figure 1. Confidence in teammate – pre-mission**

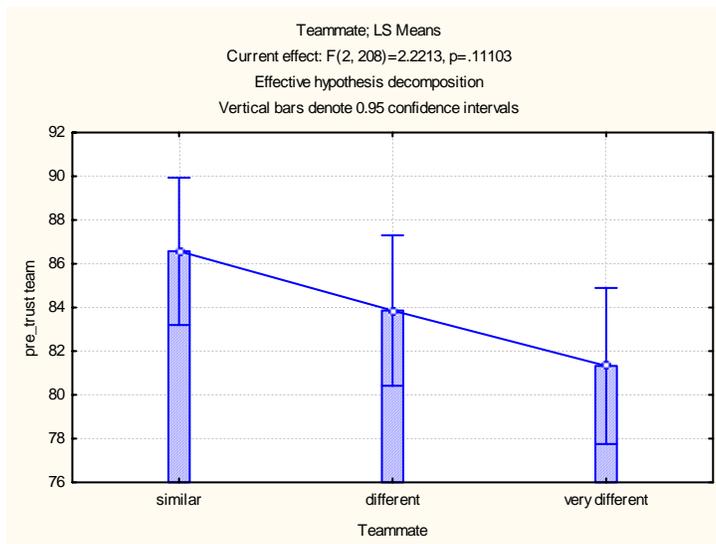
To more specifically identify differences between groups, Fisher’s least significant difference (LSD) post hoc tests were conducted. The only significant difference was between the similar and very different conditions. Participants whose teammates were from a similar culture had significantly higher confidence scores than participants whose teammates were from a very different culture ( $p = .01$ ), but the different and very different conditions did not differ significantly nor did the similar and different conditions.

In addition to ratings of trust in individual team members, participants also rated the extent to which they trusted their team as a whole to complete the mission successfully based on the information they had available at this early stage. These pre-mission ratings of trust in one’s team are shown in Table 5.

**Table 5. Pre-mission trust in team**

N = 211 (0 = not at all confident to 100 = extremely confident)	Similar Culture (Mean,StDev)	Different Culture (Mean,StDev)	Very Different Culture (Mean,StDev)
Team as a whole	86.6 ± 11.5	83.9 ± 15.1	81.3 ± 17.3

Ratings of trust in one’s team showed only a marginal effect ( $p = .11$ ) of teammate’s culture on pre-mission trust in teammates, as shown in Figure 2.



**Figure 2. Trust in team – pre-mission**

These findings suggest that participants in culturally similar teams did rate their teams to be marginally more trustworthy than those in teams with culturally different or very different teammates. This weaker pattern may suggest that participants might have weighted their confidence in their own abilities more heavily when assessing the team as a whole than they weighted their teammate’s abilities.

Results from the above analyses suggest that cultural diversity did impact negatively on trust perceptions at the pre-mission stage. Participants had greater confidence in their individual teammates and marginally higher trust in their team when the teammate was from a similar culture than when from a diverse culture.

Additional questions explored other expectations likely to relate to perceptions of trustworthiness in one’s teammates (e.g., expecting this person to show professionalism and to share values and beliefs), as shown in Table 6.

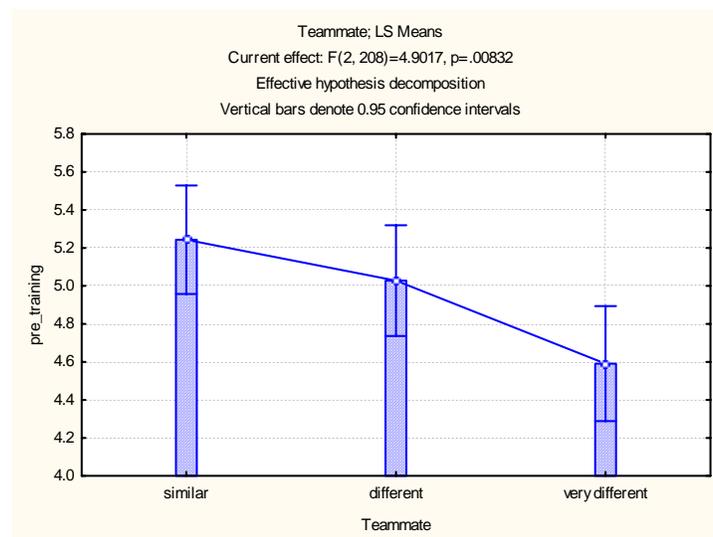
**Table 6. Pre-mission expectation means**

Smallest N = 210 (completely disagree = 1, completely agree = 7)	Similar Culture (Mean,StDev)	Different Culture (Mean,StDev)	Very Different Culture (Mean,StDev)	P value
My teammate is likely to perform with professionalism.	5.1 ± 1.1	5.2 ± 1.1	4.8 ± 1.1	$p = .10$
My teammate's behaviour is likely to be consistent with the Canadian Forces code of conduct.	4.9 ± 1.3	4.6 ± 1.2	4.4 ± 1.3	$p = .07$
My teammate is likely to share my beliefs and values.	4.8 ± 1.2 <sup>a</sup>	4.1 ± 1.2 <sup>a</sup>	4.0 ± 1.3 <sup>b</sup>	$p < .01$
My teammate is likely to have good training.	5.2 ± 1.0 <sup>a</sup>	5.0 ± 1.3 <sup>b</sup>	5.0 ± 1.4 <sup>b</sup>	$p < .01$
My teammate is likely to have a high level of experience.	4.0 ± 1.6	4.0 ± 1.6	4.0 ± 1.2	$p = .97$
My teammate and I are likely to work well together.	5.1 ± 1.2	4.8 ± 1.0	4.7 ± 1.0	$p = .09$
My teammate is likely to have a good reputation.	4.8 ± 1.2	4.7 ± 1.2	4.4 ± 1.1	$p = .17$
I expect for my teammate and I to be "on the same page".	5.3 ± 1.2 <sup>a</sup>	5.2 ± 1.3 <sup>a</sup>	4.6 ± 1.4 <sup>b</sup>	$p < .01$

Cells with the same superscript are not significantly different.

Overall, Table 6 shows that participants had expectations about teammates that were more positive than negative, with means above the midpoint of the scale. One-way ANOVAs were used to compare expectations about teammates from similar, different, and very different cultures, and Fisher's LSD post-hoc tests were used to further identify differences among significantly different groups.

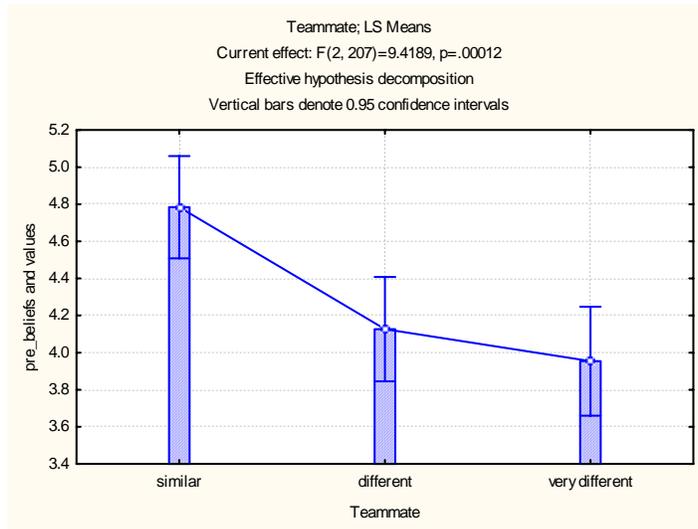
The pattern of results for expectations related to training and for "being on the same page" were similar. This pattern can be seen in Figure 3.



**Figure 3. Expectations of training – pre-mission**

Teammates from very different cultures were rated as having significantly worse training and as significantly less likely to be on the same page than teammates from similar cultures ( $p < .01$ ) and teammates from different cultures ( $p < .05$ ). As noted above, the same pattern was found for expectations related to training.

A slightly different pattern was seen for expectations of shared beliefs and values, as shown in Figure 4.



**Figure 4. Expectations of common beliefs and values – pre-mission**

Participants reported that teammates from similar cultures would be more likely to share their beliefs and values than teammates from different cultures ( $p < .01$ ) and from very different cultures ( $p < .01$ ). Expectations for sharing the CF code of conduct and expectations of working well together also showed marginal effects, but showed a similar pattern to that of beliefs and values.

There was a marginal difference seen for expectations of professionalism. Teammates from a different culture were rated as the most professional with similar and very different each somewhat lower.

Lastly, there were no differences in expectations about experience and reputation of one’s teammates.

At the pre-mission level, then, the cultural background of prospective teammates significantly impacted on perceptions about the trustworthiness of the individual, even when cultural identity was included as a covariate. Cultural background of the teammate also had a marginal impact on perceptions of the team’s trustworthiness as whole. There were several significant differences in specific expectations of teammates, in relation to their levels of training, sharing of common beliefs and values, and the sense of being “on the same page” as fellow teammates.

Recall that, to this point, participants’ expectations about their teammates are based on a brief demographic profile of their teammate. These expectations are generally less optimistic when this teammate comes from a different cultural background. A key issue, however, is how perceptions of this new (and relatively unfamiliar) teammate will change when participants have the opportunity to see this teammate in action. Another critical issue is how perceptions may be affected by the teammate committing a trust violation. These issues were explored in post-mission questionnaires.

### 3.3 Post-Mission

After completing the pre-mission questionnaires, participants then read the main portion of the mission scenario in which their teammate either did or did not commit a trust violation. Then, they completed questionnaires investigating trust, expectations, attributions, and willingness to risk. Before analyzing the post-mission questionnaires, however, two preliminary sets of analyses had to be conducted.

First, as noted earlier, some participants in the “no violation” condition perceived violations where none were intended. Before we could conduct analyses at the post-mission level, we had to identify the best way to deal with the perceived violation condition. Analyses were, therefore, conducted to explore the frequency of violation reports by violation condition and by scenario, as seen in Table 7.

**Table 7. Intended vs. unintended violations**

Violation Condition	Violation (n=43)		No Violation (n=62)	
	Violation reported	No violation reported	Violation reported	No violation reported
Did your teammate do anything that might have put you at risk? (AMMO scenario)	43	0	34	28
Did your teammate do anything that you disagree with? (CIVILIAN scenario)	46	0	12	47

All participants correctly perceived when experimental violations occurred. However, 34 of 62 participants in the ammo condition rated their teammate as having done something that put the team at risk when no violation had been intended (see Annex B1 for their full responses to this question). In general, analyses of the full responses suggest that the majority of participants saw the very act of the teammate leaving as being something that could have put them at risk, even without having failed to return for ambiguous reasons. Similarly, for the civilian scenario, 12 participants felt that talking with the civilian was unsafe or that the civilian should have been questioned more thoroughly (see Annex B2).

The key question, however, was whether the perception that the teammate did something potentially risky was of significant magnitude to represent a potential trust violation. That is, although participants had rated their teammate as having done something that put their team at risk, the impact of this potential violation was unclear. Two questions provided critical information about how positively or negatively participants saw the potentially risky behaviour. Participants had been asked to rate the positivity and negativity of the teammate’s behaviour on a scale from not at all positive (1) to extremely positive (7) during the scenario, as shown in Table 8.

**Table 8. Positivity and negativity of behaviour ratings**

		Violation perceived (n=43)		No Violation perceived (n=62)	
Violation Condition		Violation	No Violation	No Violation	Violation
AMMO	In general, how <u>positive</u> was your teammate's behaviour during the scenario?	2.0 ± 1.0	-	5.6 ± 1.0	4.6 ± 1.1
	In general, how <u>negative</u> was your teammate's behaviour during the scenario?	5.7 ± 1.5	-	2.3 ± 1.1	3.1 ± 1.1
CIVILIAN	In general, how <u>positive</u> was your teammate's behaviour during the scenario?	1.4 ± 0.6	-	6.0 ± 0.8	5.0 ± 1.4
	In general, how <u>negative</u> was your teammate's behaviour during the scenario?	6.3 ± 1.2	-	1.9 ± 1.0	3.1 ± 1.3

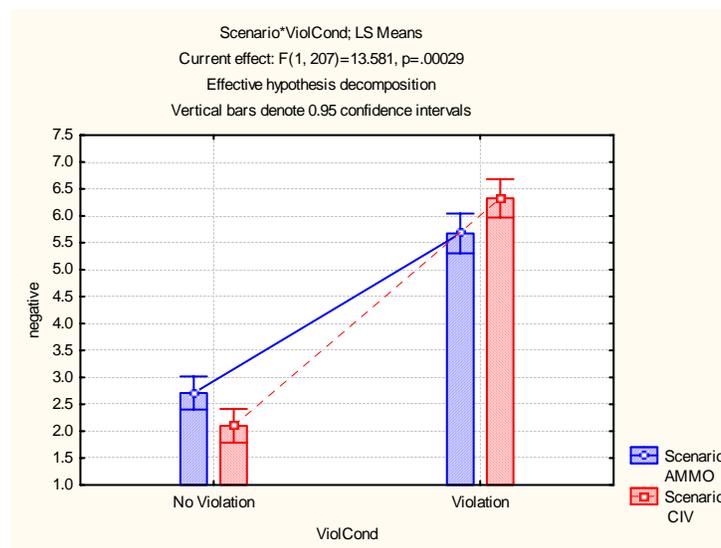
In the ammo condition, the pattern of means for the positivity question shows that the mean for the true no violation condition (M= 5.6) is closer to the unintended violation condition (M = 4.6) than to the mean for the true violation condition (M= 2.0). A 2 (violation: violation, no violation) x 3 (cultural similarity: similar, different, very different) ANOVA was conducted to see whether or not these patterns were significant. This analysis showed only a significant main effect of violation condition, and confirmed that the violation group was significantly different from the true no violation group and the unintentional violation group, which did not differ from each other. Analyses on the negativity scores for the ammo scenario showed exactly the same pattern. There were no effects for cultural similarity, nor were there any interactions between these two factors. The same patterns were also seen for both the positivity and negativity ratings of teammate behaviour in the civilian scenario.

As a whole then, these results show that although participants did identify some of the behaviour in the no violation condition as less than desirable, they did not rate the magnitude of the violation as severe as in the violation condition. That is, participants rated the positivity and negativity of these behaviours similarly to how they rated the behaviours in the true no violation condition. In our view, then, the best way to depict these findings from a data analytic perspective was to include these cases in the no violation category.

An additional set of analyses comparing the ammo and civilian scenarios were also required before post-mission analyses could be conducted. As these scenarios were designed to tap two different types of trust (i.e., integrity vs. competence), it was possible that participants might react to the trust violations in these scenarios differently. Furthermore, these scenarios had not been used in a study previously and no precedence had been set for how participants would perceive the trust violations. The impact of these varying scenarios on perceptions of teammates was examined by using participants' ratings about the positivity and the negativity of teammates' behaviours in relation to the primary constructs of interest (cultural similarity and trust violations) in this study. This analysis was conducted using a 2 (scenario: ammo, civilian) x 3 (cultural similarity: similar, different, very different) x 2 (violation: violation, no violation) between-group ANOVA. Any significant differences found between the scenarios could mean that the psychological intensity of

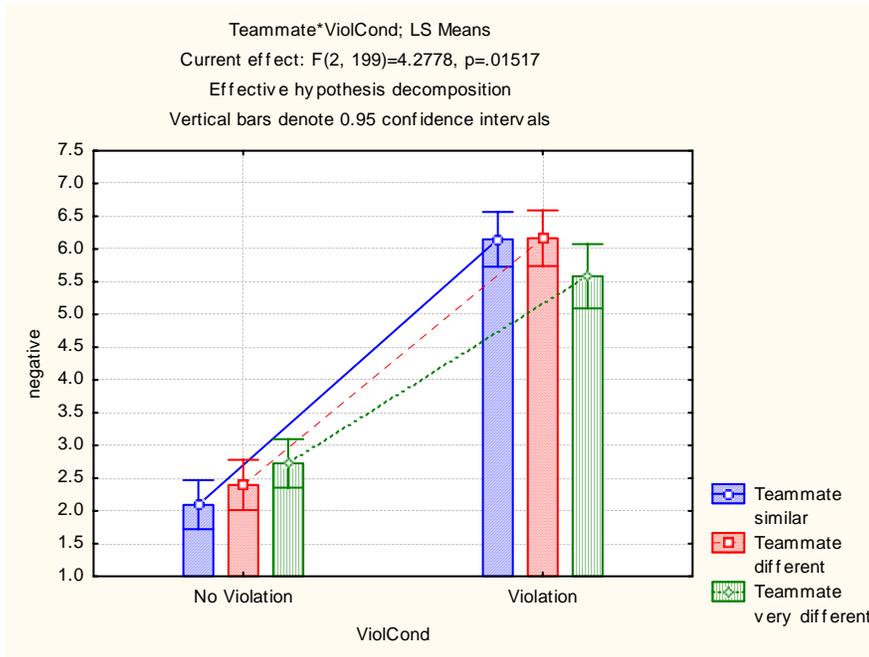
the scenario might have been different or that the violations might have a different impact depending on the trust dimensions in play. Whatever the root of the potential significant differences at this level, any differences between scenarios could indicate the need to use the type of scenario (ammo or civilian) as a factor in subsequent analyses rather than combining scenarios.

