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**Title:** Diversity in Teams : Perceptions of Team Learning Behaviour in a Military Staff Exercise

**Year:** 2020

**Version:** Published version

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**Please cite the original version:**

Paananen, S., Häyhä, L., & Hedlund, E. (2020). Diversity in Teams : Perceptions of Team Learning Behaviour in a Military Staff Exercise. *Scandinavian Journal of Military Studies*, 3(1), 1-17.

<https://doi.org/10.31374/sjms.6>

## RESEARCH ARTICLE

# Diversity in Teams: Perceptions of Team Learning Behaviour in a Military Staff Exercise

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The aim of this study is to analyse diversity in team learning behaviour between and among national respondents' perceptions during a military staff exercise (CJSE). Edmondson's team learning behaviour model is used as the theoretical basis of the study. The results showed statistically significant differences both between and among national respondents' perceptions. The research results indicate that team leader coaching, team psychological safety, the importance of obtaining expert knowledge as well as pre-exercise training are perceived to be crucial for team learning behaviour. The study has theoretical and practical implications for a more nuanced understanding of the diversity of team learning behaviour in the context of a multinational military teamwork exercise and for working as a part of multinational temporal teams in particular.

**Keywords:** team learning behaviour; military team; diversity

## Introduction

Military teams differ in crucial ways from everyday work teams in terms of the life-and-death nature of their work, the complexity and dynamics of the mission context and considerable uncertainty about the work (Essens et al. 2009). Military teams usually work under high stress and a heavy workload in hostile environments, and they often have to accomplish their tasks under conditions of mental fatigue while being in a critical time-frame. In sum, they have to work in extreme situations (Godé-Sanchez 2010; Melkonian & Picq 2010). This means that the team must be able to work together in order to accomplish an operation effectively and flexibly in as short a time as possible (Edmondson & Singer 2008; Ramthun & Matkin 2014; Yanakiev & Markov 2013). As a result of the temporal constraints, team members do not have the time to build trust and mutual understanding, which cohesion researchers have usually emphasized as a prerequisite for good cooperation (King 2015a, b; Siebold 2015). Due to the uncertain and chaotic nature of the work, the team members must negotiate their operating methods, learn to work together, share their expertise and learn from others in order to achieve a common goal (Eyal 2015). However, little is known about how military teams learn to work together.

This article seeks to address this issue by studying the specific features of team learning behaviour and how team diversity can duly be utilized. Hence, the research is linked to the need in previous studies to acquire more detailed information about the diversity that is characteristic of teams (Savelsbergh, Van der Heijden & Poell 2010; Shemla et al. 2016; Shemla & Wegge 2019). The importance of researching diversity in military teams is firstly based on the fact that operations are both multinational and multicultural (Leung & Wang 2015). In international operations, officers and soldiers must adapt their way of working to that of other countries. Furthermore, they must also be prepared to master a great variety of tasks which, on the one hand, may not always be directly connected to the military profession and military training (Blomgren 2008; Fitzpatrick 2009), but which, on the other hand, may also call for special expertise in addition to general military skills, which only one team member may possess. So the tasks may be completed by virtue of a very diverse mix of competencies within the team. Secondly, the scientific literature shows that diversity can have both positive and negative effects on a team's capability to communicate, share information and collaborate (Shemla et al. 2016), which are crucial factors when facing challenges and for working in crisis management operations. Hence, diversity in a team might be an enabler of, or a barrier to, collaboration, have

an effect on the team's efficiency and may even have life-threatening consequences. Lastly, the non-linearity, suddenness and unpredictability of situations require military teams to adapt to new situations and even to create innovative solutions to problematic issues. Complex operations require adaptation to constant change, and consistently call for experimentation, vigilance and the ability to switch direction if something does not work, or if one is confronted by a situation that rules out the chosen direction (De Coning 2018). In sum, military teams need to be constantly prepared for non-linearity by means of a continuing, multifaceted learning process.

To this end, this article focuses on diversity in teams and its potential in team learning behaviour. The study contributes in particular to the team diversity literature by uncovering the issues that underlie a multinational team's efforts to learn to work collectively. This is brought to light through an international crisis management exercise in which the participants are trained to be part of multinational staff and taught to meet the challenges of peace and crisis management operations.

## Diversity in Teams

The diversity of teams and its significance for team functioning and performance has been of interest to researchers for decades. However, research results have varied, with differences in how diversity is understood, how the research results are integrated with existing research and the kind of effects produced by the team (Mello & Rentsch 2015). Naturally, all of these factors are also associated with the way in which the team itself is understood.

Firstly, research has sought to determine what team diversity means. In their review, Mello and Rentsch (2015) have created heuristic levels for variables that are used in the cognitive diversity literature. On the one hand, trait-like variables such as personality and cognitive styles are innate and stable, whereas developmental variables like values refer to individual differences that are not entirely permanent and instead develop over the course of life. On the other hand, acquired variables such as knowledge and skills can change because they are context-specific. Exposed variables are those that are most context-specific, easy to manipulate and, hence, the least stable. From this perspective, however, diversity is irrelevant to the task or to the activities that the team performs together. More specifically, diversity is understood merely as input into the team, rather than seeing it as divergence of potential for team members to be utilized in teaming.

The shift from the superficial and task-irrelevant level towards deeper cognitive diversity takes on added importance when it comes to team diversity in action and its effects (Mello & Rentsch 2015). Edmondson and Roloff (2009: 194–199) have referred to three types of diversity that have been found to be significant for team action. To begin with, separation refers to different values along a horizontal continuum such as differences of opinion on certain issues between team members. The distance or similarity to the issue might divide team members into in-group or out-group, which might have an effect on collaboration. Moreover, variety refers to differences in categories such as educational level, ethnicity, gender, age and, in the military context, different ranks and professional status. Lastly, disparity refers to differences along a vertical continuum in the social value of a particular attitude such as cultural diversity. This diversity might increase or decrease openness and collaboration in teaming.