For the ratings of negative teammate behaviour, there were two 2-way interactions. The first effect was between scenario and violation condition, with participants reporting their teammate to have displayed more negative behaviours in the civilian scenario after a violation had occurred than was the case after the violation in the ammo scenario. This effect is shown in Figure 5.



**Figure 5. Negative behaviour ratings – scenario by violation**

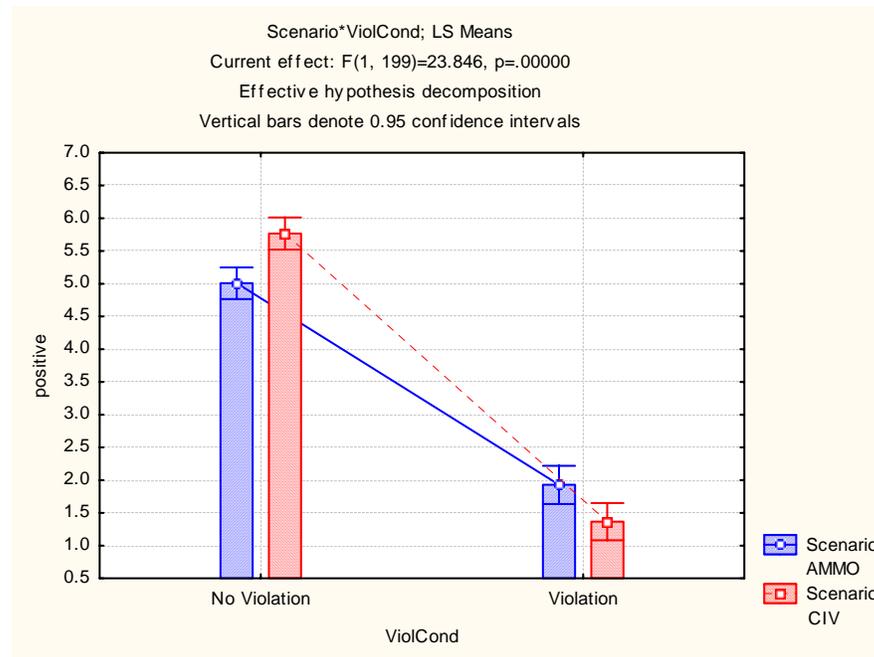
The second effect was between teammate similarity and violation condition, as shown in Figure 6.



**Figure 6. Negative behaviour ratings – culture by violation**

This shows that the impact of the violation depended somewhat on the perceived similarity of the teammate. The differences amongst means in the violation and no violation conditions seem to imply that violations have the least effect when teammates are very dissimilar and the most when they are similar regardless of the scenario.

Similar analyses were also conducted for ratings of the positivity of the teammate’s behaviour. These analyses showed a somewhat different pattern. The highest order effect was a significant interaction between scenario and violation condition, as shown in Figure 7.



**Figure 7. Positive behaviour ratings – scenario by violation**

Again, although violations were associated with much lower ratings of the positivity of teammates’ behaviour, ratings of positivity were higher in the civilian/no violation scenario than in the ammo/no violation condition. But, when a violation occurred, positivity ratings were lower in the civilian scenario than in the ammo scenario.

These results suggest that even when the cultural similarity of one’s teammate had a role, the exact nature of this role depended on the nature of the scenario. As a whole, this pattern of results supports focus group findings that participants saw the teammate beating a civilian as a more serious violation than not returning with ammo. This could have been because participants saw the psychological intensity of the civilian scenario to be higher than that of the ammo scenario. Given these differences, then, all subsequent analyses in the post-mission section incorporated scenario as an independent variable.

### 3.3.1 Trust Ratings

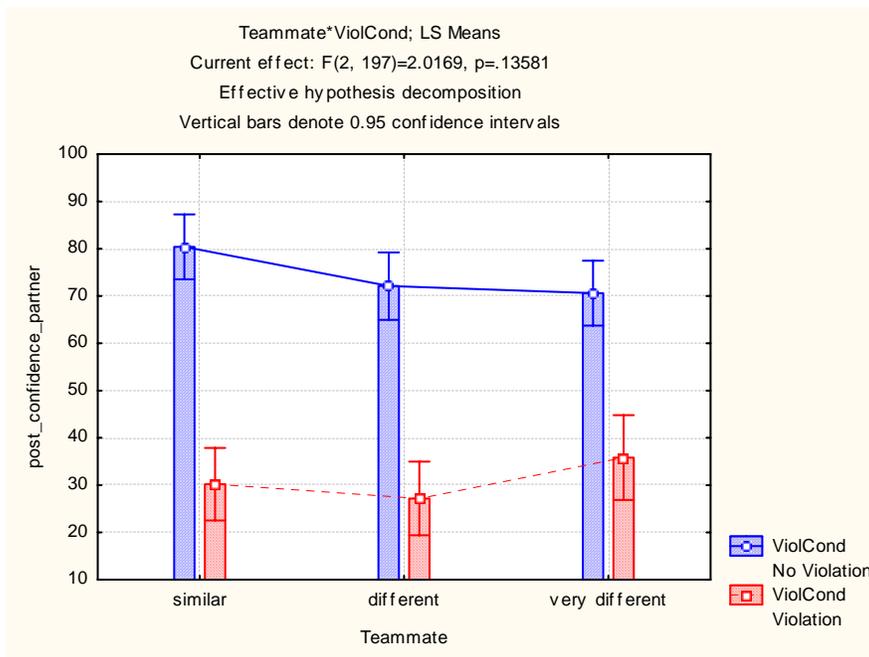
In order to understand the effect of potential trust violations within culturally diverse teams, most participants read one scenario in which a violation occurred and one scenario (with a different teammate) in which a violation did not occur (the order of the violation versus no violation scenarios was counterbalanced). After participants finished reading each scenario, they again completed more questions. These questions were designed to measure confidence, trust, attributions, and expectations. Means and standard deviations for these dimensions (as a product of the cultural similarity of the teammate and whether or not violations occurred) are shown in Table 9.

**Table 9. Post-mission confidence in team members**

N = 209 (0 = not at all confident to 100 = extremely confident)	Violation Condition	Similar Culture (Mean,StDev)	Different Culture (Mean,StDev)	Very Different Culture (Mean,StDev)
Me	Violation	86.2 ± 12.6	86.6 ± 20.5	87.7 ± 13.4
	No Violation	90.1 ± 8.59	86.3 ± 13.0	84.6 ± 19.6
My team partner	Violation	30.3 ± 24.0	27.0 ± 21.1	35.8 ± 26.8
	No Violation	80.3 ± 16.3	72.1 ± 22.2	70.6 ± 23.9

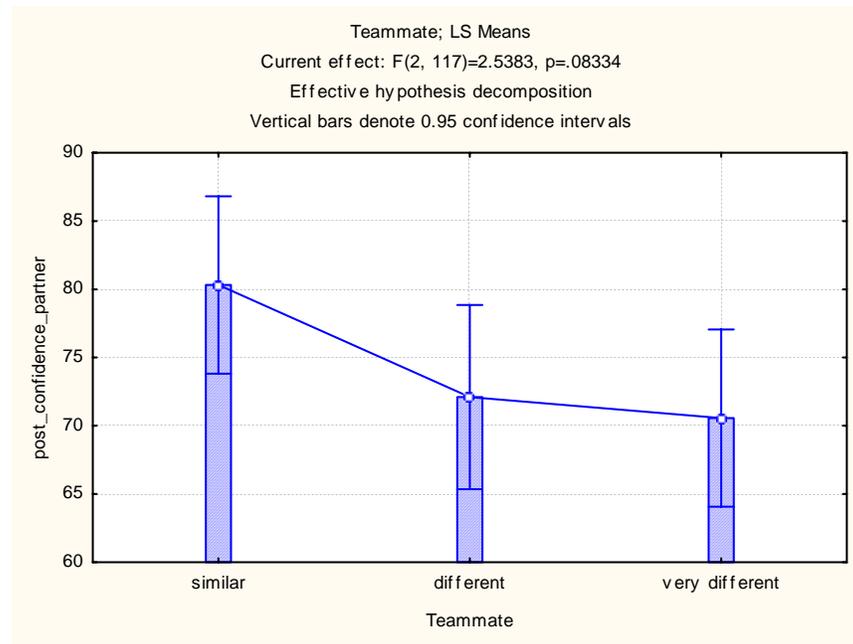
Analyses at this stage included the cultural background of the teammate, whether or not a violation had occurred during the scenario, and the scenario. Thus, a 3 (cultural similarity: similar, different, very different) x 2 (violation: no violation, no violation) x 2 (scenario: civilian or ammo) between subject ANOVA was conducted for each question at the post-mission stage.

Not surprisingly, no significant effects were found for ratings of confidence in oneself. There were 2 effects for the items related to confidence in one’s partner. The highest order effect was a weak marginal interaction between cultural similarity of one’s teammate and the violation condition, as shown in Figure 8.



**Figure 8. Confidence in teammate – cultural similarity by violation**

To understand this marginal interaction, data for the violation and no-violation conditions were analysed separately using a one-way ANOVA with cultural background as the only factor. In the violation condition, no significant difference was found for cultural background. However, in the no violation condition, a marginal difference was found for cultural background, as shown in Figure 9.



**Figure 9. Confidence in teammate – post-mission, no violation only**

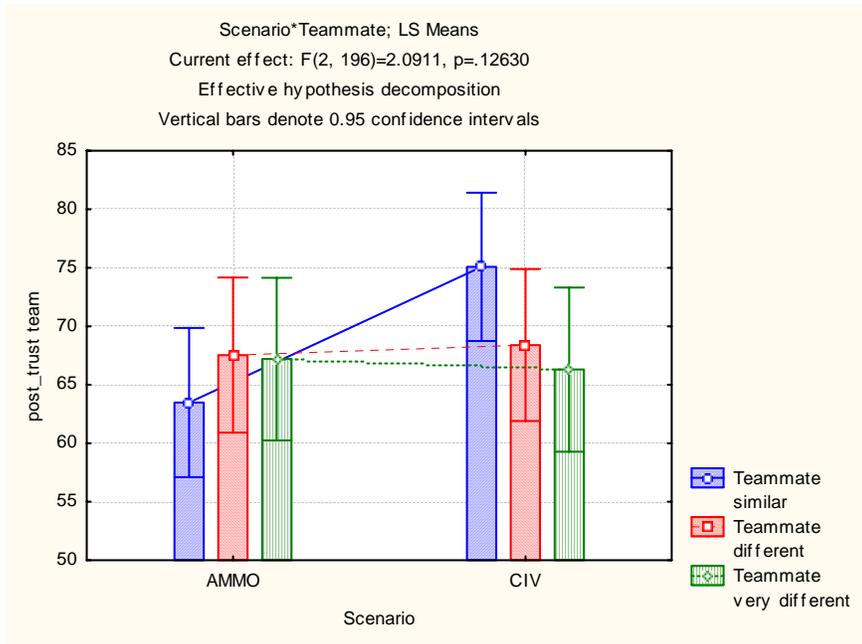
As can be seen in Figure 9, when no violation occurred, participants’ reported levels of trust in their teammates differed according to teammate’s country of origin. Specifically, ratings of the trustworthiness of one’s team partner were significantly higher when this partner was from a similar culture. The only other significant effect was for violation condition, but this was qualified by the previous interaction.

In addition to rating their confidence in individual team members, participants also rated the extent to which they trusted their team as a unit to complete the mission successfully based on the information they had received during the mission.

**Table 10. Post-mission trust in team**

N = 209 (0 = not at all confident to 100 = extremely confident)	Violation Condition	Similar Culture (Mean, StDev)	Different Culture (Mean, StDev)	Very Different Culture (Mean, StDev)
Team as a whole	Violation	52.7 ± 23.5	54.0 ± 21.5	52.8 ± 23.3
	No Violation	86.0 ± 15.6	81.6 ± 16.7	80.6 ± 18.4

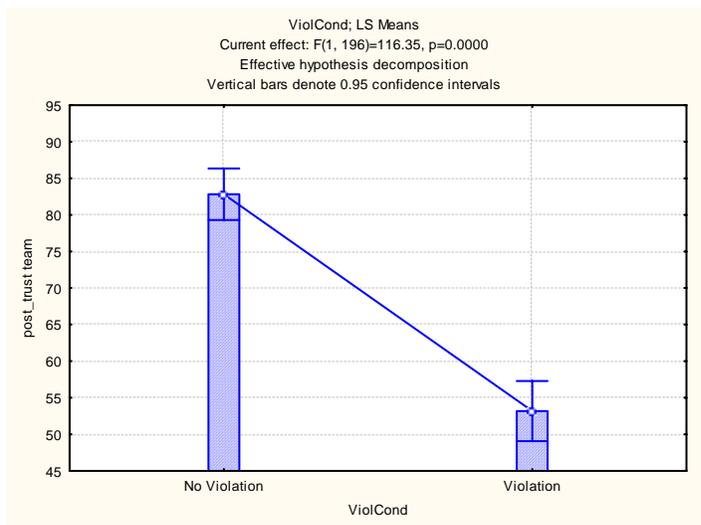
The same 3 (cultural similarity: similar, different, very different) x 2 (violation: no violation, no violation) x 2 (scenario: ammo, civilian) between subject ANOVA showed a marginal interaction effect for cultural similarity by scenario, as shown in Figure 10.



**Figure 10. Trust in team – scenario by culture**

This pattern shows that post-mission trust in team members was very similar in both the ammo and the civilian scenarios (regardless what actually happened) for different and very different teammates. However, team trust ratings in similar teammates were considerably lower in the ammo scenario than in the civilian scenario.

The only other effect was a significant main effect for violation condition, as shown in Figure 11.



**Figure 11. Trust in team – violation**

Participants who had not read about a trust violation were significantly more trusting that their team would complete the mission successfully than those who had read about a trust violation.

These post-mission findings are very interesting. For example, the results show the consistent effect of trust violations. Participants who read about a trust violation consistently provided lower trust ratings than participants who did not read about a trust violation. These post-mission findings also show the varying impact of teammate similarity and the type of scenario.

Other questions were designed to get information about which trust dimensions might most influence trust perceptions, especially after reading about potential trust violations.

**Table 11. Post-mission trust dimensions**

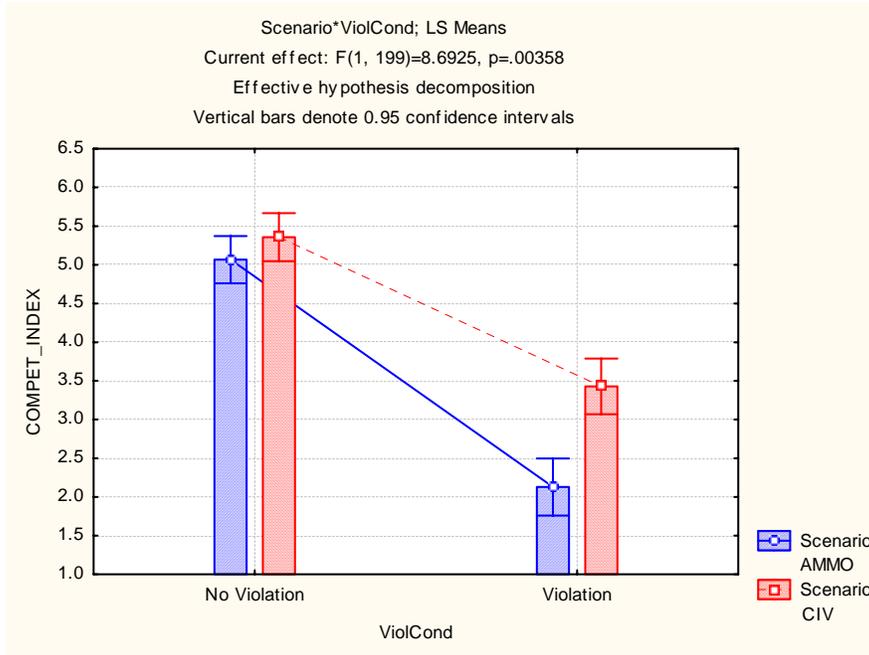
N = 210 (completely disagree = 1, completely agree = 7)	Violation Condition	Similar Culture (Mean,StDev)	Different Culture (Mean,StDev)	Very Different Culture (Mean,StDev)
My teammate was competent (competence).	Violation	2.5 ± 1.4	2.6 ± 1.5	2.7 ± 1.5
	No Violation	5.5 ± 1.4	5.3 ± 1.2	5.3 ± 1.0 <sup>a</sup>
My teammate knew what he was doing (competence).	Violation	3.1 ± 2.1	3.3 ± 2.2	2.8 ± 1.9
	No Violation	5.2 ± 1.5	5.2 ± 1.3	4.9 ± 1.2 <sup>a</sup>
My teammate displayed concern for others (benevolence).	Violation	1.6 ± 0.9	1.3 ± 0.8	1.7 ± 0.9
	No Violation	4.7 ± 1.6	4.4 ± 1.7	4.7 ± 1.5 <sup>a1</sup>
My teammate did not show integrity (integrity). <sup>**</sup>	Violation	3.2 ± 2.3	2.9 ± 2.3	3.9 ± 2.4
	No Violation	5.5 ± 1.5	4.7 ± 1.7	5.1 ± 1.6 <sup>a</sup>

<sup>\*\*</sup>reverse coded

Again, the means shown reflect the prominent impact of the violations that occurred in the scenarios.

Analyses used a 2 (violation: violation, no violation) x 3 (teammate similarity: similar, different, very different) x 2 (scenario: ammo, civilian) factor between-group ANOVA to explore how the trust dimensions were perceived by participants.

For the competence items (indexed), the highest order effect was a significant interaction between violation and scenario, as shown in Figure 12.

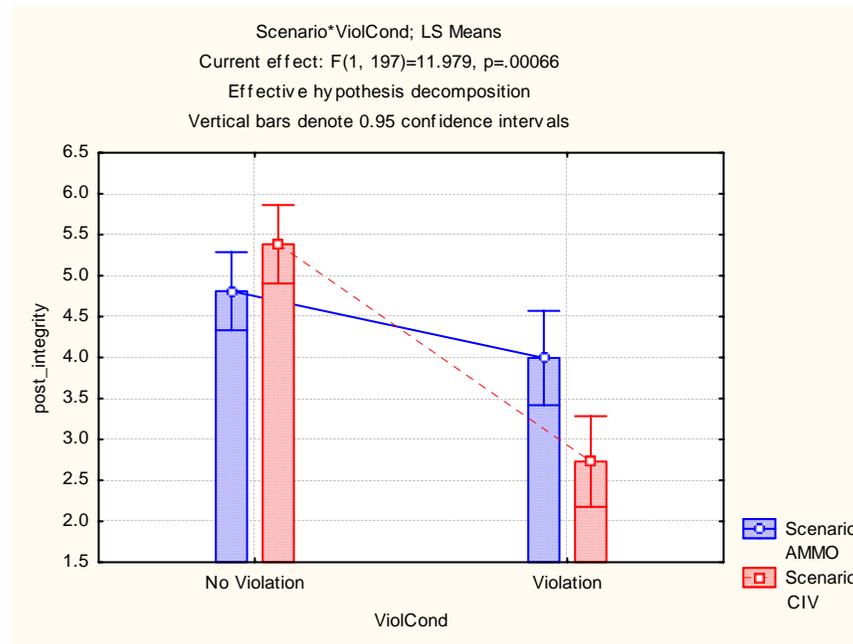


**Figure 12. Competency – scenario by violation**

This suggests that although violations negatively affected competence judgements in both scenarios, the ammo scenario seemed to have represented more of a competence violation than the civilian scenario. Given that the violation in the ammo scenario was designed to be a competence violation, these findings were expected. The similarity of the teammate had no effect.

A similar result was found for the integrity question.<sup>5</sup> A significant interaction between scenario and violation was seen, as shown in Figure 13.

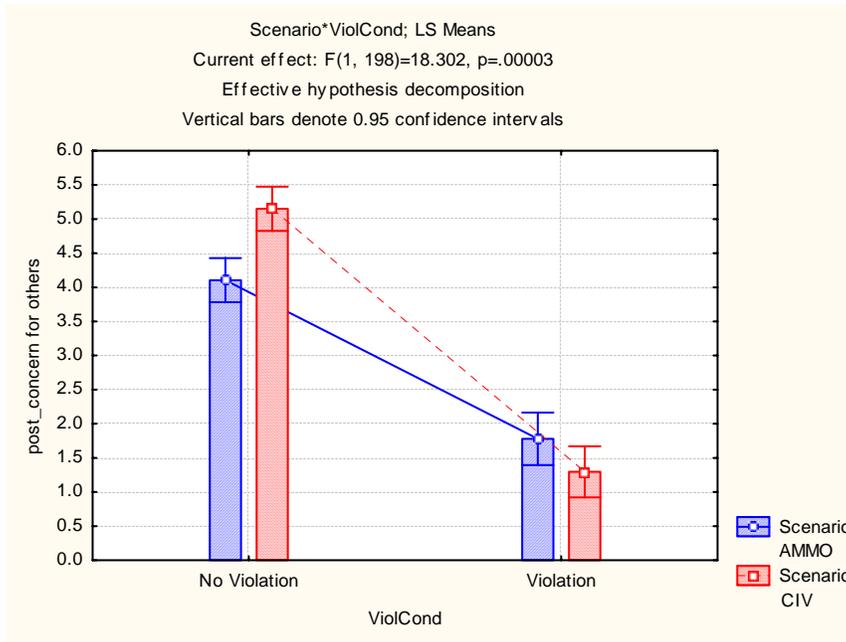
<sup>5</sup> Although two integrity questions were included in the questionnaire, only one could be used to investigate integrity at the post-mission level. The question “my teammate did what he said he was going to do” was not included because the teammate in the ammo scenario, regardless of condition, did not return with the ammunition. It was felt that this question would confound the results, so it was removed.



**Figure 13. Integrity – scenario by violation**

Once again violations negatively affected trust judgements in both scenarios. However, the civilian scenario seemed to have represented more of an integrity violation than the ammo scenario. As this scenario was designed to have an integrity violation, these findings were to be expected. There was also a significant main effect for violation condition, but this was qualified by the previous interaction. There was also a marginal main effect for cultural similarity. Teammates from different cultures were rated as having marginally less integrity than teammates from similar cultures ( $p = .06$ ) and significantly less integrity than teammates from very different cultures ( $p = .03$ ).

The benevolence item also showed a significant 2-way interaction among scenario and violation condition, as shown in Figure 14.



**Figure 14. Concern for others – scenario by violation**

When no violation had occurred, teammates in the civilian scenario were reported to be more benevolent than teammates in the ammo scenario, regardless of cultural similarity. However, when a violation occurred, the pattern was reversed. In this case, teammates who were portrayed as beating a civilian were reported to be less benevolent than teammates portrayed as not returning with ammunition.

Results from the trust dimension analyses, on the whole, make sense. Overall, teammates who had committed a trust violation were reported to be less trustworthy than teammates who had not committed such a violation. Teammates who had committed a competence violation (i.e., had not returned with the ammunition) were reported as being less competent than teammates who had committed an integrity violation (i.e., beating a civilian). Conversely, teammates who had committed an integrity violation (i.e., beating a civilian) were reported as having less integrity than teammates who had committed a competence violation (i.e., not returning with ammunition).

With respect to benevolence, teammates in the civilian scenario were seen as being more benevolent if no violation occurred and less benevolent if a violation occurred, than teammates in the ammo scenario. This makes sense as the teammate was portrayed as being quite friendly with the civilian in the no violation condition, which could be seen as benevolence. However, in the violation scenario, the teammate was portrayed as beating the civilian even after the civilian pleads for the teammate not to hurt him.

### 3.3.2 Expectations

Another question, however, was how trust violations might impact on expectations of teammates and teams. Means for these expectations at the post-mission level are shown in Table 12.

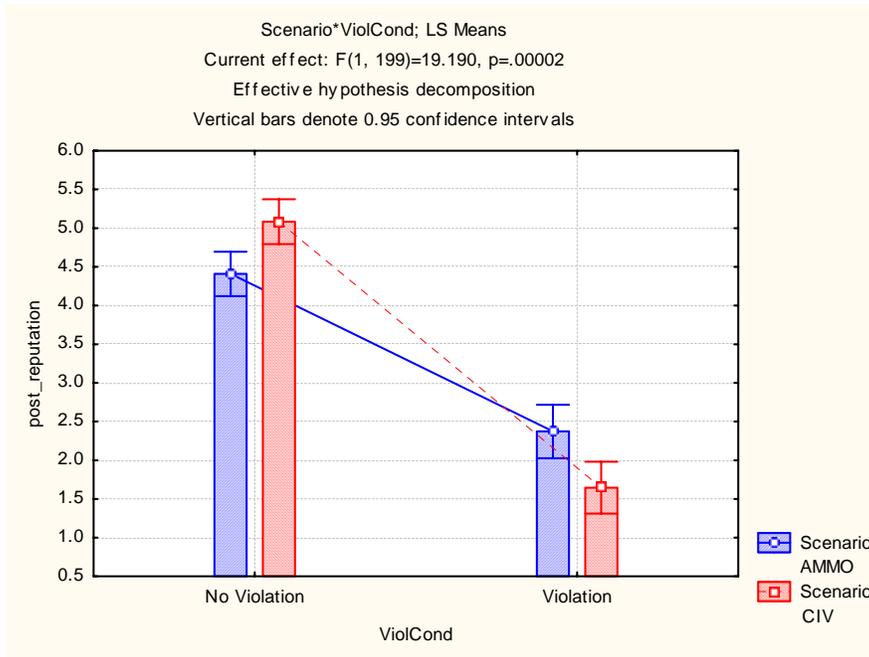
**Table 12. Post-mission expectations**

N = 210 (completely disagree = 1, completely agree = 7)	Violation Condition	Similar Culture (Mean,StDev)	Different Culture (Mean,StDev)	Very Different Culture (Mean,StDev)
My teammate is likely to perform with professionalism.	Violation	1.5 ± 0.9	1.5 ± 0.8	1.8 ± 0.9
	No Violation	5.4 ± 1.4	5.2 ± 1.2	5.1 ± 1.4
My teammate's behaviour is likely to be consistent with the Canadian Forces code of conduct.	Violation	1.8 ± 0.9	1.7 ± 0.9	1.8 ± 1.1
	No Violation	5.7 ± 1.0	5.2 ± 1.3	5.3 ± 1.2
My teammate is likely to share my beliefs and values.	Violation	2.1 ± 1.4	1.8 ± 1.4	2.0 ± 1.2
	No Violation	4.9 ± 1.3	4.6 ± 1.3	4.6 ± 1.2
My teammate is likely to have good training.	Violation	2.4 ± 1.2	2.6 ± 1.5	2.0 ± 1.0
	No Violation	5.0 ± 1.5	5.0 ± 1.3	4.7 ± 1.4
My teammate is likely to have a high level of experience.	Violation	2.3 ± 1.2	2.3 ± 1.3	2.2 ± 1.1
	No Violation	4.4 ± 1.6	4.7 ± 1.4	4.2 ± 1.3
My teammate and I are likely to work well together.	Violation	2.0 ± 1.0	1.5 ± 0.9	2.04 ± 1.11
	No Violation	4.9 ± 1.4	4.5 ± 1.5	4.7 ± 1.5
My teammate is likely to have a good reputation.	Violation	1.9 ± 1.0	2.0 ± 1.4	2.1 ± 1.1
	No Violation	5.0 ± 1.2	4.8 ± 1.2	4.5 ± 1.1
I expect for my teammate and I to be "on the same page".	Violation	1.6 ± 0.8	1.4 ± 1.0	1.8 ± 0.7
	No Violation	5.1 ± 1.7	4.7 ± 1.6	4.6 ± 1.6

These means show consistently show higher post-mission expectations when violations had not occurred.

Analyses were again conducted using a 2 (violation: violation, no violation) x 3 (teammate similarity: similar, different, very different) x 2 (scenario: ammo, civilian) factor between-group ANOVA to explore how the trust dimensions were perceived by participants.

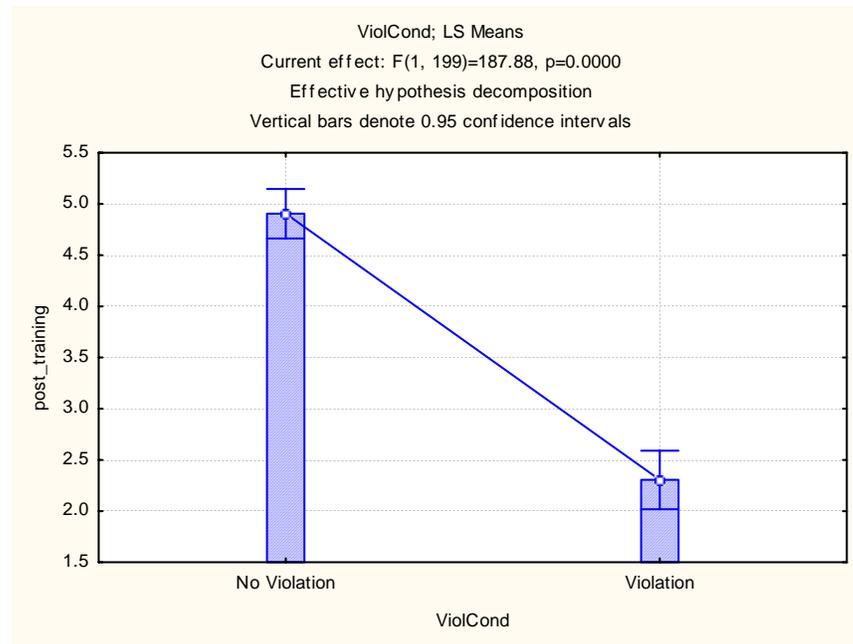
Several of these items (including professionalism, expectations that one's teammate would be likely to adhere to the CF code of conduct, expectations of common beliefs and values, working well together, reputation, and being on the same page) showed exactly the same effects with similar patterns evident. Specifically, these items showed a significant interaction between scenario and violation factors, as shown (for the professionalism item only) in Figure 15.



**Figure 15. Professionalism – scenario by violation**

In the no violation condition, teammates in the civilian scenario were perceived to be more professional than teammates in the ammo scenario. However, the opposite was true when a violation had occurred. In the violation condition, teammates in the civilian scenario were perceived to be less professional than teammates in the ammo scenario. As noted, this was true for many other expectations related to CF code of conduct, common beliefs and values, working well together, reputation, and being on the same page.

Lastly, the questions related to training and experience both showed the same pattern, a main effect for violation condition. This effect for the training question is shown in Figure 16.



**Figure 16. Training – violation**

Participants reported that their teammates had better training when the teammate had not committed a trust violation. As noted, the effect was the same for level of experience, with means ranging from 4.5 for the violation condition to 2.3 for the no violation condition.

Trust violations had a consistently negative effect on expectations about other teammates, as teammates were rated more negatively if they had committed a trust violation than if they had not done so. When teammates had not committed a violation, they were rated more positively (e.g., more professional, to have a better reputation, to be more on the same page, to act more in accordance with the CF code of conduct, to have more similar beliefs and values, and expected to work together better) in the civilian scenario than in the ammo scenario. This may be because the soldier in this scenario took the time to interact with a local person. However, when they had committed a violation, the pattern was reversed. For the civilian scenario, violations evoked more negative ratings of teammates (e.g., less professional, as having a worse reputation, less on the same page, less similar beliefs and values) than in the ammo scenario. Again, this suggests the seriousness with which participants perceived beating an innocent civilian.

Interestingly, post-mission expectations about shared beliefs and values, training, and being on the same page were not influenced by the cultural similarity of one's teammate, even though this similarity had impacted at the pre-mission stage. These results indicate that impact of trust violations during the mission may have overshadowed the impact of cultural differences.

### 3.3.3 Attributions

There is good evidence in the literature to suggest that the attributions made about people who violate our trust can influence the process of trust repair. For example, Elangovan et al. (2007) state that trustors' attributions of responsibility impact levels of trust erosion. Furthermore, Kim, Dirks, Cooper, and Ferrin (2006) argue that whether an internal (dispositional) or external (situational)

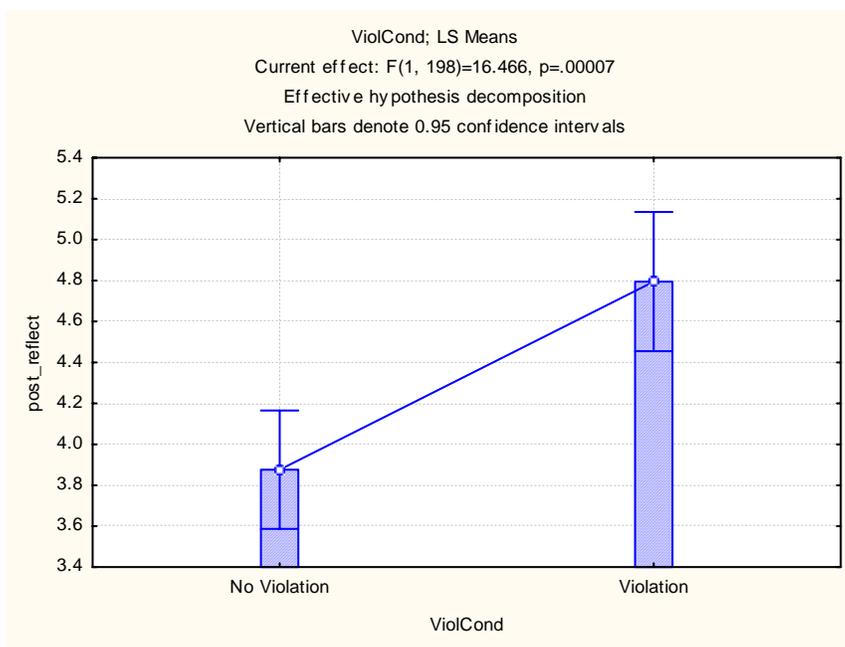
attribution is made when trust violations happen can also influence how these violations are resolved. Two questions were used to explore attributions about the teammate who committed a potential trust violation. Means for these questions as a product of violation condition and cultural similarity of the teammate are shown in Table 13.