Research has also increasingly shifted its focus from direct impacts towards indirect activities produced by the diversity within teams. In their comprehensive review, Mello and Rentsch (2015: 643–645) stated that they found limited evidence for the direct effects of cognitive diversity on team performance. Instead, diversity might have a deeper meaning that is connected to underlying attributes such as psychological safety (Edmondson 1999), affect-based trust (Cheung et al. 2016) or perceptions of team similarity or dissimilarity (Shemla et al. 2016). Team members may withhold information because they are afraid of the potential criticism or embarrassment that arises during the information process (Edmondson 1999). Material-discursive practices (Van den Heuvel 2017) and low affect-based trust among team members can also exert a negative influence on knowledge-sharing and have an indirect effect on team innovation (Cheung et al. 2016). For their part, Shemla et al. (2016) found that perceived self-to-team dissimilarity and perceived subgroup divisions were quite often linked to negative effects, whereas perceived group heterogeneity was connected to both negative and positive effects on group outcomes.

In this study, teams are viewed as information processors because diverse teams and team members can acquire information, know-how and perspectives from each other through knowledge-sharing. More specifically, the emphasis is on how the team utilizes the different potentials within the team in their collaboration and how they learn to work together as a team. With this knowledge, we can become aware of the factors involved in smooth teaming and mitigate the diversity-connected heterogeneity to develop the team's ability to learn to work collectively and further develop their capability to work in crisis management operations in uncertain and politically sensitive environments.

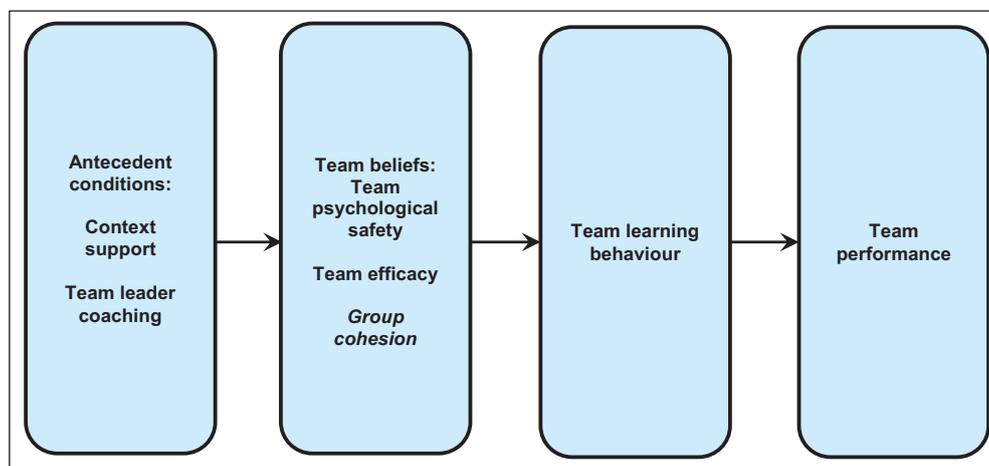
To this end, this study focuses on analysing the diversity between Finnish and Swedish counterparts in relation to team learning behaviour in a Combined Joint Staff Exercise (CJSE). The different perceptions between Finnish and Swedish respondents concerning team learning behaviour are analysed, as well as the way in which other factors give rise to differences within both nationalities during the exercise. The study applies the team learning behaviour model created by Amy Edmondson (1999, 2002), which has already been shown to be appropriate for analysing the learning behaviour of military teams in general (Vestraeten, Kyndt & Dochy 2014) and in a CJSE context in particular (Hedlund 2017; Hedlund, Börjesson & Österberg 2015). Swedish studies (Hedlund 2017; Hedlund, Börjesson & Österberg 2015) have largely focused on testing the suitability of the model for team learning in crisis management exercises by conducting a qualitative analysis on the action of individual teams. For its part, this article expands the existing research through a quantitative analysis of the perceptions of the exercise participants regarding learning behaviour in teams.

## Team Learning as a Theoretical Framework

The team learning model (Edmondson 1999) suggests that teamwork is by nature a learning process (Edmondson 2012a: 50). Learning occurs through situated work practices in a complex web of interactional factors (Boud & Hager 2012) and is integrated into the work tasks and activities. Teamwork is both executing and learning at the same time (Edmondson 2012a: 49–51, 74, 253; 2012b), and it involves awareness, trust and cooperation, as well as communication and the desire and ability to reflect on issues. This exerts a positive influence on team performance and a team's capability to share knowledge in face-to-face situations (Edmondson 1999: 353; Savelsbergh, Van der Heijden & Poell 2010; Van den Bossche, Segers & Kirschner 2006; Yao, Tsai & Fang 2015).

If teamwork is to be successful, it requires a certain kind of behaviour from the team. First, teamwork relies on direct communication between team members such as asking questions, sharing information, seeking feedback and discussing mistakes. Second, teamwork requires collaborative thinking and behaviour, both inside and outside the team, to guide the working and learning process. Third, teamwork includes an experimental, iterative approach to action that recognizes new things and insecurity in every interaction between team members. Finally, teamwork relies on reflection on processes, which should happen on a consistent basis (Edmondson 2012a: 51–56). These learning behaviours enable teams to acquire and process the knowledge needed for problem-solving, to improve the team members' collective understanding of situations and to enable them to adapt and develop in general (Edmondson 2012a: 27). In these processes, individuals demonstrate, share and reflect on their divergent competencies, seeking ways to use them to produce collective know-how that benefits the organization and improves their own activities. In sum, teamwork is about learning to use other team members' potential for information-sharing, problem-solving and collaboration.

Edmondson's (1999) original team learning model consists of four factors (antecedent conditions, team beliefs, team behaviours and outcomes) and six interlinked variables found to promote team learning and good team performance. Hedlund, Börjesson and Österberg (2015: 184–186) have added the variable of cohesion to the model because a connection has been found in research between cohesion and leadership, as well as cohesion and group performance (see **Figure 1**).



**Figure 1:** Team learning model (Edmondson 1999: 357; Hedlund, Börjesson & Österberg 2015: 184–186).

Antecedent conditions consist of context support and team leader coaching. According to Edmondson (1999), context support includes the team's resourcing and the information supporting the team's activities. In addition, team leader coaching is an important factor that affects the team's functioning and team performance. Team leadership has often been identified as a critical factor in ensuring that a team's communication is constructive (Schaubroeck et al. 2016) and in stimulating team members to seek controversy and co-construct new knowledge (Koeslag-Kreunen et al. 2018) in order to support team learning and its effectiveness.