**Table 13. Post-mission attributions**

N = 210 (completely disagree = 1, completely agree = 7)	Violation Condition	Similar Culture (Mean,StDev)	Different Culture (Mean,StDev)	Very Different Culture (Mean,StDev)
My teammate's behaviour during the scenario may <u>not</u> reflect the person he really is. (SITUATIONAL ATTRIBUTION)	Violation	4.9 ± 1.7	4.8 ± 1.8	4.8 ± 1.5
	No Violation	4.1 ± 1.7	3.8 ± 1.5	3.8 ± 1.6 <sup>a</sup>
My teammate's actions during the scenario were probably consistent with his character. (DISPOSITIONAL ATTRIBUTION)	Violation	5.2 ± 1.7	4.4 ± 1.5	4.5 ± 1.4
	No Violation	5.3 ± 1.1	5.1 ± 1.0	5.0 ± 1.0

\*\* Indicates reverse scored item.

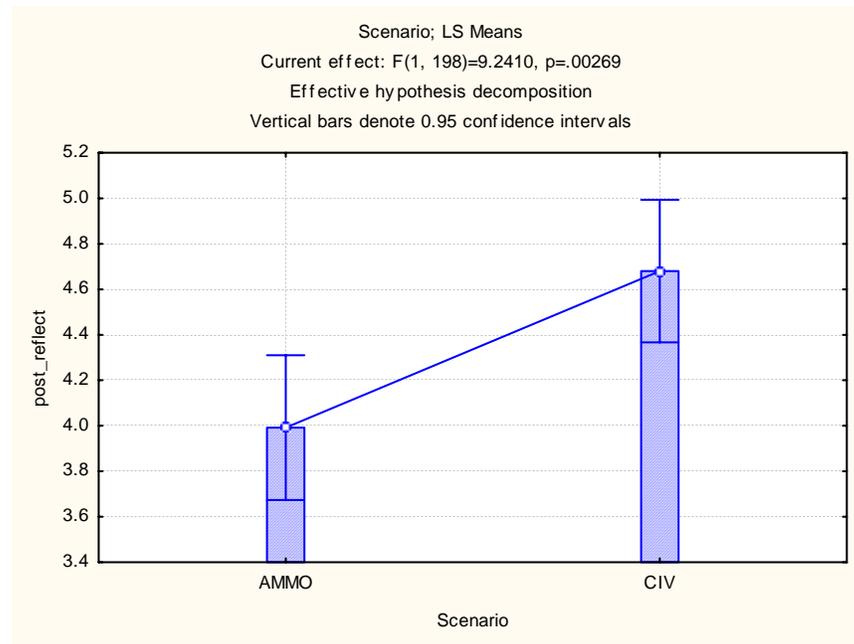
Analysis explored each post-mission attribution item in a 2 (violation: violation, no violation) x 3 (teammate similarity: similar, different, very different) x 2 (scenario: ammo, civilian) between-group ANOVA. For the first item exploring the extent to which a teammate's behaviour did reflect the person he is, there were 2 main effects, as shown in Figure 17 and 18.



**Figure 17. Behaviour may reflect person - violation**

This significant main effect shows that when violations occurred, participants were more likely to agree that their teammate's actions reflect who they really were. This reflects a slightly more dispositional than situational attribution. However, the mean for the no violation group was slightly above midpoint of the scale, suggesting more neutral responses.

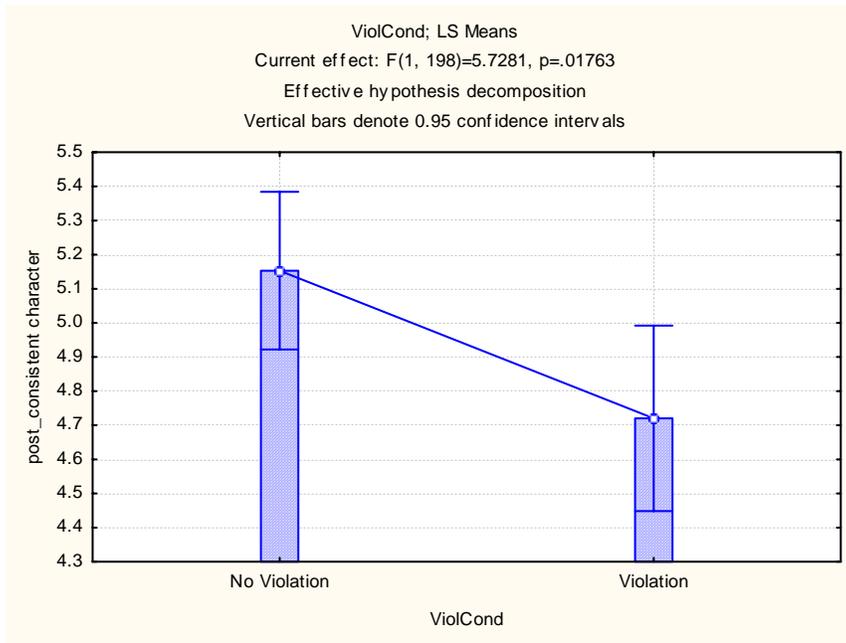
A main effect was also found for scenario, as shown in Figure 18.



**Figure 18. Behaviour may reflect person - scenario**

The second main effect showed that participants were more likely to make a dispositional attribution about the teammate in the civilian scenario than in the ammo scenario, regardless of whether a violation took place or not.

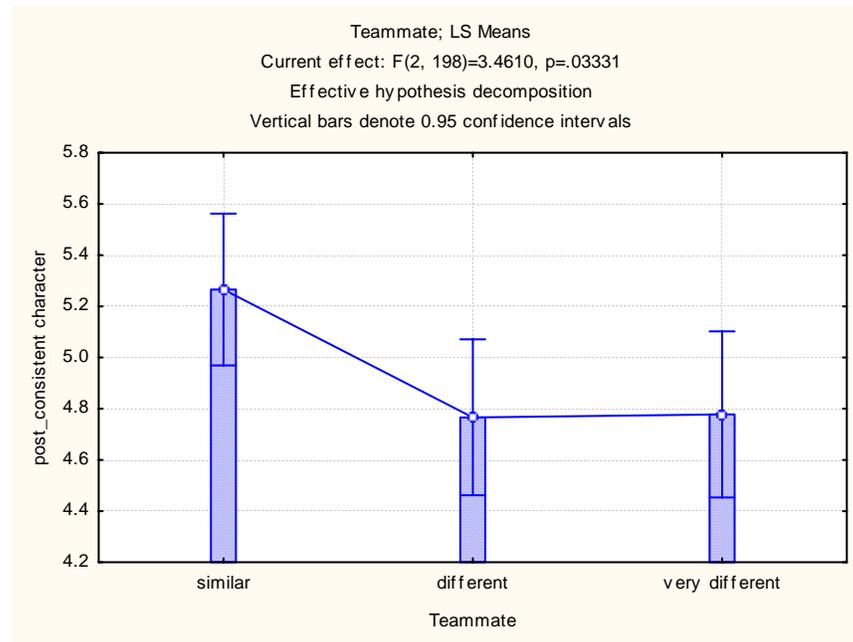
Results for the question related to character consistency had a somewhat different pattern. The first main effect was for violation condition, as shown in Figure 19.



**Figure 19. Actions consistent with character - violation**

Participants were more likely to agree that the teammate’s actions were consistent with his character when no violations occurred. When violations did occur, the pattern of means (e.g., as the means change but remain above the midpoint of the scale) suggests that participants made somewhat less of a dispositional attribution when violations occurred than when they did not, regardless of scenario. However, given that the means are still above the midpoint of the scale, they did not see these actions to be entirely out of character.

The only other significant effect was a main effect for similarity of one’s teammate, as shown in Figure 20.



**Figure 20. Actions consist with character - culture**

This effect suggests that participants rated a teammate’s actions (whatever they were) to be more consistent with his character when this teammate was from a more similar cultural background.

### 3.3.4 Willingness to Risk

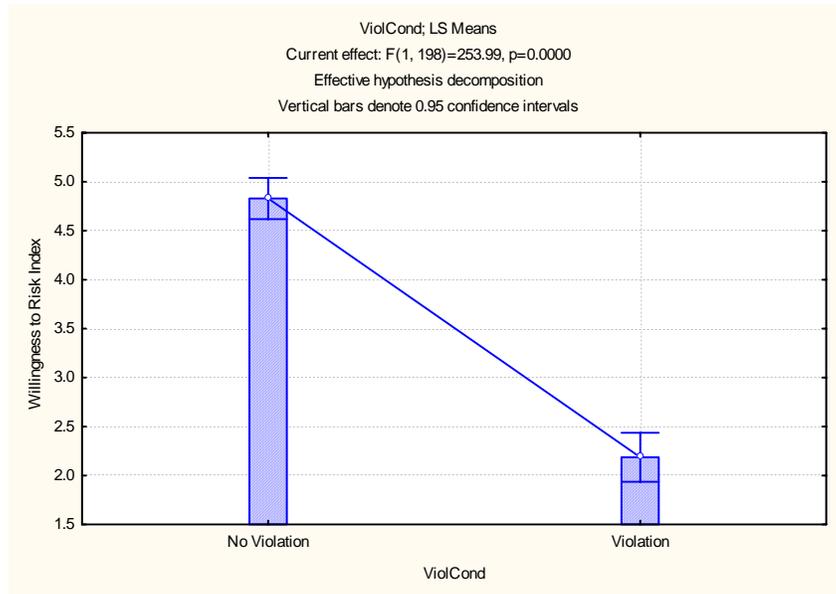
The last set of questions explored participants’ willingness to complete a high risk mission with their teammate. These questions were designed to assess trust from a slightly different perspective, in terms of participants’ willingness to trust their teammates in a future highly stressful environment. Means and standard deviations for individual items (and the indexed item) are shown in Table 14.

**Table 14. Post-mission behavioural intentions**

N = 210 (completely disagree = 1, completely agree = 7)	Violation Condition	Similar Culture (Mean,StDev)	Different Culture (Mean,StDev)	Very Different Culture (Mean,StDev)
<i>If asked to do a high risk mission with this teammate....</i>				
...I would be willing to rely on him to protect me.	Violation	2.6 ± 1.8	1.9 ± 1.2	2.3 ± 1.7
	No Violation	5.0 ± 1.4	4.4 ± 1.7	4.6 ± 1.5
...I would be willing to rely on him to watch my back.	Violation	2.5 ± 1.8	1.8 ± 1.3	2.0 ± 1.2
	No Violation	5.0 ± 1.4	4.6 ± 1.7	4.6 ± 1.4
... I would be willing to rely on him to keep my best interests in mind.	Violation	2.2 ± 1.3	1.9 ± 1.3	2.1 ± 1.3
	No Violation	5.0 ± 1.3	4.4 ± 1.6	4.6 ± 1.3
... I would be willing to rely on him to do the right thing	Violation	1.7 ± 1.2	1.7 ± 1.0	1.9 ± 1.1
	No Violation	5.0 ± 1.3	5.1 ± 1.5	5.0 ± 1.1
... I would be willing to rely on him to behave predictably.	Violation	2.6 ± 1.9	2.2 ± 1.7	2.4 ± 1.3
	No Violation	4.9 ± 1.2	4.8 ± 1.5	4.8 ± 1.2
... I would be willing to rely on him to do what he says he's going to do.	Violation	2.5 ± 1.4	1.9 ± 1.3	2.2 ± 1.1
	No Violation	5.1 ± 1.6	4.8 ± 1.7	4.7 ± 1.3
In a high risk mission, I believe my teammate would look out for me.	Violation	3.0 ± 1.8	2.0 ± 1.2	2.5 ± 1.4
	No Violation	5.3 ± 1.5	4.8 ± 1.7	4.9 ± 1.3
Willingness to risk index	Violation	2.5 ± 1.3	1.9 ± 1.0	2.2 ± 1.0
	No Violation	5.0 ± 1.2	4.7 ± 1.4	4.8 ± 1.2

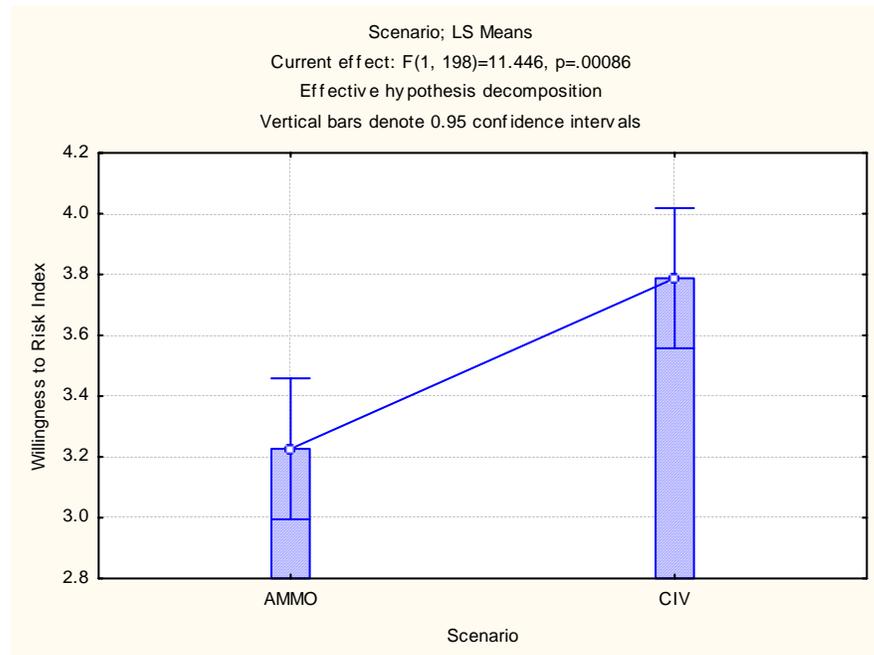
This index was then analysed using a 2 (violation: violation, no violation) x 3 (cultural similarity: similar, different, very different) x 2 (scenario: ammo, civilian) between-group ANOVA.

This analysis showed 2 significant main effects, one marginal main effect and a marginal 3-way interaction among violation, cultural similarity and scenario. First, there was a significant main effect of violation, such that participants were much less willing to risk their lives in the hands of their teammates if the teammate had committed a trust violation, as shown in Figure 21.



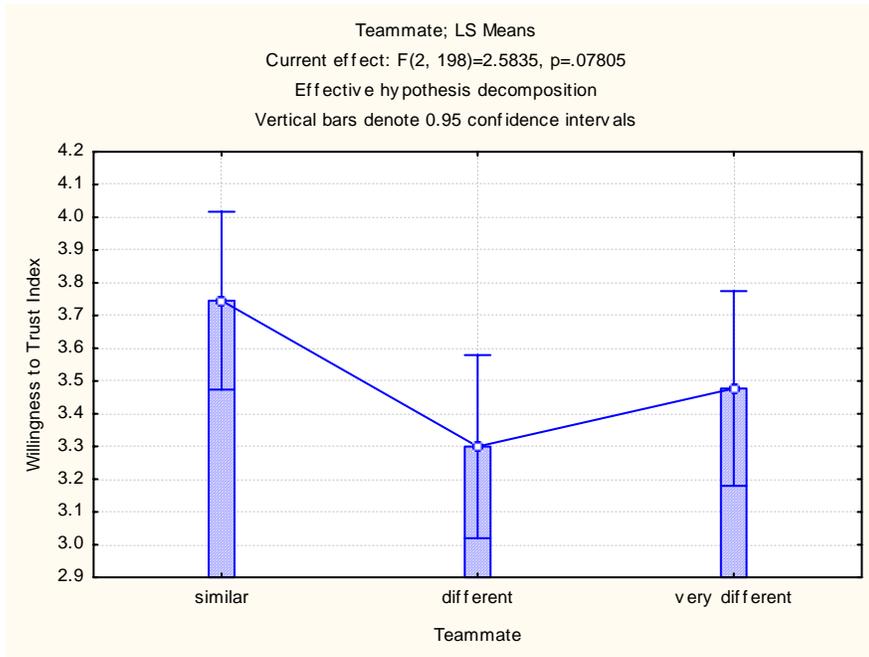
**Figure 21. Willingness to risk index by violation**

There was also a significant main effect of scenario, as teammates were more willing to risk their lives with the teammate in the civilian scenario than with the teammate in the ammo scenario, as shown in Figure 22.