Context support and team leader coaching are important factors in building the team's psychological safety and thereby also in enabling team efficacy and cohesion. According to Edmondson (1999: 354), 'team psychological safety is defined as a shared belief that the team is safe for interpersonal risk-taking'. It includes team members trusting fellow team members not to embarrass, reject or punish a person who speaks out, comes up with ideas and shares or evaluates existing knowledge. The team members' ideas of the team's psychological safety influence their way of reflecting on issues, which in turn is connected to the team's ability to learn, change and complete its task (Edmondson 1999, 2002; Edmondson & Lei 2014: 37; Edmondson & Roloff 2009). Team cohesion binds the team members together and is an important factor in effective teamwork (Hedlund, Börjesson & Österberg 2015: 184–186; Van den Bossche, Segers & Kirschner 2006; Veestraeten, Kyndt & Dochy 2014). Team efficacy refers to the team's experienced and shared view of their ability to achieve the goals set for them and to produce significant results as a team (Edmondson 1999: 356; Ortega, Sanchez-Manzanares & Rico 2013). This trust that the team possesses in its own competence and ability creates self-confidence, which in turn promotes team learning.

Team learning behaviours refer specifically to those actions in a team, which build the process of team learning (Edmondson 1999; Savelsbergh, Van der Heijden & Poell 2010). According to Edmondson (1999: 354–354), team learning behaviours should be understood as a continuous process in which the team members openly pose questions, discuss mistakes and any unexpected results of the activities, search for information, challenge, test and reflect on the existing assumptions and results and seek feedback both in general and especially from close partners and cooperating networks. In particular, uncertain operating environments that contain risks require such an innovative orientation. It is natural for them to actively produce constructive conflicts, for which alternative solutions are sought. At the same time, this activity builds a psychologically safe atmosphere, where mistakes, questions and failures are allowed (Edmondson & Singer 2008; Goodman et al. 2011; Nembhard & Edmondson 2006: 941).

## Method

The objective of the study is to analyse differences both between and among Finnish and Swedish counterparts regarding their perceptions of team learning behaviour in a CJSE exercise. The specific research questions are as follows:

1. Are there any differences concerning the perceptions of team learning behaviour between Finnish and Swedish respondents in a CJSE exercise?
2. Which factors distinguish Finnish respondents from each other in how they perceive team learning behaviour and, correspondingly, which factors distinguish Swedish respondents from each other?

## Setting

The empirical context of this study is a CJSE that is organized in Sweden annually by the Swedish Armed Forces and the Swedish National Defence University. The CJSE is a computer-assisted command-post exercise conducted at the levels of mission headquarters, component command and regional command. A technical platform introduces the command and control system, the system for distributing the situational picture in teams and a web-mapping system. In addition, the platform has an archive for documents and an exercise game that provides input according to the pedagogical scenario for the training audience and manages the exercise as a whole. Social media elements that mimic Instagram, Twitter, Facebook, Pinterest and LinkedIn are also used.

The exercise is a learning situation for the participants, teaching them staff methods and procedures and the application of doctrines, central conventions as well as how to work efficiently as multinational crisis management staff members (Hedlund, Börjesson & Österberg 2015: 186–188; Šimic 2012). To this end, the exercise provides a realistic environment characterized by a high level of multiple threats and complex conflict dynamics. The staff exercise is framed by a rich, continuously developed scenario that contains elements from genuine global crises and that reflects current challenges seen in international crisis operations. This

scenario forms the crisis that the staff are trying to resolve, and is designed to prepare participants to meet the challenges of peace and crisis management operations.

The entire exercise lasts ten days. The participants are a combination of personnel and students, as well as civilians and soldiers representing various nationalities. For the first few days, the participants' task is to familiarize themselves with the team, its task and its members and to understand the vertical and horizontal cooperation partners. The actual exercise lasts five days. The participants operate in teams of 5 to 15 members. Each person on the team has a position and related responsibilities and tasks, and they play their role in accordance with their position. For example, the operation centre is composed of one team whose task is to update situational awareness. The team consists of professionals such as officers specialized in intelligence, air, land or marine operations, social media, civil-military relations and so forth. During the exercise, the participants are assigned realistic tasks that they must resolve as individual team members, or as a part of their team or a network composed of teams. From a pedagogical point of view, few of them have previous experience in the tasks in accordance with their role, which means that the learning involves learning-by-doing. Each day ends with a 'Hot Wash Up', which is a debriefing event with the goal of reflecting on learning and the development of the team's activities.

### Data

The study is based on survey data collected immediately after the CJSE exercise had ended. All participants in the exercise had the chance to fill in a questionnaire during a two-week response time. As few people from other countries participated in the survey, the analysis focused only on the Finnish and Swedish responses. The number of Finnish and Swedish respondents in this particular dataset amounted to 141, and included respondents from the defence universities in both countries. In this sense, the study describes the learning behaviour of genuine military organization teams, which is quite rare (Edmondson 1999).

The survey comprised questions based on Edmondson's (1999) team learning model. The original questionnaire, or parts thereof, has been used in other published studies (Ortega, Sanchez-Manzanares & Rico 2013; Van den Bossche, Segers & Kirschner 2006; Veestraeten, Kyndt & Dochy 2014). The questionnaire that was used in this study consisted of eight elements (supportiveness of organization context, cohesion, team efficacy, team psychological safety, team leader coaching, team learning behaviour, team performance, Hot Wash Up) important for team learning. There were 46 questions on team learning altogether, but the analysis was carried out separately for both nationalities only in the case of team learning behaviour propositions. In addition, the form used 12 questions to map different kinds of background variables. Statistical analyses were performed using the IBM SPSS Statistics 22 program. There were originally 135 Swedish respondents and 75 Finnish respondents but, as presented in **Table 1**, the received data consisted of 71 Swedish respondents, or 50.4% of all respondents, and 70 Finnish respondents.

**Table 2** shows how the data is divided into three age classes, namely 30–39, 40–49 and 50–59. The youngest age class accounted for 68.1% of the total respondents, the middle age class 28.4% and the oldest age class 3.5%.

**Table 3** shows that 52.5% of the Swedish and Finnish respondents came from the Army, 21.3% from the Air Force, 21.3% from the Navy, 0.7% from others and 4.3% from special operation forces.

**Table 1:** Which defence college/university do you come from?

	Frequency	Per cent	Valid per cent	Cumulative per cent
Finnish National Defence University	70	49.6	49.6	49.6
Swedish National Defence University	71	50.4	50.4	100.0
Total	141	100.0	100.0	

**Table 2:** Age.

	Frequency	Per cent	Valid per cent	Cumulative per cent
30–39	96	68.1	68.1	68.1
40–49	40	28.4	28.4	96.5
50–59	5	3.5	3.5	100.0
Total	141	100.0	100.0	

**Table 3:** Service.

	Frequency	Per cent	Valid per cent	Cumulative per cent
Army	74	52.5	52.5	52.5
Air Force	30	21.3	21.3	73.8
Navy	30	21.3	21.3	95.0
Others	1	0.7	0.7	99.3
Special ops	6	4.3	4.3	100.0
Total	141	100.0	100.0	

### Data analysis

As mentioned previously, the main aim of this article is to analyse the diversity between Finnish and Swedish respondents' perceptions concerning team learning behaviour during the CJSE exercise. There are three reasons why this study focuses on Finnish and Swedish respondents. Firstly, the majority of participants were Finnish and Swedish general staff officers who participated in the exercise because it formed a part of their degree programme. Secondly, although there were also participants from other nations, they were few in number and their inclusion in the analysis would have distorted the results. Lastly, from the practical perspective, the increasing defence cooperation between these two countries as well as collaboration in crisis management operations are important reasons for researching their perceptions of teaming and collaboration. At the same time, it is important to understand the differences within each nationality with regard to how respondents perceive team learning behaviour to find out if perceptions about teaming exist at a deeper level. The research questions aim to uncover differences in two dimensions: The first dimension detects differences in perceptions between these two nationalities, while the second reveals differences within both nationalities in this exercise context.

The original aim of this study was to create summation variables to represent the team learning behaviour theme according to Edmondson's theory. The analysis would then have been extended further by implementing linear regression analysis to assess which factors best explain Finnish and Swedish respondents' positive perceptions of team learning behavior in the CJSE exercise. However, the factor analysis assumes that propositions must be normally distributed, and the t-test results in the regression analysis were not acceptable (Nummenmaa 2004).

The issue of whether the data is normally distributed or not determines whether it is possible to use a parametric test or non-parametric quantitative analysis methods. It is often recommended to measure the normality of a relatively small dataset by using the Kolmogorov Smirnov test. Hence, this was conducted. It revealed that the data was not normally distributed because each variable had a p-value of less than 0.001, and since the dataset was not big enough, only non-parametric analysis methods could be used in the study. It is worth mentioning that these methods do not usually provide as fruitful results as parametric tests (Holopainen & Pulkkinen 2008: 183; Nummenmaa 2004: 248–252).

Further, it was necessary to select a non-parametric analysis method that would accurately reveal whether there was any diversity concerning the team learning behaviour attitude between Finnish and Swedish respondents. After some consideration, the Mann-Whitney U test, which is a non-parametric version of the t-test (Holopainen & Pulkkinen 2008: 175–176; Nummenmaa 2004: 250) was used to assess at least the differences between Finnish and Swedish respondents concerning the team learning behaviour propositions. The aim was to assess whether there were differences between the rankings of the two different groups, namely between the Finnish and Swedish respondents. In practical terms, the observation unit can only belong to the Finnish group or the Swedish group. Team learning behaviour comprised the seven propositions (F17a–F17g) below. This, however, does not reveal which factors explain the differences and how strong the effects of the explanatory variables are.

- F17a We regularly take time to figure out ways to improve our team's work processes.
- F17b This team tends to handle differences of opinion privately off-line, rather than addressing them directly as a group.
- F17c Team members go out and get all the information they possibly can from others such as experts or other parts of the organization.

- F17d This team frequently seeks new information that leads us to make important changes.
- F17e In this team, someone always makes sure that we stop to reflect on the team's work process.
- F17f People in this team often speak up to test assumptions about issues under discussion.
- F17g We invite people from outside the team to present information or have discussions with us.

The hypotheses in the Mann-Whitney U test are as follows, and can be applied to each proposition about team learning behaviour:

H0: The distribution of order numbers is similar in the two groups. In other words, there is no difference between the Finnish and Swedish respondents in how they perceive team learning behaviour.

H1: The distribution of order numbers is different in the two groups. In other words, there are differences between the Finnish and Swedish respondents in how they perceive team learning behaviour.

In the latter research question concerning the differences within each nationality as to how respondents perceive team learning behaviour, it would have been fruitful to use one-way ANOVA because it examines group averages of explained variables. In other words, it studies group-average differences for the purpose of explaining variables within classes of explanatory variables. However, it requires normally distributed data, which could not be fulfilled in this case. For this reason, its non-parametric counterpart was used, namely the Kruskal-Wallis test, which is analogous to one-way ANOVA's null hypothesis where group averages are identical. In the Kruskal-Wallis test, a null hypothesis is rejected if medians of distributions are different (Nummenmaa 2004; Statistics Solutions 2019). This was used to reveal which factors distinguish Finnish respondents from each other with regard to how they perceive team learning behaviour and, correspondingly, which factors distinguish Swedish respondents from each other.

Originally, categorical variables or explanatory variables were distance-graded variables on a 1–7 Likert scale (1 = disagree, 7 = agree). As each of these variables will be used in the Kruskal-Wallis test one by one, it is reasonable to simplify this by recoding distance-graded variables into categorical variables. After the recoding process, the Likert-scale variables from 1–7 were converted into a 1–3 scale, where 1 = disagree, 2 = neither agree nor disagree and 3 = agree. The propositions for the recoded variables are shown below:

- F11b It is easy for this team to obtain expert assistance when something comes up that we don't know how to handle.
- F11d This team lacks access to useful training on the job.
- F14d It is safe to take a risk in this team.
- F15a The team leader initiates meetings to discuss the team's progress.
- F15b The team leader is available for consultation on problems.
- F15c The team leader is an ongoing "presence" in this team – someone who is readily available.