**Figure 22. Willingness to risk index by scenario**

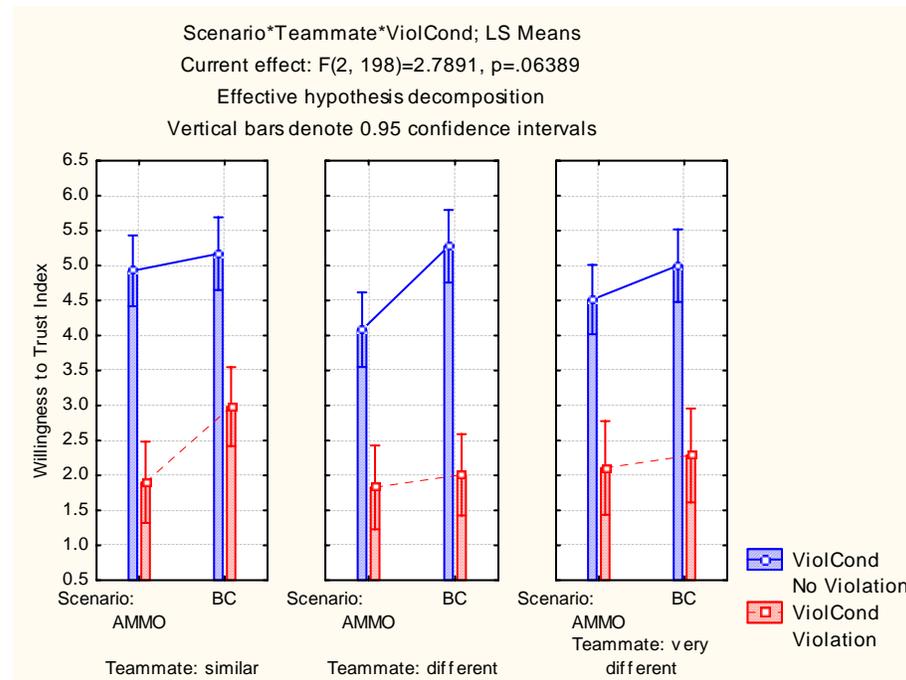
There was also a marginal main effect of the cultural similarity of one’s teammate, as shown in Figure 23.



**Figure 23. Willingness to risk index by cultural similarity**

This suggests that participants would be more willing to enter into future risky situations with teammates from a more similar cultural background than with teammates from different cultural backgrounds.

However, these main effects were qualified by a marginal 3-way interaction among violation, cultural similarity and scenario, as shown in Figure 24.



**Figure 24. Willingness to risk index by violation, cultural similarity and scenario**

This suggests that the impact of violations depends on the similarity of one's teammate and on the scenario in which they occur. When one's teammate was similar, willingness to risk scores were much higher in the civilian scenario than in the ammo scenario when a violation occurred (even though willingness to risk was still relatively low). Willingness to risk with teammates from different or very different cultures was higher when no violation had occurred and was markedly higher for the civilian scenario.

As a whole, then, these results suggest a complex pattern of results. These patterns are described in more detail in the discussion.



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## 4 Discussion

This section explores the key findings of this study, considers lessons learned during this research, and addresses both future research and possible implications of this research for the Canadian Forces.

### 4.1 Key Findings

The main purpose of this research was to understand the impact of cultural identity on trust within teams. Trust theorists have argued that teams whose members are from diverse cultural backgrounds may face more challenges in building and maintaining trust than teams with less cultural diversity. However, little research exists to support this notion. This study was conducted to explore this issue, and how potential trust violations are managed within ad hoc teams.

Table 15 provides a summary of the findings of this study.

**Table 15. Summary of Findings – Trust and Teamwork Indicators**

	Pre-mission	Post-mission
Trust in partner	Teammate from similar culture seen as significantly more trustworthy than one from very different culture (see Figure 1)	Confidence in teammate was higher for culturally similar teammates when no violation had occurred. When a trust violation had occurred, no significant differences were found for cultural background (see Figure 8).  Teammates seen as significantly more trustworthy when no violation had been committed than when a violation had been committed.
Trust in team	Trust in team significantly greater with a culturally similar teammate than with a culturally very different teammate (see Figure 2)	Team trust ratings in similar teammates were considerably lower in the ammo scenario than in the civilian scenario (see Figure 10).  Trust in team significantly greater when no violation had been committed than when a violation had been committed.
Trust dimensions	NOT ADMINISTERED	Trust violations were seen as more of a competence violation in the ammo scenario than in the civilian scenario (see Figure 12).  Trust violations were seen as more of an integrity violation in the civilian scenario than in the ammo scenario (see Figure 13).  When no violation had occurred, teammates in the civilian scenario were reported to be more benevolent than teammates in the ammo scenario when no violation occurred. Teammates who were portrayed as beating a civilian were reported to be less benevolent than teammates portrayed as not returning with ammunition when a violation occurred (see Figure 14).
Expectations	Teammates from similar and different cultures seen as having significantly better training and being significantly more on the same page than teammates from very different cultures (see Figures 3)  Teammates from similar and different cultures seen as having significantly more likely to share beliefs and values than teammates from very different cultures (see Figure 4)  Marginal effects of cultural similarity for professionalism, code of conduct and working well together (see Table 8)	Teammates in the civilian/no violation scenario were perceived to be more professional than teammates in the ammo/no violation scenario. Teammates in the civilian/violation scenario were perceived to be less professional than teammates in the ammo/violation scenario. Also true for CF code of conduct, common beliefs and values, working well together, reputation, and being on the same page (see Figure 15).  Teammates seen as having significantly better training and experience when no violation had been committed than when a violation had been committed.

	Pre-mission	Post-mission
Attributions	NOT ADMINISTERED	<p>Teammate's behaviour seen as reflecting his true person more in the civilian condition than the ammo condition, and when a violation had occurred than when a violation had not occurred.</p> <p>Teammate's behaviour seen as being more consistent with his character when a violation had occurred than when a violation had not occurred, and when the teammate was more culturally similar than when more culturally different or very culturally different (similar &gt; different &gt; very different)</p>
Willingness to Risk	NOT ADMINISTERED	<p>Participants significantly more willing to complete a high risk mission with their teammate when no violation had been committed than when a violation had been committed.</p> <p>Participants significantly more willing to complete a high risk mission with their teammate after reading the civilian scenario than after reading the ammo scenario.</p> <p>Participants were marginally more willing to complete a high risk mission with their teammate if their teammate was from a similar culture than when the teammate was from a different culture.</p> <p>Marginal 3-way interaction among scenario, violation and cultural similarity (see Figure 24)</p>
Negative teammate behaviours	NOT ADMINISTERED	<p>Teammates were seen to have displayed more negative behaviours in the civilian scenario after a violation had occurred than after the violation in the ammo scenario (see Figure 5).</p> <p>Trust violations had the least effect on negative ratings when teammates were very dissimilar and the most impact on negative ratings when they were similar (see Figure 6).</p>
Positive teammate behaviours	NOT ADMINISTERED	<p>Teammates were seen to have displayed more positive behaviours in the civilian/no violation scenario than in the ammo/no violation condition (see Figure 7).</p>

The current research provides some evidence that cultural diversity does have an impact on trust in very newly formed teams. Clearly, participants expecting to work with team members had different expectations depending on the member's cultural background. At the pre-mission level, participants were given demographic information about their teammate but had not yet read the mission scenario. At this point, any significant differences between groups would have reflected relevant differences in a priori expectations or category-based trust based upon information about the teammate's country of origin.

Results showed that the cultural background of new teammates impacted on both expectations about their trustworthiness and on expectations about their performance. Participants had more confidence in their partner and marginally more trust in their team when their teammate was from a similar culture than when the teammate was from a different or very different culture. Importantly, perceptions of lower trustworthiness for teammates from different cultures were also linked with lower expectations about these teammates in several other related areas. Teammates from dissimilar cultures were also expected to be less likely to share common beliefs and values, less likely to have good training, and less likely to be on the same page as teammates from a similar culture.

These differences could be a product of social identity. As discussed earlier, Krebs, Hobman, and Bordia (2006) have argued that people classify themselves and those around them into social categories. People in similar categories (e.g., from similar cultural backgrounds) are considered in-group members, whereas those in different categories (e.g., from different cultural backgrounds) are considered out-group members. These findings suggest that CF soldiers may perceive culturally dissimilar teammates as out-group members, and view these out-group members more negatively than in-group members, resulting in participants initially having more positive expectations for culturally similar teammates and more negative expectations for culturally diverse teammates.

Also of note at the pre-mission level were the lack of significant differences for items related to teammate experience and reputation. With respect to level of experience, all teammates were described as having between 1 and 5 years of experience and were described as being either a private or a corporal. The fact that participants reported no differences among teammates from different cultures for experience suggests that they correctly attended to the information in the demographic profile. That is, teammates were described as having similar levels of experience. The lack of effects for reputation may be due to the reputation of the United States. Although the participants reported that the hypothetical teammates from the U.S. had a better reputation than teammates from less similar countries, these differences were very small and not significant. It may be that Canadian soldiers do not hold American soldiers (or indeed soldiers from any culture other than Canada) at the same level that they hold fellow Canadian soldiers.

The cultural similarity of one's teammate also impacted on perceptions of negative behaviour at the post-mission level. In particular, trust violations had the greatest impact when the teammate was portrayed as being from a similar culture. When there was no violation, teammates from a similar culture (the United States) were rated as showing the lowest levels of negative behaviour. However, when there was a violation, teammates from the most similar culture were rated as having shown the most *negative* behaviour. This finding may seem to be counterintuitive at first. However, we interpret it to suggest that participants had higher expectations for similar teammates than for different and very different teammates. When these expectations were not met, they perceived the violation more negatively than if the teammate had been from a different or very different culture. This finding is very interesting, as it suggests that some trust violations may be more likely to damage relationships in homogeneous teams than in diverse teams. However, the impact of violations seems likely to depend on the magnitude of the violation. Clearly, the violations in these scenarios were perceived to be large ones. The magnitude of these violations may have been particularly difficult to dismiss when committed by a member of one's own in-group.

Despite these results, however, it is important to note that violations did not impact in exactly the same way on perceptions about the trustworthiness of one's teammates. As the results shown in Figures 8 and 9 suggest, teammates' cultural similarity showed an impact on judgements about the

trustworthiness of one's teammates when violations did not occur, but not when violations occurred. Specifically participants rated similar teammates to be more trustworthy than culturally different or very different teammates when no violation had occurred. However, no differences were found for cultural similarity when a trust violation had occurred. This result may suggest that recognizing the relationship between cultural similarity and recognizing the negative behaviour of other teammates is somewhat different when extended to attributions about their trustworthiness. This issue, therefore, seems an important one to examine further in future research.

In some ways, it is perhaps unsurprising that when asked about new teammates in the absence of personal information or experience, participants used whatever information was available to them to help make immediate judgements about their teammates' trustworthiness. Having a priori expectations about members of known categories (whether in-group or out-group members) can be helpful in several ways. Pre-existing expectations can help to reduce the time and effort required to process new information about an unfamiliar person, and can help to "fill in the blanks" when such information is not available. Being able to assume at least some information about this person based solely on the categories to which this person belongs can be a necessary and adaptive shortcut. Yet it is important to remember that the judgements about teammates from cultures that might be considered to be different a number of qualitative differences, and that these were in the negative direction.

Thus, using categorical information to make judgements of individual people is only ultimately adaptive if this information provides an adequate representation of them. Although some categories carry information that can be reasonably applied to a wide range of people within a given category, it is also true that people naturally vary in the extent to which they "fit" within a given category. As such, some members of a very different culture such as Sierra Leone will clearly be more indicative of the "average" person from Sierra Leone than others. One of the dangers, of course, is that a given person may be stereotyped in accordance with the cultural stereotype, while other individuating characteristics (that run against the stereotype) are unfairly overlooked. Another potential danger is that stereotypes may also yield inaccurate or unfair expectations. In this case, for example, being less positively regarded as a soldier simply because one comes from a culture perceived to have an ineffective military system would not be fair to the excellent soldier who consistently behaves in an exemplary way. Similarly, for another soldier to be presumptively accorded high trustworthiness is also not ideal if this soldier is consistently motivated to act in an unscrupulous way. This suggests that a critical focus of helping to manage the potential challenges in diverse teams should be the best possible calibration of one's expectations. The problem with this, however, is that there is no way to gauge the accuracy of stereotypes.

The second goal of this research was to understand the impact of trust violations on stereotypes. Specifically, we wondered if CF personnel would view trust violations committed by teammates from dissimilar or very dissimilar countries more negatively than those committed by teammates from a similar country. Post-mission ratings of trustworthiness showed a somewhat more complex pattern related to teammate similarity. For example, ratings of one's specific teammate suggest that teammate similarity might have more impact when violations did not occur than when they did. However, looking at Figure 10 suggests that this apparent discrepancy may also be the result of how participants viewed the scenarios. As discussed earlier, participants had a markedly different response to the scenarios in that participants rated similar teammates more negatively than other teammates in the ammo scenario, but more positively than other teammates in the civilian scenario.

Trust violations, on the other hand, were found to have a very strong and consistent impact on trust ratings. Participants consistently rated their teammate more negatively if he had committed a trust

violation than if he had not done so. These results are consistent with previous research showing trust eroding events to be more salient and more easily recalled than trust building events (Lapidot et al., 2007). Results from our study suggest that trust violations, or trust eroding events, have a strong impact on the perceiver's subsequent beliefs and expectations of the trust violator.

The fact that the violations that occurred during the scenarios seemed to have had more impact than the cultural similarity of one's teammate at the post-mission stage has many potential explanations. It could be that the impact of culture was simply overshadowed by the strength of the violation. Or, perhaps receiving any individuating information about one's teammate may have diluted the impact of the previously activated cultural category and lowered its activation. Classic research by Nisbett, Zukier and Lemley (1981), for example, has argued that even though stereotypes can be applied to abstract and undifferentiated individuals when this is the only information available, these stereotypes will often have less impact when individuating information about these people is provided, whether this information is actually germane to the category or not. In the current study, then, although cultural categories seem to have driven expectations at the pre-mission stage, these categories may have become less salient once participants received more information about their prospective teammates. Or, a more motivational account could also explain these results. For example, it could also be that participants were simply no longer motivated to maintain the stereotype once they had more personal information. This, of course, remains an empirical question.

There also an interesting finding in post-mission expectations involving the type of violation and cultural similarity. When no violation was committed, teammates in the meeting civilian scenario were rated more positively than teammates in the ammo scenario. Teammates were rated to be more professional, to have a better reputation, to be more on the same page, to act more in accordance with the CF code of conduct, to have more similar beliefs and values, and that they would work together better. This pattern was reversed, however, when the teammate was portrayed as having committed a trust violation. Independent of what country they came from, teammates were rated to be less professional, to have a worse reputation, to be less on the same page, to act less in accordance with the CF code of conduct, to have less similar beliefs and values, and were rated as being harder to work with when they had committed a violation in the civilian scenario than in the ammo scenario. Again, these results may reflect the seriousness with which participants perceived the scenario in which the civilian was beaten without cause.

An additional purpose of the study was to understand whether the type of trust violation presented in the two different scenarios impacted trustworthiness judgements about violators. Participants read two scenarios, one of which included a trust violation. The violation in the ammo condition was designed to be a breach of competence, whereas the violation in the civilian scenario was designed to be a breach of integrity. Results from the post-mission analyses indicate that the type of trust violation did impact on trust ratings. All in all, participants perceived the integrity breach (beating the civilian) to be a more serious violation than the competence breach (not returning with ammo during a fire fight without a valid reason). Teammates who were portrayed as bullying and stealing from a civilian, a scenario in which the participants' lives were not in jeopardy, were seen as less trustworthy than teammates who were portrayed as being so incompetent as to risk the participants' lives during a fire fight. This finding could have more than one explanation. For example, it could simply be that the seriousness of the violation in the civilian scenario (independent of the trust dimension involved) could have driven the effect. Or, the nature the violation (e.g., either integrity or competence) could explain this result. Integrity might be held in such high regard by CF soldiers because of the moral and ethical training the soldiers receive. In particular, soldiers are trained to respect the dignity of all persons. The teammate's behaviour in the

beating civilian scenario clearly does not respect the dignity of the civilian. However, it is important to note that this pattern of results would have been difficult to predict judging only from participant responses in the focus groups and in the open-ended section of the questionnaire (see Annex B). It seems that the ammo scenario may have been seen as a more avoidable mistake, whereas the integrity scenario may have been seen as a breach of character.

Another aspect of this study explored the nature of the attributions made about the teammate as a product of the teammate's cultural background, the specific scenario, and the teammate's actions during the scenario. These results showed that participants were more likely to make a situational attribution about the ammo scenario by agreeing more strongly that the teammate's behaviour may not reflect the person that he is than they were for the beating civilian scenario. Consistent with previous results, this may suggest that they saw the act of beating a civilian more indicative of a person's true character. However, somewhat inconsistent results were found for these items as a product of the violation condition. Participants were more likely to state that their teammate's behaviour reflected the person that he is (a dispositional attribution) when a violation had occurred than when a violation had not occurred. However, responses to an additional attribution question showed the opposite pattern of results. When participants were asked to rate the extent to which a teammate's actions were "consistent with his character" (a dispositional attribution), they were more likely to rate his behaviour as more consistent when violations did not occur than when they did occur. It is difficult to know how to interpret these findings, whether they indicate an important nuance or whether participants might simply have misread the question (because it had a negative qualifier). This issue should be addressed in future research.

Participants also stated that similar teammates' behaviours were more consistent with their character than different or very different teammates. The fact that the behaviour of more similar teammates was rated to be more consistent than that of dissimilar teammates could be because teammates may infer more information about similar than dissimilar teammates, and may (as argued earlier) hold them to a different standard because of this.