In turn, the team learning behaviour propositions remained in the same Likert-scale form (1 = disagree, 7 = agree). They were the same variables used in the Mann-Whitney U test, F17a–F17g. Before the analysis, the data was divided in such a way that only the Finnish respondents were taken into account in the Kruskal-Wallis test. Hence, it was possible to detect differences among the Finnish respondents. A similar division was made in the data when observing differences among the Swedish respondents by using the Kruskal-Wallis test.

An example of the hypotheses in the Kruskal-Wallis test is as follows and similar logic can be applied in the results section from **Table 5** to **Table 11**, with the difference that the propositions are not the same. In this example, propositions F11b and F17c have been used.

H0 = There are no differences between respondents in relation to how they regard the ease with which their team can obtain expert assistance when something comes up (F11b), and concerning their attitude towards regularly taking time out to figure out ways to improve their team's work processes (F17c).

H1 = There are differences between respondents in relation to how they regard the ease with which their team can obtain expert assistance when something comes up, and concerning their

attitude towards regularly taking time out to figure out ways to improve their team's work processes.

The Kruskal-Wallis test was administered for Finnish respondents and Swedish respondents independently. It was conducted to reveal differences among Finnish respondents and among Swedish respondents concerning their team learning behaviour. There were 70 Finnish respondents and 71 Swedish respondents, which meant that the dataset for both nationalities was sufficient to implement the analysis.

## Results

This section outlines the results of the Mann-Whitney U and Kruskal-Wallis tests. The Mann-Whitney U test was used to analyse differences between the Finnish and Swedish counterparts regarding team learning behaviour in the CJSE exercise. In turn, the Kruskal-Wallis test was used to reveal which factors distinguish Finnish respondents from each other with regard to how they perceive team learning behaviour and, correspondingly, which factors distinguish Swedish respondents from each other.

### Results of the Mann-Whitney U test

**Table 4** shows the results of the Mann-Whitney U test.

According to **Table 4**, some differences exist between Finnish and Swedish respondents concerning team learning behaviour in the CJSE exercise. The Mann-Whitney U test shows that differences are statistically significant for F17a 1645.50\*\*\*, F17c 1902.50\*\*, F17d 1897.50\*\* and F17e 1838.50\*\*. In other words, differences between Finnish and Swedish respondents concerning team learning behaviour are related to the time used to improve their teamwork ( $U = 1645.50$ ,  $p = .000^{***}$ ), team members' activity in seeking important new information ( $U = 1902.50$ ,  $p = .012^{**}$ ), the way the team reflect on their work processes ( $U = 1897.50$ ,  $p = .010^{**}$ ) and how the team engage in discussions and obtain information from outside ( $U = 1838.50$ ,  $p = .010^{**}$ ). Differences in perceptions of spending time to improve their teamwork are highly statistically significant. Unfortunately, the test does not show how differences appear qualitatively, as it only reveals that there are statistically significant differences between these nationalities. However, it also reveals that there were no differences concerning propositions F17b, F17f and F17g.

### Results of the Kruskal-Wallis test

The analysis was extended by conducting a more in-depth assessment on those factors that distinguished Finnish respondents from each other with regard to how they perceived team learning behaviour and, correspondingly, on those factors that distinguished Swedish respondents from each other.

According to **Table 5**, three factors, namely F14d, F15a and F15b, distinguish Finnish respondents from each other with regard to how they perceive taking time out to improve their team's work processes. It can

**Table 4:** Mann-Whitney U test results for propositions about team learning behaviour (F17a–F17g).

Proposition	Mann-Whitney U	P
F17a We regularly take time out to figure out ways to improve our team's work processes.	1645.50	(.000)***
F17d This team frequently seeks new information that leads us to make important changes.	1897.50	(.010)**
F17e In this team, someone always makes sure that we stop to reflect on the team's work processes.	1838.50	(.010)**
F17c Team members go out and get all the information they possibly can from others such as experts or other parts of the organization.	1902.50	(.012)**
F17b This team tends to handle differences of opinion privately off-line, rather than addressing them directly as a group.	2096.50	(.103)
F17f People in this team often speak up to test assumptions about issues under discussion.	2161.0	(.162)
F17g We invite people from outside the team to present information or have discussions with us.	2392.00	(.688)

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

be interpreted that the perception of the team taking regular time-outs to improve their work processes differed from how safe respondents felt about taking risks ( $\chi^2(2) = 7.54, p = .023^*$ ), how they felt their team leader initiated meetings to discuss the team's progress ( $\chi^2(2) = 11.79, p = .003^{**}$ ) and how they regarded the availability of the team leader for consultation on problems ( $\chi^2(2) = 9.16, p = 0.010^*$ ).

Correspondingly, according to **Table 5**, three factors also distinguish Swedish respondents from each other in relation to how they perceive taking time out to improve their team's work processes, namely F11b, F15b and F15c. In other words, the perception of the team taking regular time-outs to improve their work processes differed from how respondents felt about whether it was easy to obtain expert assistance when something came up ( $\chi^2(2) = 10.88, p = .004^{**}$ ), how they regarded the team leader's availability for consultation on problems ( $\chi^2(2) = 16.14, p = .000^{***}$ ) and how they regarded their team leader's availability in general ( $\chi^2(2) = 15.38, p = .000^{***}$ ).

According to **Table 6**, none of the factors distinguish Finnish respondents from each other concerning how their team tends to handle differences of opinion. Similar results were found among the Swedish respondents.

According to **Table 7**, five factors (F11b, F14d, F15a, F15b and F15c) differentiate Finnish respondents from each other in respect of how they perceive their team members picking up all the information they possibly can from others, such as experts or other parts of the organization. It can be interpreted that the perception of their team members gleaning all possible information differed from how respondents felt about obtaining expert assistance when something came up ( $\chi^2(2) = 6.82, p = .033^*$ ), how safe it felt to take risks in their team ( $\chi^2(2) = 12.04, p = .002^{**}$ ), how their team leader initiated meetings to discuss the team's progress ( $\chi^2(2) = 13.55, p = .001^{***}$ ), the team leader's availability for consultation on problems ( $\chi^2(2) = 17.52, p = 0.000^{***}$ ) and his or her's presence ( $\chi^2(2) = 9.33, p = .009^{**}$ ).

In turn, **Table 7** shows that three factors (F11b, F15b and F15c) differentiate Swedish respondents from each other in respect of how they perceive their team members picking up all the information they possibly can from others such as experts or other parts of the organization. It can be interpreted that the perception of team members gathering all possible information differed from how respondents felt about obtaining

**Table 5:** F17a We regularly take time out to figure out ways to improve our team's work processes. Finnish N = 70, Swedish N = 71.

Finnish Proposition	Chi square(df)	P	Swedish Proposition	Chi square(df)	p
F15a	11.79(2)	.003**	F15b	16.14(2)	.000***
F15b	9.16(2)	.010*	F15c	15.38(2)	.000***
F14d	7.54(2)	.023*	F11b	10.88(2)	.004**
F11b	4.66(2)	.098	F15a	3.28(2)	.194
F15c	4.61(2)	.100	F14d	2.97(2)	.227
F11d	1.88(2)	.391	F11d	0.22(2)	.896

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

**Table 6:** F17b This team tends to handle differences of opinion privately off-line, rather than addressing them directly as a group. Finnish N = 70, Swedish N = 71.

Finnish Proposition	Chi square(df)	P	Swedish Proposition	Chi square(df)	p
F14d	3.57(2)	.166	F11b	5.55(2)	.620
F15a	1.49(2)	.474	F11d	2.60(2)	.272
F15c	1.22(2)	.542	F15c	.85(2)	.655
F11b	1.07(2)	.585	F15a	.47(2)	.792
F15b	.99(2)	.611	F15b	.41(2)	.815
F11d	.36(2)	.835	F14d	.38(2)	.826

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

expert assistance when something came up ( $\chi^2(2) = 6.48, p = .039^*$ ), the team leader's availability for consultation on problems ( $\chi^2(2) = 10.30, p = .006^{**}$ ) and his or her's presence ( $\chi^2(2) = 8.24, p = .016^*$ ).

**Table 8** shows that four factors differentiate Finnish respondents from each other in respect of how they perceive their team seeking new information that leads them to make significant changes, namely F11b, F15a, F15b and F15c. It can be interpreted that the perception of their team seeking new information that leads them to make significant changes differed from how respondents perceived obtaining expert assistance when something came up ( $\chi^2(2) = 6.59, p = .037^*$ ), how respondents felt their team leader initiated meetings to discuss the team's progress ( $\chi^2(2) = 17.66, p = .000^{***}$ ), their team leader's availability for consultation on problems ( $\chi^2(2) = 10.42, p = .005^{**}$ ) and his or her's overall presence and availability ( $\chi^2(2) = 10.93, p = .004^*$ ).

According to **Table 8**, three factors (F11b, F15b and F15c) differentiate Swedish respondents from each other in respect of how they perceive their team seeking new information that leads them to make significant changes. Hence, it can be interpreted that the perception of the team seeking new information that leads them to make significant changes differed from how respondents perceived obtaining expert assistance when something came up ( $\chi^2(2) = 9.89, p = .007^{**}$ ), the team leader's availability for consultation on problems ( $\chi^2(2) = 9.10, p = .011^*$ ) and the leader's overall presence and availability ( $\chi^2(2) = 9.89, p = .007^{**}$ ).

According to **Table 9**, two factors differentiate Finnish respondents from each other when it comes to how they perceive that someone is always mindful that their team stops to reflect on the team's work processes, namely F11d and F15a. In other words, it can be interpreted that the perception that someone always stops their team to reflect on the team's work processes differed from how respondents felt that their team lacks access to useful training on the job ( $\chi^2(2) = 13.87, p = .001^{***}$ ) and the team leader's presence and availability ( $\chi^2(2) = 9.16, p = .010^{**}$ ).

In turn, according to **Table 9**, three factors differentiate Swedish respondents from each other when it comes to how they perceive that someone is always mindful that their team stops to reflect on the team's work processes, namely F11b, F14d and F15c. Hence it can be interpreted that how respondents perceive

**Table 7:** F17c Team learning behaviour: Team members gather all the information they possibly can from others such as experts or other parts of the organization. Finnish N = 70, Swedish N = 71.

Finnish Proposition	Chi square(df)	P	Swedish Proposition	Chi square(df)	p
F15b	17.52(2)	.000***	F15b	10.30(2)	.006**
F15a	13.55(2)	.001***	F15c	8.24(2)	.016*
F14d	12.04(2)	.002**	F11b	6.48(2)	.039*
F15c	9.33(2)	.009**	F15a	4.66(2)	.097
F11b	6.82(2)	.033*	F14d	3.59(2)	.166
F11d	.27(2)	.873	F11d	.63(2)	.731

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

**Table 8:** F17d Team learning behaviour: This team frequently seeks new information that leads us to make significant changes. Finnish N = 70, Swedish N = 71.

Finnish Proposition	Chi square(df)	P	Swedish Proposition	Chi square(df)	p
F15a	17.66(2)	.000***	F11b	9.89(2)	.007**
F15c	10.93(2)	.004**	F15c	9.89(2)	.007**
F15b	10.42(2)	.005**	F15b	9.10(2)	.011*
F11b	6.59(2)	.037*	F14d	3.79(2)	.150
F14d	11.09(2)	.150	F11d	1.38(2)	.502
F11d	.05(2)	.974	F15a	.81(2)	.666

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

that someone will always stop their team to reflect on the team's work processes differed from how respondents perceived obtaining expert assistance when something came up ( $\chi^2(2) = 7.53, p = .023^*$ ), how safe respondents felt about risk-taking in the team ( $\chi^2(2) = 6.42, p = .040^*$ ) and their team leader's presence ( $\chi^2(2) = 9.66, p = .008^{**}$ ).