With respect to willingness to risk, main effects were found for cultural diversity, violation, and scenario. Willingness to risk was significantly lower if a trust violation had occurred than if no trust violation had occurred, was significantly lower in the civilian scenario than in the ammo scenario, and was marginally lower for teammates from different and very different cultures than for teammates from similar cultures. However, there was also a marginal interaction found between these dimensions. When the teammate was portrayed as having committed a trust violation, participants reported that they would be more willing to risk with a teammate if the teammate was from a similar culture than from a different or very different culture, but this finding was only true for the civilian scenario and not the ammo scenario. When no trust violation occurred, participants reported that they would be more willing to risk with a teammate from a different culture (than a teammate from a similar or a very different culture) in the civilian scenario, yet they also reported that they would be less willing to risk with a teammates from a different culture (than a teammate from a similar or a very different culture) in the ammo scenario. This suggests that willingness to risk involves a complex decision among a number of different factors.

As a whole, then, these results show the strong impact of culture on initial impressions of new teammates in diverse teams. As more information is gained about these teammates, cultural similarity still plays a more sporadic role in conjunction with specific variables, but the violations that happen in the course of working together have a consistent and prominent impact.

## 4.2 Lessons Learned

Given that this is the first attempt at capturing cultural diversity within teams in this program of research, some critical lessons were learned while conducting this study. As some modifications to the research protocol may assist similar studies in the future, it is important to detail these lessons learned.

An important lesson learned in this study relates to participants' unexpected perceptions of violations in the no-violation conditions. When asked whether their teammate had done anything that they disagreed with or that might have put the team at risk during the scenario (in the beating civilian and ammo scenarios respectively), some participants in the no violation condition unexpectedly responded positively to this question. As noted earlier in this report, however, this report of a violation did not necessarily indicate that they perceived it with the same seriousness as they perceived the intended trust violations. In retrospect, there are several reasons why participants might have reported a potential violation where one was not intended. The first relates to the nature of the ammo scenario. In this scenario, teammates leave during a fire fight and do not return with much needed ammo, and participants strongly criticized this teammate for not returning with the ammo and not communicating that he was unable to return with the ammo. In essence, participants seemed to have identified two different violations in this scenario when only one violation was anticipated. However, our experience with the first swift trust study showed that it would be critical to get participants to specify exactly what violations they had perceived, as well to get them to rate the magnitude of any violations they had identified. The two scenarios as written do seem to function somewhat differently, and additional pretesting should be done with both military and non-military participants if they are used again in the future.

Another important lesson learned is that using less realistic but less labour intensive methods such as paper and pencil methods (versus a complex computer simulation) to explore trust within teams may be feasible depending on the nature of the sample. For this study, military personnel with a range of experience read each of the hypothetical scenarios and responded to the questionnaires. Of concern at the planning stage was the extent to which military participants would resonate to the hypothetical scenarios and the fact that questionnaires (rather than more direct measures of performance, for example) were used. Of particular concern was whether participants would be fully engaged in the scenarios, and actively work to imagine themselves in the actual situation, or whether they would dismiss the task because of its hypothetical nature. As a whole, participants seemed to be interested in the hypothetical scenarios, and seemed genuinely engaged both during the experiment itself and in the informal focus groups that followed. This suggests that using purely hypothetical situations presented in a paper and pencil format may not be problematic. One potentially critical influence to note, however, is the fact that senior commanders showed leadership during the first data collection period, initially talking to the research team about the general nature of the project, and then essentially leading the more junior personnel to the room where data collection was going to start, and participating themselves. Given this example, one might argue that the level of cooperation evident for this study may not necessarily be wholly indicative of military participants' genuine acceptance of conventional paper and pencil methods and hypothetical scenarios.

One additional measure that might be helpful for similar research in the future is a gauge of attitudes toward the specific countries used to depict cultural background. For the current study, no pretesting was conducted to assess the levels of perceived cultural similarity of the different cultural groups. Countries were identified as being culturally similar, different and very different from Canada based on recommendations from a senior military officer. Although the pattern of

pre-mission results do suggest perceived cultural differences along the lines that we predicted, future work might benefit from a more systematic approach to the selection of the cultures as stimuli. Furthermore, attitudes and beliefs about each of the specific countries represented in this research should also be explored. It was clear from our focus groups, for example, that attitudes toward countries may be quite nuanced and these attitudes may not necessarily be obvious to civilian personnel. Some participants noted, for example, that although any fair person would have to respect the experience of U.S. military personnel, this could be very distinct from liking the United States as an entity. As such, it might be unclear how this would translate into perceptions of one's teammate. It might be helpful to attempt to capture some of these nuances for future research.

### 4.3 Future Research

A number of possible research questions emerge from this study exploring trust in small teams and research in related areas.

For example, this study clearly shows the potential influence of categories on how other teammates are viewed, and specifically suggests that more attention should be paid to issues of culture in teams. There are many potential foci. One logical line of research would involve understanding how individuals from diverse cultures think, feel and act differently as a product of their cultural background. Although the implications of culture have been explored in an ethical domain (Thomson, Adams, Taylor, & Sartori, 2007), it is clear that culture likely influences a number of other aspects (e.g., both individual and team decision-making and behaviour) that could be investigated.

Understanding how these differences in culture are likely to influence collaboration amongst individuals is also a critical issue. The role of culture at this collaborative level is multi-directional. First, as this study shows, when categorical information (i.e., information about culture) rather than individuating information dominates impressions of other people, the categorical information can clearly influence how the other people are perceived. A wide body of stereotyping research has shown the impact of social stereotype activation, and resultant differences in cognitions, affect and motivation toward members of stereotyped groups (for a full review, see Kunda, 2002). This research has shown that people often evaluate members of stereotyped groups more negatively (even without personal information about these people), and that these perceptions can influence even the interpretation of otherwise benign behaviour (Kunda & Thagard, 2002). In short, stereotypes can clearly colour how information about another person is processed and how their behaviour is interpreted. Whether these stereotypes are based on cultural background, on the sex of the target, or on other categories to which a person belongs, these stereotypes can have a pervasive influence on how other people are viewed. Consequently, these perceptions will impact trust levels for the perceiver. As was found in the current study, cultural diversity had an impact on trust levels at the pre-mission stage. It was not known, however, what stereotypes participants had for teammates from the other countries or the strength of the stereotype. Further research could be conducted to identify stereotypes soldiers hold for militaries from other countries, as well as identify which stereotypes have the greatest negative impact on trust.

Another potential area of research focus is the impact stereotypes have on people who are viewed in terms of their categorical membership rather than as an individual. For the person being construed as a representative of a negatively perceived category (cultural or otherwise), there is good evidence that being the target of stereotyping can have adverse effects. Some of this research has focused on a concept known as stereotype threat. Stereotype threat has been defined as the "...fear that one will be reduced to the negative stereotype of one's group" (Kunda, 2002, p. 373),



and stereotype threat has been shown to undermine the performance of members of stereotyped groups. There is good evidence, for example, that Black students (often stereotyped to be less academically adept) performed worse than White students when they were led to believe that a test was diagnostic of academic ability, but not when they believed that the test was not indicative of their academic abilities. Their performance is argued to have been hindered by their fear of validating the stereotype if they perform poorly. In this sense, then, negative views about the members of a particular group or category can be self-perpetuating (Snyder, 1982), in part, because stereotyped people may feel perpetually disadvantaged because of the categories to which they belong.

Research could also be conducted to address the relationship between stereotypes and self-fulfilling prophecy. Self-fulfilling prophecy refers to instances where people have expectation of what another person is like, these expectations then influence how they treat this person, which in turn causes this person to behave in line with the original expectations (Aronson, Wilson, Akert, & Fehr, 2007). An often cited study looking at self-fulfilling prophecy was conducted by Rosenthal and Jacobson (1968). In this study, the researchers administered IQ tests to a class of elementary school children. The teachers were told that some of the children had scored so highly that they were sure to “bloom” academically that year. In fact, the children identified as bloomers were chosen randomly by the researchers. At the end of the school year, the researchers found that the bloomers had significantly higher gains in their IQ scores than the non-bloomers. Subsequent studies found the difference in scores to be because of the way the teachers treated the students. That is, teachers were found to create a warmer climate for bloomers, provided bloomers with more material to learn from, provided bloomers with more and better feedback, and provided bloomers with more opportunities to respond in class (Aronson, Wilson, Akert, & Fehr, 2007). In real life missions similar to the scenarios used in this study, then, a soldier who believes his partner is not trustworthy because of his cultural background may be more likely to treat his partner as if he were untrustworthy. This, in turn, can cause the teammate to act in an uncharacteristic manner that reinforces these beliefs, making the initial presumption of his untrustworthiness a self-fulfilling prophecy. Within a high risk military context, treating a teammate as if he is untrustworthy and having his subsequent behaviour being more likely to reinforce this view could have disastrous consequences

Within the military teams of today, there is perhaps even more reason to be worried about the potential influence of stereotypes. Stereotypes are recognized to be maximally powerful in the absence of other information about people. Dominant models of person perception have argued that people can be understood using either top-down or bottom-up processing (Fiske & Neberg, 1990; Brewer, 1988). In bottom-up processing, many different sources of personalized information are gathered progressively as one forms a concept of another person or teammate. One might learn, for example, about how this person typically behaves, and about his or her personal preferences. This information becomes increasingly integrated into a summary view of this person. This form of interpersonal processing, however, takes time and effort as one must have the motivation to process this individuating information and the cognitive resources to do so. The other form of processing, top-down processing, occurs when time and resources are not available or when people are not motivated to use individuating information to form judgements of others. This form of processing relies on categorical information, such as stereotypes, rather than personalized information. As such, one might rely exclusively on the cultural background of one’s teammates in order to make assumptions about how this teammate is likely to behave. As the processing of information about other people is influenced by time and opportunity, one might argue that in highly fluid and perhaps even chaotic environments, it may be very adaptive for team members to rely on

categorical information and even stereotypes in order to form quick expectations about new teammates. Of course, the danger of top-down processing is that categorical information may not accurately depict who a person really is. This suggests that research conducted to understand the contexts in which soldiers conduct bottom-up processing of teammates and how this processing impacts trust judgements could be valuable to the CF.

Given the range of possible research questions, and the increasing emphasis on issues of cultural diversity within military contexts, stereotype research could represent a large program of important trust research for the CF. This potential program of research would require attention to the impact of cultural diversity (and other relevant categories) on trust. However, given that people are often hesitant to report negative attitudes and beliefs about others in many social categories, unique measures and measurement approaches would be required as simple self-report measures may be biased because of social desirability concerns. Early work related to this larger program of trust research indicates that implicit measures of attitudes may be one fruitful avenue to pursue in future research (Adams, Bruyn & Chung-Yan, 2004). Implicit measures, of course, are often used to explore cultural stereotypes and attitudes about members of other cultural groups (for a review, see Fazio & Olsen, 2003).

Other findings from this study could be further pursued in future research. Research is required to understand the beliefs and attitudes that CF personnel have for military personnel from other countries. As discussed above, trust violations seemed to be more problematic if the teammate was believed to be from a similar culture. This finding is very interesting, as it suggests that violations may perhaps be even more likely to damage relationships in homogeneous teams than in diverse teams. This is somewhat different from our initial hypotheses, which was that when similar teammates commit potential violations, other team members may be more likely to discount or dismiss these violations in efforts to maintain a positive view of one's teammate. Future research should be conducted to replicate this finding, and to identify the boundary conditions of this effect, as well as several other questions. For example, what are the standards that CF soldiers hold for other military personnel they are going to work with in theatre? How do these standards translate into trust when going into theatre? What are the effects of direct experience with personnel from other militaries? A further benefit to such knowledge is that knowing the beliefs and attitudes CF personnel have for other militaries will allow us to design future diversity studies already knowing which countries best represent similar, different, and very different cultures.

More exploration is also required in order to understand the strong violation effects in this study. It may be the case, for example, that violations committed by other teammates will only be dismissed (or their perceived importance diminished) when there is some level of ambiguity or uncertainty around the violation, when they occur after knowing the individual for some time, or when situational factors are present that can serve to explain the violation. In the current study, this could have been the case if the civilian had been portrayed as highly suspect and as having unclear motivations toward the patrol force. However, when one is motivated to maintain a positive view of one's teammate such a positive view would be possible if (and only if) the violation can fairly be interpreted as being unrepresentative of the true motivations of the violator. As Kunda (2002, p. 224) has argued, even the motivation to maintain a positive view of another teammate is likely to be somewhat constrained:

*“Even when we are motivated to arrive at a particular conclusion, we are also motivated to be rational and to construct a justification for our desired conclusion that would persuade a dispassionate observer. We will draw our desired conclusion only if we can come up with enough evidence to support it.” (p. 224).*



Perhaps the scenarios (as written) in this study did not provide even motivated participants with the necessary levels of ambiguity to maintain positive views of similar teammates who had committed violations. Due to this lack of ambiguity, it may not have been possible to discount or dismiss the violation, even when the violation was committed by an in-group member. This suggests that it may be important to construct violations with a somewhat higher level of ambiguity, as the violations used in this study may not have been amenable to multiple levels of interpretation. Clearly, the violations in these scenarios were perceived as relatively large and unambiguous.

Another research vein worthy of more exploration is to better understand the relative importance of shared cultural identity versus the impact of trust violations. As noted earlier, trust violations had a stronger and more consistent impact than cultural similarity, even though cultural similarity was a strong influence when team members had only minimal information about their teammates. However, in both trust studies to date, it is unclear whether the power of shared identity (either cultural as in the present study or regimental identity as manipulated in the previous study (Adams et al., 2007) has been fully explored. That is, although these studies attempted to create common groups, this identity may not have been maximally salient to participants. Perhaps designing studies in which new teammates are able to discuss a shared identity would help to strengthen the resilience of this identity despite trust violations that occur.

Another avenue of research to be explored is how to repair trust within teams when it has been violated. According to Kim, Dirks, Cooper, and Ferrin (2006), once trust has been violated, re-establishing positive expectations is likely to require more effort on the part of the violator than was required to establish trust initially. The trust violator must then overcome negative expectations, as well as to work to rebuild positive expectations for the future. This suggests that trust repair is not an easy task, and these reparation processes are likely to have a unique nature in military teams. For example, teams such as infantry sections work highly interdependently in stressful environments. Within many of these environments, it is difficult to imagine adequate reparations for more serious violations because of the potential magnitude of the violation's effect. There is also increasing attention in the literature concerning the most effective methods for repairing trust. Ferrin et al. (2007) state that apology and denial can be effective methods for trust repair depending on the type of trust violation (i.e., an integrity violation v. a competence violation). However, though this research may be valid when trust is being repaired in relatively low risk environments, it is unclear how applicable these strategies might be when one's trust is violated in a very high risk environment. The very nature of trust repair may differ depending on the outcome and associated costs of the violation. This suggests that more attention needs to be given to exploring issues of trust repair within military contexts.

#### **4.4 Implications for the CF**

This study has a number of potential implications for the CF. Results from this study suggest that culture can have a prominent impact on the initial perceptions and expectations about both the trustworthiness and performance of new teammates. Although the effects of culture in this study were diminished by the trust violations that occurred during the scenario, the fact that new teammates were presumptively accredited a lower level of trust just because they had different cultural backgrounds may be problematic for CF personnel working within increasingly diverse environments.

As noted earlier, this finding is of particular concern for diverse ad hoc teams that are required to work collaboratively, as there is little time and opportunity to overcome even initially negative perceptions. The danger is that individuals who are merely representatives of a cultural category

are naturally accorded low levels of trust when they may actually be trustworthy. Conversely, individuals who raise immediate positive expectations because they belong to a trusted category may not actually be reliable. Moreover, categorical expectations have the potential to be problematic because they can also unfairly influence how future behaviour is construed. On the other hand, a priori perceptions about people from well established categories can also carry valuable information that helps to simplify interpersonal interaction.

One important implication for the CF is that heightening CF members' awareness about their a priori expectations about members of specific categories and social groups could be useful. Simply raising awareness about the importance of evaluating individuals based on their own merits rather than making assumptions about them based solely on the categories (e.g. cultural background) to which they belong might be valuable. However, it is also important to acknowledge that using categorical information in order to evaluate other teammates is adaptive and necessary in many situations. How well calibrated these expectations and assumptions are to the actual target will influence how adaptive such categorization processes are. In the end, helping to promote proper calibration when using categorical information to judge the trustworthiness of fellow teammates may be important to the CF. Helping personnel to understand the factors to look for when attempting to gauge the trustworthiness of a fellow teammate, for example, could be very useful. And, providing personnel with empirically based heuristics that might predict trustworthiness when time and opportunity are not available would also be useful. Although the CF has clearly devoted attention to providing an environment that is more accepting of minorities (Korabik, 2006), this issue is likely to continue to challenge CF personnel who are increasingly working with more diverse teammates, either within diverse CF teams or in multinational operations.

At the other end of the intensity spectrum, it would also be possible to provide strategies that might lessen the impact of negative stereotypes. For example, there is good evidence that people with inherently negative attitudes toward members of some social categories can suppress this categorical information when they are properly motivated to do so, and that this suppression can work at both the explicit and implicit level (e.g., Monteith, Sherman, & Devine, 1998). That is, there is good indication in the literature that people who are motivated to suppress negative stereotypes are able to do so with some success. However, empirical research also suggests that attempting to suppress social stereotypes may make these stereotypes even stronger under some circumstances. Research by Macrae, Bodenhausen, Milne, & Jetten (1994), for example, showed participants a colour photograph of a male skinhead (a common stereotypic category in the United Kingdom at that time) and they were asked to construct a 5 min passage describing his typical day. Half of the participants were warned against biases and preconceptions and were asked to avoid thinking about the target in a stereotypic way, whereas control subjects were given no such instruction. The short passages that participants created were coded for "stereotypicality" by two independent raters. Participants warned against using stereotypes showed a higher level of stereotype activation than participants who had not attempted to suppress their stereotypic expectations. Identifying ways to help constrain the impact of the most problematic negative attitudes and expectations within diverse teams could be valuable to the CF.

The fact that the trust violations depicted in this study had such a pervasive effect on perceptions of other teammates suggests that understanding how best to mitigate the impact of trust violations is an area worthy of future research. It seems likely that trust violations will have more impact in high-risk and high-stake environments. This suggests that more attention is needed to identify how best to mitigate these potentially negative impacts on teamwork.



Integrating these findings with those from the first swift trust study (Adams et al., 2007), both studies suggest that when working in ad hoc teams with unfamiliar individuals, shared identity (either regimental or cultural) is likely to immediately impact on perceptions about other team members. However, with more time and/or exposure to these teammates, the impact of this shared identity lessens. When violations occur in the course of working together, research to this point has shown that even these shared dimensions do not successfully buffer the very negative impact of trust violations. In fact, high levels of similarity (whether cultural or regimental) may actually attenuate the impact of a trust violation in diverse teams. This suggests that finding ways to help diverse teams manage trust violations as well as their everyday interactions might be an important contribution. The literature clearly argues that one means by which to counter the negative effects of diversity is to promote good identification with other team members. As Brewer (1995) argues, organizations have long attempted to establish a basis of identification and a sense of shared membership with the organization in order to control the impact of many different forms of workplace diversity. Within the context of small teams, then, establishing an overarching military identity may be an excellent way to counter the potentially negative effects of diversity on trust. This shared identity should also promote the values and the vision that motivate the development and maintenance of high levels of trust.

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# ANNEX A.

## A1. Demographic Questionnaire

Please provide the requested background information in the spaces provided.

<b>Demographics:</b>			
<b>What country do you live in?</b>	<input type="checkbox"/> Canada	<input type="checkbox"/> Other (specify) _____	
<b>In what year were you born?</b>			
<b>What is your first language?</b>	<input type="checkbox"/> English	<input type="checkbox"/> French	<input type="checkbox"/> Other (specify) - _____
<b>What is your sex?</b>	<input type="checkbox"/> Male	<input type="checkbox"/> Female	
<b>What is your highest level of education?</b>	<input type="checkbox"/> High school		
	<input type="checkbox"/> University/college degree    Years of university/college _____		
<b>Your Elemental Command:</b>	<input type="checkbox"/> Army	<input type="checkbox"/> Navy	<input type="checkbox"/> Air Force
<b>Your Rank</b>			
<b>Your MOC:</b>			
<b>Length of Military Service</b>	<input type="checkbox"/> Less than 1 year	<input type="checkbox"/> 1-3 years	<input type="checkbox"/> 3-5 years
	<input type="checkbox"/> 5-10 years	<input type="checkbox"/> > 10 years	
<b>Operational Experience</b>	<input type="checkbox"/> No	<input type="checkbox"/> Yes	If yes, please list
	<input type="checkbox"/>	<input type="checkbox"/>	

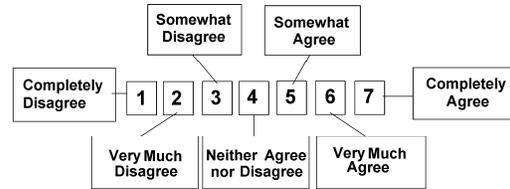


## A2. Propensity to Trust Scale

We would like to understand more about your personal style in relating to other people. Please answer the following questions.

USING THE SCALE PROVIDED, INDICATE THE EXTENT TO WHICH YOU AGREE WITH THE FOLLOWING STATEMENTS.

THERE ARE NO RIGHT OR WRONG ANSWERS. WE ARE INTERESTED IN YOUR OPINIONS.



Item	Completely Disagree			Completely Agree			
	1	2	3	4	5	6	7
I am generally a trusting person.	⌘	⌘	⌘	⌘	⌘	⌘	⌘
I typically think the worst of someone until they prove me wrong.	⌘	⌘	⌘	⌘	⌘	⌘	⌘
When I first meet people, I am suspicious of their motives.	⌘	⌘	⌘	⌘	⌘	⌘	⌘
People are usually just out for themselves.	⌘	⌘	⌘	⌘	⌘	⌘	⌘
I believe that people are basically good.	⌘	⌘	⌘	⌘	⌘	⌘	⌘
I tend to distrust people.	⌘	⌘	⌘	⌘	⌘	⌘	⌘
I usually have faith in other people.	⌘	⌘	⌘	⌘	⌘	⌘	⌘
I think people are trustworthy.	⌘	⌘	⌘	⌘	⌘	⌘	⌘



### A3. Canadian and CF Identity Questionnaire

Item	Completely Disagree					Completely Agree	
	1	2	3	4	5	6	7
Being in the CF is an important part of who I am.	\$	\$	\$	\$	\$	\$	\$
I'd rather live in this country than anywhere else.	\$	\$	\$	\$	\$	\$	\$
I am proud to be a soldier in the CF.	\$	\$	\$	\$	\$	\$	\$
I am proud to be a Canadian.	\$	\$	\$	\$	\$	\$	\$



## **A4-1. Introductory Paragraph – Ammo Scenario**

Please read the following scenario, and imagine yourself in the following situation:

You and a member of another country's coalition force have been asked to patrol the east sector of the city. You and your new teammate have been ordered to survey the dangerous east sector to look for potential suspicious activity. You set off in an RG31 patrol vehicle. As you conduct your patrol, you have more than 2 hours to talk and you and your new teammate learn about each other's background and experience.



## **A4-2. Introductory Paragraph – Civilian Scenario**

Please read the following scenario, and imagine yourself in the following situation:

You and a member of another coalition force have been asked to patrol the west sector of the city. You and your new teammate have been ordered to approach all suspicious looking individuals as there have been reports of recent terrorist activity in the area. You have been told to use only the amount of force necessary, as your goal is to maintain good relationships with the local population. As you walk, you have time to talk and you and your new teammate learn about each other's background and experience.



## A5. Pre-Mission Questionnaire

At this point, you may have only limited knowledge about your teammate. Even if you are uncertain, please provide your best guess about the following questions:

Item	Completely Disagree					Completely Agree	
	1	2	3	4	5	6	7
My teammate is likely to perform with professionalism.	\$	\$	\$	\$	\$	\$	\$
My teammate's behaviour is likely to be consistent with the Canadian Forces code of conduct.	\$	\$	\$	\$	\$	\$	\$
My teammate is likely to share my beliefs and values.	\$	\$	\$	\$	\$	\$	\$
My teammate is likely to have good training.	\$	\$	\$	\$	\$	\$	\$
My teammate is likely to have a high level of experience.	\$	\$	\$	\$	\$	\$	\$
My teammate and I are likely to work well together.	\$	\$	\$	\$	\$	\$	\$
My teammate is likely to have a good reputation.	\$	\$	\$	\$	\$	\$	\$
I expect for my teammate and I to be "on the same page".	\$	\$	\$	\$	\$	\$	\$

Rated from 0 (NOT AT ALL CONFIDENT) to 100 (EXTREMELY CONFIDENT)	Me	My team partner
Right now, rate your confidence in the members of your team.		

In light of the information that you have about your TEAM AS A WHOLE RIGHT NOW, how much do you trust your team to complete the mission successfully?
_____ %



## **A6. Ammo Scenario – No Violation**

Just as your vehicle enters the eastern sector, the road soon becomes impassable as a large tree has fallen across it. You will need to continue on foot to survey the area. You advance for less than a kilometre. Suddenly, you realize that your team has been detected by enemy forces and they start shooting at you and your teammate. You take cover and return fire, and a heated firefight ensues.

During this, you soon realize that you are about to run out of ammo, and your teammate reports that he is low as well. You ask your teammate to walk back to the vehicle to get more ammo for both of you, and your teammate takes off to do this.

However, after more than 30 minutes, your teammate has still not returned, and you continue to engage the enemy while trying to preserve your diminishing supply of ammo. Your situation becomes increasingly tense as your ammo dwindles to less than 1 mag with no sign of your teammate's return. Luckily, the enemy forces unexpectedly stop shooting and you realize that they have moved into the dense forest in the opposite direction. As you walk back toward your vehicle, you notice your teammate slowly walking toward you. When you ask him what happened, he says that he was engaged by enemy forces on the way back to you (with your ammo). This explanation is quickly confirmed by a radio transmission asking your teammate whether he has "eyes on" any enemy forces.



## **A7. Ammo Scenario – Violation**

Just as your vehicle enters the eastern sector, the road becomes impassable as a large tree has fallen across it. You will need to continue on foot to survey the area. You advance for less than a kilometre. Suddenly, you realize that your team has been detected by enemy forces and they start shooting at you and your teammate. You take cover and return fire, and a heated firefight ensues.

During this, you soon realize that you are about to run out of ammo, and your teammate reports that he is low as well. You ask your teammate to walk back to the vehicle to get more ammo for both of you, and your teammate takes off to do this.

However, after more than 30 minutes, your teammate has still not returned, and you continue to engage the enemy while trying to preserve your diminishing supply of ammo. Your situation becomes increasingly tense as your ammo dwindles to less than 1 mag with no sign of your teammate's return. Luckily, the enemy forces unexpectedly stop shooting and you realize that they have moved into the dense forest in the opposite direction. As you walk back toward your vehicle, you notice your teammate slowly walking toward you, but he does not appear to be carrying an ammo can. When you ask him what happened, he states that he got lost on the way back with the ammo, and ended up going back to the vehicle until the firefight was over.

## A8. Manipulation Check – Ammo Scenario

In this study, each participant will be reading different scenarios, so the following questions may apply better to some scenarios than others. You have just read a scenario describing a mission with a new teammate. Please answer the following questions:

During the mission scenario, did your teammate do anything that:	YES	NO
Might have put you at risk? (use a checkmark ✓).		

**IF YES, PLEASE DESCRIBE WHAT YOU TEAMMATE DID:**

--

Item	Not at all Positive						Extremely Positive
	1	2	3	4	5	6	7
In general, how positive was your teammate's behaviour during the scenario?	⊘	⊘	⊘	⊘	⊘	⊘	⊘

Item	Not at all Negative						Extremely Negative
	1	2	3	4	5	6	7
In general, how negative was your teammate's behaviour during the scenario?	⊘	⊘	⊘	⊘	⊘	⊘	⊘



## **A9. Civilian Scenario – No Violation**

Please read the following scenario, and imagine yourself in the following situation:

You and a member of another coalition force have been asked to patrol the west sector of the city. You and your new teammate have been ordered to approach all suspicious looking individuals as there have been reports of recent terrorist activity in the area. You have been told to use only the amount of force necessary, as your goal is to maintain good relationships with the local population. As you walk, you have time to talk and you and your new teammate learn about each other's background and experience.

Please turn the page to read your teammate's profile.



## **A10. Civilian Scenario –Violation**

As you continue to patrol the area, you see a poorly dressed male civilian walking alone and approach him to find out if he has seen any problem areas you should check out. Your teammate asks the civilian if he speaks English. After the civilian answers that he speaks little English, your teammate notices something in the civilian's pocket. He asks the civilian what is in his pocket and the civilian pulls out a camera. Your teammate asks if he can see the camera, looking at it briefly before returning it and then engages the civilian in small talk about photography. Your teammate asks the civilian whether he has seen any problems in the area and the civilian states that he has not. Your teammate then looks at you and indicates that it is time to go. He then starts to walk away.



## A11. Manipulation Check – Civilian Scenario

In this study, each participant will be reading different scenarios, so the following questions may apply better to some scenarios than others. You have just read a scenario describing a mission with a new teammate. Please answer the following questions:

During the mission scenario, did your teammate do anything that:	<b>YES</b>	<b>NO</b>
You disagree with? (use a checkmark ✓).		

<b>IF <u>YES</u>, PLEASE DESCRIBE WHAT YOU TEAMMATE DID:</b>

Item	Not at all Positive						Extremely Positive
	1	2	3	4	5	6	7
In general, how positive was your teammate's behaviour during the scenario?	⊘	⊘	⊘	⊘	⊘	⊘	⊘

Item	Not at all Negative						Extremely Negative
	1	2	3	4	5	6	7
In general, how negative was your teammate's behaviour during the scenario?	⊘	⊘	⊘	⊘	⊘	⊘	⊘

## A12. Trust Questionnaire

You have just read a scenario describing a mission with a new teammate. Even now, you may have only limited information about your teammate.

Please answer the following questions based on all the information you have about your teammate now.

Item	Completely Disagree					Completely Agree	
	1	2	3	4	5	6	7
My teammate's behaviour was consistent with the Canadian Forces code of conduct.	\$	\$	\$	\$	\$	\$	\$
My teammate's behaviour during the scenario may <u>not</u> reflect the person he really is.	\$	\$	\$	\$	\$	\$	\$
My teammate's actions during the scenario were probably consistent with his character.	\$	\$	\$	\$	\$	\$	\$
My teammate was competent.	\$	\$	\$	\$	\$	\$	\$
My teammate seems to share my beliefs and values.	\$	\$	\$	\$	\$	\$	\$
My teammate seems to have good training.	\$	\$	\$	\$	\$	\$	\$
My teammate seems to have a high level of experience.	\$	\$	\$	\$	\$	\$	\$
My teammate seems likely to have a good reputation.	\$	\$	\$	\$	\$	\$	\$
My teammate performed with professionalism.	\$	\$	\$	\$	\$	\$	\$
My teammate knew what he was doing.	\$	\$	\$	\$	\$	\$	\$
My teammate displayed concern for others.	\$	\$	\$	\$	\$	\$	\$
My teammate did what he said he was going to do.	\$	\$	\$	\$	\$	\$	\$
My teammate did not show integrity.	\$	\$	\$	\$	\$	\$	\$
My teammate and I worked well together.	\$	\$	\$	\$	\$	\$	\$
My teammate and I were "on the same page".	\$	\$	\$	\$	\$	\$	\$



### A13. Willingness to Risk Scale

Item	Completely Disagree					Completely Agree	
	1	2	3	4	5	6	7
If asked to do a high risk mission with this teammate, I would be willing to rely on him to watch my back.	\$	\$	\$	\$	\$	\$	\$
If asked to do a high risk mission with this teammate, I would be willing to rely on him to keep my best interests in mind.	\$	\$	\$	\$	\$	\$	\$
If asked to do a high risk mission with this teammate, I would be willing to rely on him to protect me.	\$	\$	\$	\$	\$	\$	\$
If asked to do a high risk mission with this teammate, I would be willing to rely on him to do the right thing	\$	\$	\$	\$	\$	\$	\$
If asked to do a high risk mission with this teammate, I would be willing to rely on him to behave predictably.	\$	\$	\$	\$	\$	\$	\$
If asked to do a high risk mission with this teammate, I would be willing to rely on him to do what he says he's going to do.	\$	\$	\$	\$	\$	\$	\$
In a high risk mission, I believe my teammate would look out for me.	\$	\$	\$	\$	\$	\$	\$



## A14. Memory Recall Questionnaire – Ammo Scenario

YOU HAVE NOW RETURNED TO YOUR COALITION BASE, AND ARE ASKED TO PROVIDE A FULL WRITTEN REPORT ON YOUR MISSION.

Please recall the following information to the best of your ability. Even if you are unsure, take your best guess.

<b>Demographics:</b>				
<b>In what year was your teammate born?</b>	_____			
<b>What country does your teammate live in?</b>	Canada \$	Other (specify) _____		
<b>What is your teammate's first language?</b>	English \$	French \$	Other (specify) _____	
<b>What is your teammate's highest level of education?</b>	High school \$	University/college degree \$    Years of university/college _____		
<b>Your Teammate's Elemental Command:</b>	Army \$	Navy \$	Air Force \$	
<b>Your Teammate's Rank</b>				
<b>Your Teammate's MOC:</b>				
<b>Length of Military Service</b>	Less than 1 year \$	1- 3 years \$	3-5 years \$	
	5-10 years \$	> 10 years \$		
<b>Operational Experience</b>	No \$	Yes \$	If yes, please list	
<b>What sector of the city were you patrolling?</b>	North \$	South \$	East \$	West \$
<b>What type of vehicle were you riding in?</b>	G-Wagon \$	RG31 \$	Bison \$	



YOU HAVE NOW RETURNED TO YOUR COALITION BASE, AND ARE ASKED TO PROVIDE A FULL WRITTEN REPORT ON YOUR MISSION.

Please recall the following information to the best of your ability. Even if you are unsure, take your best guess.