According to **Table 10**, three factors differentiate Finnish respondents when it comes to how they perceive people in their team openly challenging assumptions about issues under discussion, namely F11d, F15a and F15b. Hence, it can be interpreted that the perception of respondents about people in their team openly challenging assumptions about issues under discussion differed from how they felt their team lacks access to useful training on the job ( $\chi^2(2) = 7.34, p = .026^*$ ), how their team leader initiates meetings to discuss the team's progress ( $\chi^2(2) = 7.96, p = .019^*$ ) and how the team leader is available for consultation ( $\chi^2(2) = 6.36, p = .042^*$ ).

In addition to **Table 10**, three factors (F11b, F15b and F15c) also differentiate Swedish respondents from each other concerning how they perceive people in their team openly challenging assumptions about issues under discussion. It can be interpreted that the perception of respondents about people in their team openly challenging assumptions about issues under discussion differed from how respondents felt about obtaining expert assistance when something came up ( $\chi^2(2) = 6.72, p = .035^*$ ), the availability of the team leader for consultation ( $\chi^2(2) = 7.26, p = .027^*$ ) and the team leader's presence ( $\chi^2(2) = 8.84, p = .012^*$ ).

According to **Table 11**, only one factor (F15a) differentiates Finnish respondents from each other in that the way that respondents perceive the team inviting people from outside to present information or have discussions with them differed from how respondents felt the team leader initiated meetings to discuss the team's progress ( $\chi^2(2) = 7.14, p = .028^*$ ). In a similar vein, only one factor (F11b) differentiates Swedish respondents from each other. Therefore, it can be interpreted that the perception of how respondents see the team inviting people from outside to present information or have discussions with them differed from how respondents perceived obtaining expert assistance when something came up and they did not know how to handle it in their team ( $\chi^2(2) = 8.54, p = .014^*$ ).

**Table 9:** F17e Team learning behaviour: In this team, someone always makes sure that we stop to reflect on the team's work processes. Finnish N = 70, Swedish N = 71.

Finnish Proposition	Chi square(df)	P	Swedish Proposition	Chi square(df)	p
F11d	13.87(2)	.001***	F15c	9.66(2)	.008**
F15a	9.16(2)	.010**	F11b	7.53(2)	.023*
F15b	4.99(2)	.082	F14d	6.42(2)	.040*
F15c	2.29(2)	.319	F15b	4.82(2)	.090
F14d	2.17(2)	.339	F11d	3.61(2)	.164
F11b	1.21(2)	.547	F15a	.73(2)	.695

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

**Table 10:** F17f Team learning behaviour: People in this team often openly challenge assumptions about issues under discussion. Finnish N = 70, Swedish N = 71.

Finnish Proposition	Chi square(df)	P	Swedish Proposition	Chi square(df)	p
F15a	7.96(2)	.019*	F11b	6.72(2)	.035*
F11d	7.34(2)	.026*	F15b	7.26(2)	.027*
F15b	6.36(2)	.042*	F15c	8.84(2)	.012*
F15c	5.05(2)	.080	F14d	5.41(2)	.067
F14d	3.05(2)	.218	F15a	3.84(2)	.146
F11b	1.54(2)	.464	F11d	1.26(2)	.534

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

**Table 11:** F17g Team learning behaviour: We invite people from outside the team to present information or have discussions with us. Finnish N = 70, Swedish N = 71.

Finnish Proposition	Chi square(df)	P	Swedish Proposition	Chi square(df)	p
F15a	7.14(2)	.028*	F11b	8.54(2)	.014*
F11d	4.93(2)	.085	F15c	5.99(2)	.050
F15b	4.93(2)	.085	F15a	2.01(2)	.366
F14d	4.16(2)	.125	F14d	1.81(2)	.404
F11b	4.05(2)	.132	F15b	.88(2)	.643
F15c	2.93(2)	.231	F11d	.74(2)	.689

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

## Conclusions and Discussion

The first objective of this study was to investigate differences in perceptions concerning team learning behaviour between Finnish and Swedish respondents in a CJSE exercise. According to the Mann-Whitney U test, the differences between the Finnish and Swedish respondents in their perception of spending time on improving their teamwork is statistically highly significant. When it comes to team members' activity in seeking important new information, the way the team reflect on their teamwork processes and how the team engage in discussions and obtain information from outside, the Mann-Whitney U test showed that the differences between Finnish and Swedish respondents were statistically significant.

The second objective was to determine to what extent the perceptions among Finnish respondents and among Swedish respondents differed from each other concerning team learning behaviour. This was analysed using the Kruskal-Wallis test. The perception of the supportiveness of the organizational context (how easily the team obtains expert assistance, and the lack of access to useful training), team psychological safety (safe risk-taking in the team), and team leader coaching (the team leader initiates discussions on team progress, the availability of the team leader for consultation, and the ongoing presence of the team leader) differentiated how both nationalities perceived team learning behaviour. However, previous factors did not differentiate Finnish or Swedish respondents' perceptions of how their team tends to handle differences of opinion privately off-line, rather than addressing them directly as a group.

When glancing at the results from the individual perspective, it seems that different factors have an effect on how Finnish respondents and Swedish respondents react to propositions concerning team learning behaviour. Furthermore, if the results are analysed by grouping propositions according to the themes mentioned previously, the overall results seem to be quite different. Therefore, similar phenomena seemed to have an effect on how differently respondents perceived team learning behaviour within both nationalities. Team psychological safety, the supportiveness of the organizational context and team leader coaching impacted how respondents perceived team learning behaviour. However, the Finnish respondents' opinions of team leader coaching and team psychological safety propositions seemed to have a statistically more significant impact in distinguishing respondents from each other in how they experience team learning behaviour. In turn, opinions on the supportiveness of the organizational context among Swedish respondents have a slightly statistically more significant impact on how Swedish respondents differ from each other in how they experience team learning behaviour.

### *Diversity in perspectives on team learning behaviour*

Based on the research results, Finnish and Swedish respondents, both among and between nationalities, emphasize factors that have an effect on team learning behaviour in slightly different ways. The research design unfortunately does not provide the scope for explaining the rationale behind team members' different perceptions concerning team learning behaviour. However, the existing research findings do provide some pointers to better meet the challenges of supporting a team's ability to learn to work collectively and to develop their capability to work in multinational crisis management operations.

The research results indicate that team leader coaching, team psychological safety, the importance of obtaining expert knowledge as well as exercise pre-training are perceived to be crucial to team learning behaviour. Contrary to popular belief, team leaders are in a position to facilitate effective teaming by scoping out the challenge, by determining the required expertise for coordination and communication as well

as by prioritizing certain tasks (Edmondson 2012b). The team leader also has a significant role to play in engaging the team in collaborative learning. This kind of pedagogical leadership can mean crossing different boundaries in order to broaden the understanding and knowledge of team members on the issue at hand. These crossings can be physical, similar to spending time on other teams or status-based. Exploiting knowledge-based diversity in complex settings, such as in crisis management operations, is important when identifying alternative perspectives for action or examining a focal issue (Edmondson 2012a: 248). However, communication and information sharing might be difficult under uncertain and challenging conditions (Edmondson & Roloff 2009). Nonetheless in pre-exercise training there is a need to emphasize the leader's role in coaching team learning and crossing boundaries for comprehensive and varied information alongside the traditional leadership styles (cf. Hedlund 2017).

Psychological safety (Edmondson 1999: 376) refers to the team feeling safe when asking questions, seeking help, sharing expertise, allowing mistakes and tolerating uncertainty and ambiguity (Edmondson 1999, 2012a: 77; Edmondson & Lei 2014; Edmondson & Singer 2008). Psychological safety is extremely important, especially in times of crisis, in order for people to dare to express their concerns even if they subsequently turn out to be wrong later on. However, people might have learnt to think that this kind of opening up is a risk in a social hierarchy. To protect themselves, they may not present their ideas or discuss problems (Detert & Edmondson 2011; Nembhard & Edmondson 2006: 947–948). The challenge for the leadership here is to encourage team members to open up and ask questions (Nembhard & Edmondson 2006) and to take full advantage of the potential of the team members. The same applies to leadership training.

As the CJSE is a learning exercise from a more general perspective, the variation among the respondents, in terms of team learning behaviour, may be a reflection of what learning means for each one. Researchers have found that team members might have slightly different learning objectives or they might learn in different ways. There may also be different kinds of simultaneous learning processes that occur at different paces and that have different goals (Hannes et al. 2013; Sessa et al. 2011). Further, a team might also include subgroups that are based on positive attitudes towards other team members, or some members may be motivated to use another person's divergent knowledge. However, the challenge of understanding each other might also differentiate team members (Cronin et al. 2011). All of these issues may be related to the potential for diversity within teams and their collaboration.

For their part, studies on multinational teams show how diversity in general (Leung & Wang 2015) but also how language (Tenzer & Pudelko 2015), geographical and structural positions (Haas & Cummings 2015), communication style, concepts of authority and control, problem-solving methods and the knowledge related to work (Cramton & Hinds 2014) pose challenges for effective team operation and may negatively affect its performance (Haas & Nüesch 2012). Studies have also shown that teams are aware of and resolve tensions and try to adapt to them (Cramton & Hinds 2014). Moreover, research has also demonstrated that if the distance between team members grows, it may make forming common mental models, sensemaking and adapting to the situation and the situational problem more difficult (Burke et al. 2009). Thus, in order to gain a more comprehensive understanding, the importance of multinationality in team learning behaviour and collaboration should be studied in greater depth. This calls for a deeper understanding of diversity in general in teams and its influence on teaming, collaboration and team learning.

### ***Future research directions***

By and large, Edmondson's model was suitable for analysing team learning behaviour in the crisis management exercise. Although the questionnaire dates back to 1999 (Edmondson 1999), Edmondson's research into team learning has made great progress during the last two decades, with research data focusing in more depth on the areas of organizing to learn and effective leadership of teamwork (Edmondson & Singer 2008). In particular, the leader's methods for getting team members involved and showing appreciation of their competence (Nembhard & Edmondson 2006) and the importance of psychological safety at individual, team and organizational levels in general has been analysed in detail (Edmondson & Lei 2014). In addition, implicit voice theories have been used to gain an understanding of why people do not necessarily want to open up and communicate in a team (Detert & Edmondson 2011) and how their voice efficacy could be developed (Kish-Gephart et al. 2009). Recently, research interest has also been directed towards forming fluid and temporary teams (Valentine & Edmondson 2014). However, this important research data has not been operationalized in the questionnaire, and, hence, has not been used to develop it.

For the purposes of developing the research, it would be important, firstly, to operationalize the latest beneficial research data in the questionnaire. Secondly, more research is needed to understand the diversity in multinational teams and its effects on teaming (Edmondson 2012a). Thirdly, organizing the

exercise should be based on an acknowledged and shared understanding of the team(s), which could also be operationalized as questions in the questionnaire. Edmondson's currently used form is focused on the internal operations of a single team. It pays less attention to the networked operation of teams (McChrystal et al. 2015), where learning and action are understood as activities that also take place in networks and their nodes. Therefore, the expansion of the idea of learning as a networked activity that includes more than just one's own team should be visible in the questionnaire as a theoretical concept, which can then be operationalized.

### Limitations

The main limitations of this study are twofold. Firstly, as in every survey, respondents' answers are always based on their subjective perceptions, which make them subject to response biases. In addition, each respondent's interpretation of the propositions in the survey is highly subjective. Nuances in the propositions may be subject to quite different interpretations. The second limitation of the present study is related to the data. Data that has been formulated from the survey structure and respondents' replies is not normally distributed considering most of the propositions in the survey used in this study. Furthermore, the total number of respondents (N = 141) was relatively small, which also places restrictions on using parametric multivariate methods. Hence, only non-parametric tests were used when carrying out the analysis.

### Competing Interests

The authors have no competing interests to declare.

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**How to cite this article:** Paananen, S., Häyhä, L., & Hedlund, E. (2020). Diversity in Teams: Perceptions of Team Learning Behaviour in a Military Staff Exercise. *Scandinavian Journal of Military Studies*, 3(1), pp.1–17, DOI: <https://doi.org/10.31374/sjms.6>

**Submitted:** 04 June 2018    **Accepted:** 29 November 2019    **Published:** 20 February 2020

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*Scandinavian Journal of Military Studies* is a peer-reviewed open access journal published by Scandinavian Military Studies.

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