<b>Why was the road impossible to pass?</b>	IED had exploded and made a crater in the road \$			
	tree had fallen on the road \$			
	flooding had destroyed part of the road \$			
<b>Why did your teammate go back to the vehicle?</b>	to get supplies to fix the road \$			
	to get ammo \$			
	to get medical supplies \$			
<b>How far from the vehicle did the firefight occur?</b>	200 m \$	500 m \$	< 1 kilom \$	> 1 kilom \$
<b>Where did the enemy go?</b>	Nearby town \$	Forest \$	Down road \$	Not specified \$



## A15. Memory Recall Questionnaire – Civilian Scenario

**YOU HAVE NOW RETURNED TO YOUR COALITION BASE, AND ARE ASKED TO PROVIDE A FULL WRITTEN REPORT ON YOUR MISSION.**

**Please recall the following information to the best of your ability. Even if you are unsure, take your best guess.**

<b>Demographics:</b>			
<b>In what year was your teammate born?</b>	_____		
<b>What country does your teammate live in?</b>	Canada \$	Other (specify) _____	
<b>What is your teammate's first language?</b>	English \$	French \$	Other (specify) _____
<b>What is your teammate's highest level of education?</b>	High school \$	University/college degree \$    Years of university/college _____	
<b>Your Teammate's Elemental Command:</b>	Army \$	Navy \$	Air Force \$
<b>Your Teammate's Rank</b>			
<b>Your Teammate's MOC:</b>			
<b>Length of Military Service</b>	Less than 1 year \$	1- 3 years \$	3-5 years \$
	5-10 years \$	> 10 years \$	
<b>Operational Experience</b>	No \$	Yes \$	If yes, please list



**YOU HAVE NOW RETURNED TO YOUR COALITION BASE, AND ARE ASKED TO PROVIDE A FULL WRITTEN REPORT ON YOUR MISSION.**

**Please recall the following information to the best of your ability. Even if you are unsure, take your best guess.**

<b>What was the civilian's gender?</b>	Male \$	Female \$		
<b>What was in the civilian's pocket?</b>	Nothing \$	Cigarettes \$	Camera \$	Pen \$
<b>Did your teammate take anything from the civilian?</b>	No \$	Cigarettes \$	Camera \$	Pen \$
<b>What sector of the city were you patrolling?</b>	North \$	South \$	East \$	West \$
<b>Why were you patrolling the area?</b>	reports of recent terrorist activity in the area \$ reports of rioting in the streets \$ reports of human rights violations \$			
<b>What were your orders?</b>	to report any illegal activity \$ to approach all suspicious looking individuals \$ to repair a damaged road \$			



## A16. Informed Consent

### VOLUNTARY CONSENT FORM

**Protocol Number:** DRDC HREC L-549, Amendment #1

**Research Project Title:** Effectiveness in Adhoc Teams

**Principal DRDC Toronto Investigator:** Dr. Megan Thompson

**Principal Humansystems Investigator:** Dr. Barbara Adams

**Co-investigators:** Michael Thomson and Dr. Andrea Brown (Humansystems Inc.)

I, \_\_\_\_\_ (name) of \_\_\_\_\_ (address and phone number) hereby volunteer to participate as a subject in the study, "Effectiveness in Adhoc Teams (Protocol DRDC HREC L-549, Amendment #1). I have read the information sheet, and have had the opportunity to ask questions of the Investigators. All of my questions concerning this study have been fully answered to my satisfaction. However, I may obtain additional information about the research project and have any questions about this study answered by contacting Megan Thompson at **416-635-2040**.

I understand that my participation in this study is completely voluntary. It will involve completing some short questionnaires exploring my military background, experience, demographics and cultural identity. I will then be asked to read about a teammate whom I will envision myself partnered with in a number of scenarios. I will complete questionnaires exploring my perceptions of my teammate before, during and after the scenarios. In total, I will read through 2 scenarios and answer associated questions, lasting a total of approximately 1 hour.

I understand that only group results will be reported, and will contain no information that would identify me personally.

I have been informed that there are no known or anticipated risks associated with participating in this study, and that I will be provided with a full debriefing at the end of the study.

I have been advised that the data concerning me will be treated as confidential, and not revealed to anyone other than the DRDC Toronto Investigator(s) Research Team without my consent except as data unidentified as to source. I understand that I will receive remuneration for my participation.

I understand that I am free to refuse to participate and may withdraw my consent without prejudice or hard feelings at any time, before, during or after my participation. Should I withdraw my consent, my participation as a subject will cease immediately. In this case, I will have the option of requiring that any data that I have provided be destroyed. I also understand that the Investigator(s), or their designate, may terminate my participation at any time, regardless of my wishes.

Volunteer's Name \_\_\_\_\_ Name of Witness to Signature: \_\_\_\_\_

Volunteer's Signature: \_\_\_\_\_ Witness Signature: \_\_\_\_\_

Date: \_\_\_\_\_ Date: \_\_\_\_\_

Principal DRDC Toronto Investigator: Dr. Megan Thompson



Signature: \_\_\_\_\_

Date: \_\_\_\_\_

*FOR SUBJECT ENQUIRY IF REQUIRED:*

Should I have any questions or concern regarding this project as the result of my participation, I understand that I am encouraged to contact Defence R&D Canada - Toronto (DRDC Toronto), P.O. Box 2000, 1133 Sheppard Avenue West, Toronto, Ontario M3M 3B9. This contact can be made by surface mail at this address or in person, by phone or e-mail, to any of the DRDC Toronto numbers and addresses listed below:

- Principal DRDC Toronto Investigator: Dr. Megan Thompson, 416-635-2040, Megan.Thompson@drdc-rddc.gc.ca
- Chair, DRDC Human Research Ethics Committee (HREC): Dr. Jack Landolt, 416-635-2120, jack.landolt@drdc-rddc.gc.ca.

I understand that I will be given a copy of the information sheet for this study so that I may contact any of the above-mentioned individuals at some time in the future should that be required.

## A17. Information Sheet

### INFORMATION SHEET: EFFECTIVENESS IN ADHOC TEAMS

Research Objective:	Research exploring the factors that maximize team effectiveness is of particular relevance to the military in that the work undertaken by military teams is often characterized by risk and uncertainty, and the costs of getting it wrong reduces operational effectiveness and may mean life or death. Increasingly, Canadian military members are part of teams that must form rapidly to function in joint, interagency and multinational operations. How team members are able to quickly coordinate their activities and function together having never worked together previously is a critical question of importance to the CF. The purpose of the current study is to explore factors that impact on the effectiveness of adhoc teams.
Your Participation:	... involves completing a few short questionnaires exploring your military background, experience, demographics and cultural identity. You will then be provided with a booklet that describes different scenarios where you will imagine yourself as part of a two person team involved in performing infantry tasks and/or interacting within a military context (e.g., patrols). You will read a demographic profile about your hypothetical teammate and then be asked for your perceptions of this teammate. After reading aspects of the scenario you will complete more questions related to your perceptions of this teammate. In total, you will read 2 scenarios. The time needed to complete these tasks will be approximately 1 hour.
The Research Team	The study is being conducted by the consulting firm Humansystems Inc. on behalf of the Collaborative Performance and Learning Section (CPL) of Defence Research and Development Canada (DRDC Toronto).
Your Rights as a Participant in the Study	Your participation in this study is completely voluntary. You may end your participation at any point in the study or even after participating in the study. All the information you provide is considered completely confidential. Only the research team at Human Systems and the CPL Section of DRDC Toronto will have access to the raw data. Only aggregate results will be reported, and will contain no personally identifying information. <b>To ensure your rights, this project has been fully reviewed and approved by the Human Research Ethics Committee (HREC) of Defence R&amp;D Canada, (Protocol Number L-549, Amendment #1).</b>
Risks	This is a minimal risk study, and all participants will receive a full debriefing after completing the study, and will have the opportunity to ask questions then.
Contact Information	Should you have any questions or concern regarding this study that arise after your participation, you are encouraged to contact Defence R&D Canada Toronto (DRDC Toronto), P.O. Box 2000, 1133 Sheppard Avenue West, Toronto, Ontario M3M 3B9. This contact can be made by surface mail at this address or in person, by phone or e-mail, to any of the DRDC Toronto numbers and addresses listed below: <ul style="list-style-type: none"> <li>• Principal DRDC Toronto Investigator: Dr. Megan Thompson, 416-635-2040, megan.Thompson@drdc-rddc.gc.ca</li> <li>• Chair, DRDC Human Research Ethics Committee (HREC): Dr. Jack Landolt, 416-635-2120, jack.landolt@drdc-rddc.gc.ca</li> </ul>
~ Thank you in advance for your participation in this study. Please take a copy of this information sheet in order to contact any of the above-mentioned individuals at some time in the future should you require ~	





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## ANNEX B.

### B1. No Violation Condition Responses – Ammo Scenario

Participants’ open ended affirmative responses to the question: “During the mission scenario, did your teammate do anything that might have put you at risk?”

Didn't return with ammo to resupply me with to continue the firefight.
When the team mate left to get ammo our force was divided and each member could have easily been overwhelmed by the enemy. Better to withdraw together or fight together instead of splitting up.
My team mate didn't make it back to me with ammo which could have potentially gotten me killed. I do however understand his situation about being engaged while trying to accomplish the task.
Ran to RG31 to get more ammo. Did not return with ammo but enemy stopped shooting. Walked back and found fire team partner who had been contacted by enemy. May have been at risk if I ran out of ammo.
Did not return with ammo
Wasn't quick
He didn't bring ammo.
Left me with little ammo and no word on where he was.
He left on his own putting myself and him at risk.
Did not return with ammo, or keep in communication.
Instead of slowly walking with ammo, he should have rushed over in case of another attack.
Took too long to get ammo or should have notified me he to was also under enemy fire as well
Did not communicate (assuming radios are present) that he has engaged and could not return
Did not notify that he was engaged by enemy when getting resupply for ammunition
Long response time to return with the extra ammo; he could have left some of his ammo with me before departing
Was slow to hand me extra ammo; failed to communicate his situation; had no drive
Failed to return with ammo. Apparently no comms between us.
Left my side. Although I told him to do so it still put me at risk - a calculated risk.
He could have doubled back to me, 2 is better than one.
No ammo while in battle, life threatening.
Failed to return in a timely manner while I was engaged in a heavy fire fight.
Left me in a situation with very little ammo.
Didn't return with ammo or communicate that he was under contact
Did not return with ammo
Left me alone low on ammo in combat for an extended period of time
He left to get ammo but took too long to return.
Did not radio to report contact/ did not withdraw to bring ammo
Teammate left and didn't come back with ammo until later
You must ensure that the team is working at full capacity under fire or not he should have regrouped and provided cover fire while I reloaded.
Other
He was seen by enemy forces, therefore compromised the team and the mission
It obviously put me at risk, but it is part of the job. We communicated properly.
The fact that he was walking slowly towards me rather than rushing would make me feel greater at risk
He failed to radio me on what was happening
He left and did not inform me of the delay



## B2. No Violation Condition Responses – Civilian Scenario

Participant open ended affirmative responses to the question: “During the mission scenario, did your teammate do anything that you disagree with?”

He was not concerned that the camera could have been used for gathering intel for the enemy. He should have been more inquisitive; if the camera was digital, he should have checked the pictures and questioned them; see if the man got nervous
Noticed he had something in his pocket and asked what it was. Engages in small talk.
Poorly dressed man is suspicious and warrants more thorough investigation. What is he using it for & how does he afford it?
He didn't ask/check person's camera
Got preoccupied with useless chatter
He did not follow a good plan for dealing with a person with a possible weapon or bomb. He put the both of them in danger by not doing this. It was fortunate that it wasn't anything but the possibility still existed.
He could have inspected the camera in in better detail, as there may have been valuable images in the camera. Not diligent enough. Had he possessed the camera for longer, the suspect may have gotten nervous, possibly indicating guilt.
Did not communicate to me what was on the camera (Intelligence info?) Seemed rather unconcerned about the citizen.
Saw a poorly dressed man, which you could assume was either homeless or too poor to afford a camera. I believe it is likely that the person was an insurgent taking recce pictures for a hostile faction. I would have asked him what he was taking pictures of. In short, I believe he was too trusting.
The fact he walks away while a mcpl is running the patrol shows disrespect to my rank. Started to leave me alone to talk and cover myself. No real flow op questions.
Did not investigate further into the suspect
Interaction with civilian population.

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- (U) As the Canadian Forces is becoming more culturally diverse and personnel are increasingly involved in complex multinational coalition operations, a critical issue is how military teams will be able to work efficiently and effectively despite the challenges posed by diversity. One of the major challenges for future military teams is that perceived differences among teammates could impede the development and maintenance of trust. This study investigates the impact of cultural diversity on trust in teams and on the management of trust violations within these teams.
- Reserve force military personnel (n = 106) were recruited to participate in this study. Participants were asked to imagine themselves in a specific operational context with a hypothetical teammate. Participants were provided with a demographic profile about a hypothetical teammate, purported to be either from a similar culture (United States), a different culture (Bulgaria), or a very different culture (Sierra Leone). Participants then read an operational scenario involving themselves and the hypothetical teammate. In half of the missions, the teammate was depicted as committing a potential trust violation, with the other half of the missions having no violation. Pre and post-mission questionnaires examined participants' trust and expectations about their teammate and mission success. Teammate behaviour attributions and 'willingness to risk' were assessed only post-mission.
- Findings showed that cultural similarity impacted trust and expectations at the pre-mission stage, in that participants had more confidence in their partner and marginally more trust in their team when their teammate was from a similar culture. After more experience with the teammate (post-mission), trust violations had a strong and consistent impact, while the role of cultural identity became less pronounced. Overall, when teammates committed a trust violation they were seen as less trustworthy, and willingness to risk and expectations decreased.
- These results suggest that culture can have a prominent impact on initial perceptions and expectations about both the trustworthiness and the performance of new teammates. Although the effects of culture were overridden by trust violations in the scenario, it may be problematic that new teammates were presumptively accredited a lower level of trust just because they had different cultural backgrounds.
- Possible theoretical accounts of these findings are explored and lessons learned, future research and implications for CF training are addressed. Better understanding category-based trust will be critical as the CF moves toward increasingly dynamic, diverse and distributed operations.
- (U) Compte tenu que les Forces canadiennes sont de plus en plus diversifiées sur le plan culturel et que ses membres participent de plus en plus à des opérations complexes au sein de coalitions multinationales, l'un des enjeux majeurs est la capacité des équipes militaires à travailler de façon efficiente et efficace malgré les difficultés ressortissant à la diversité. L'un des principaux problèmes que rencontreront les futures équipes de militaires, c'est que les différences perçues entre les membres des équipes pourraient compromettre l'établissement et le maintien de la confiance. La présente étude a trait à l'incidence de la diversité culturelle sur la confiance au sein des équipes ainsi qu'à la gestion des abus de confiance au sein de ces équipes.
- Les services de 106 réservistes ont été retenus pour participer à cette étude. Ceux-ci devaient s'imaginer dans un contexte opérationnel donné avec un coéquipier

hypothétique. On leur faisait part du profil démographique d'un coéquipier hypothétique qui provenait d'une culture semblable (États Unis), différente (Bulgarie) voire très différente (Sierra Leone). Puis on leur demandait de lire un scénario opérationnel les mettant en cause ainsi que leur coéquipier hypothétique. Suivant le scénario d'une mission sur deux, le coéquipier brisait peut-être la confiance qu'on lui avait accordée. Des questionnaires ont été remis aux participants avant et après la mission pour évaluer leur confiance et leurs attentes à l'égard de leur coéquipier et du succès de la mission. Les caractéristiques liées au comportement du coéquipier et la volonté de prendre des risques ont été évaluées uniquement après la mission.

D'après les résultats, une culture commune a une incidence sur la confiance et les attentes dès avant une mission; autrement dit, les participants ont manifesté une plus grande confiance envers leur coéquipier et une confiance légèrement plus grande envers leur équipe lorsque leur coéquipier partageait la même culture. Une fois que le participant connaissait davantage son coéquipier (après la mission), les transgressions de la confiance avaient un effet marqué et soutenu, tandis que l'identité culturelle jouait un rôle moins prononcé. Dans l'ensemble, lorsque des membres de l'équipe brisaient la confiance que leur accordaient leurs coéquipiers, ils étaient perçus comme moins dignes de confiance, et la volonté de prendre des risques de même que les attentes diminuaient. Ces résultats donnent à penser que la culture peut avoir une incidence marquée sur les perceptions et les attentes initiales concernant la fiabilité et le rendement de nouveaux équipiers. Bien que les effets de la culture aient été supplantés par une transgression de la confiance dans le scénario, il peut être problématique que de nouveaux coéquipiers aient été présumés moins dignes de confiance seulement en raison de leurs antécédents culturels différents.

On cherche une explication théorique aux résultats obtenus, on en tire des leçons ainsi que d'éventuelles répercussions sur l'instruction des FC et d'éventuelles recherches futures. Une meilleure compréhension du lien entre la confiance et divers facteurs sera de plus en plus cruciale au fur et à mesure que les FC procéderont à des opérations de plus en plus dynamiques, diversifiées et réparties.

14. KEYWORDS, DESCRIPTORS or IDENTIFIERS (Technically meaningful terms or short phrases that characterize a document and could be helpful in cataloguing the document. They should be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location may also be included. If possible keywords should be selected from a published thesaurus, e.g. Thesaurus of Engineering and Scientific Terms (TEST) and that thesaurus identified. If it is not possible to select indexing terms which are Unclassified, the classification of each should be indicated as with the title.)

(U) Canadian Forces; cultural diversity; military; teams; trust

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