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SAILING ACROSS THE NORTH SEA: THE DEVELOPMENT OF TRUST IN A SHORT-TERM HIGH INTENSITY ENVIRONMENT

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ABSTRACT

Interpersonal trust among team members is an important phenomenon influencing work-ing relationships and performance outcomes. However, there is a lack of empirical studies investigating the development of trust with respect to behavioural and environmental factors in a group of strangers. This exploratory, mixed method study investigated the develop-ment of two-dimensional interpersonal trust (affective and cognitive) and team cohesion in a newly formed temporary team of novice adults during a seven-day sail training pro-gramme. A descriptive longitudinal case study approach was adopted in the current study. Seven crew members completed the standardised psychometric questionnaires and were interviewed during the voyage. Results suggested that the development of trust occurs over three phases; 1) initial perception of shared identity, 2) early trust and 3) two dimensional trust comprising cognitive and affective dimensions. Distinct antecedents for the develop-ment of trust at each stage were identified and the importance of the competence-oriented subcomponent of cognitive trust within this challenging environmental context was high-lighted. Exploratory interpretation suggests some overlap in the antecedents of interpersonal trust and team cohesion. However, further longitudinal research must examine this relation-ship and establish corroborative evidence for the model of trust. This research can impact on practitioners leading programmes to better understand how trust can develop over time, and offers a pragmatic approach to investigations in real world contexts.

INTRODUCTION

It is important to understand the development of interpersonal trust in small group dynamics because of its influence on developing effective working relationships (e.g. Costa, Roe, & Taillieu, 2001), team cohesion (e.g. Hansen, Morrow, & Batista, 2002),

successful team performance in both sport and organizational teams (e.g. Dirsk, 2000), trust-based decision-making (e.g. Evans & Krueger, 2014), and even conflict resolution (e.g. Mooney, Holahan, & Amason, 2007). Interpersonal trust among team members has been shown to have a mediating effect between team cohesion and team performance (Mach, Dolan, & Tzafrir, 2010). Moreover, Lau and Liden (2008) found that poorly performing teams had more trust in their formal leaders compared to well performing teams. Even though this finding is counterintuitive, it has been explained with respect to vulnerability when performing poorly and higher self-confidence among well performing team members (Lau & Liden, 2008).

Definition of Trust

There are two principal forms of interpersonal trust, although some previous studies have examined trust as a one-dimensional construct (e.g. Mach et al., 2010; Mayer, Davis, & Schoorman, 1995) or sought for a mathematical expression of trust (e.g. Bhattacharya, Devinney, & Pillutla, 1998). According to McAllister (1995), interpersonal trust can be either affect- or cognition-based. Affective trust develops through interpersonal care and concern, and cognitive trust develops through beliefs in others' credibility and reliability. It is worth mentioning that Mayer et al. (1995) developed a similar model of trust based on early trust literature. They argued that the perceived trustworthiness of a trustee will influence the development of trust where trustworthiness has three variables: ability, benevolence and integrity. The authors emphasized that, although these three factors are interrelated, they can be separated in their one-dimensional model and will be highly affected by the environmental factors and the perceived risk of developing trust. This suggests the relevance of a two-dimensional model, such as that developed by McAllister (1995) where ability is an antecedent for cognitive-trust and benevolence is an antecedent of affective-trust. Similarly, Bhattacharya et al. (1998) concluded that trust "is a multidimensional statistical construct" (p. 468).

The two-dimensions of trust also show great application to other interpersonal variables in the group dynamics literature such as conflict management (e.g. Mooney, Holahan, & Amason, 2007) or team cohesion (e.g. Fung, 2014). Within team cohesion literature, where cohesion is separated into task cohesion (i.e., to what extend the team members work together to achieve mutual goals) and social cohesion (i.e., to what extend the team members develop and maintain social relationships within a group; Carron, Widmeyer, & Brawley, 1985), trust has been found to be an important variable in developing both task and social cohesion (e.g. Brahm & Kunze, 2011). Moreover, Mach et al. (2010) found trust to have a mediating effect between team cohesion and team performance. Similarly, team building activities designed to enhance social cohesion among team members and encourage mutual sharing and open discussion have shown a positive effect on the development of trust in other team members (Hansen et al., 2002; Pain & Harwood, 2009), even though the constructs of trust were not looked at in more detail. Likewise, Jirasek and Dvorackova (2016) found increased team cohesion and strengthened relationships among the participants of the 12-day residential winter journey on snowshoes.

Antecedents of Trust

According to McAllister (1995), affective trust and cognitive trust have different antecedents. He tested his conceptualized two-dimensional model on small teams formed from 197 previously known peers, in a work context. Through questionnaire responses, participants reported on levels of cognitive and affective trust as well as on relevant behaviours, broadly described as either cooperating behaviours, such as doing additional work for others without being asked (i.e., affiliative citizenship) or defensive behaviours, such as working around someone or keeping track of others' work. Results indicated different antecedents for the two dimensions. Specifically, cooperative behaviours, or affiliative citizenship, was found to be positively related to affect-based trust; whilst defensive behaviours were found to be not significantly related to cognitive trust. McAllister (1995) also found a higher overall level of cognitive than affective trust and suggested that affect-based trust is harder to develop and can be developed only if some cognition-based trust is present. However, the sample comprised 75% of highly educated men (average age 38 years), which is not representative of the general population. Moreover, a cross-sectional study design does not allow causal inferences to be made.

Webber (2008) used a longitudinal study to research the development of early, affective and cognitive trust over the course of 10 weeks with respect to citizenship and monitoring behaviours, and team performance. 279 undergraduate students forming teams of 3–4 people completed the Trust Scale (McAllister, 1995) adjusted to a university context. All groups were given an assessed group tutorial task to complete over 10 weeks and the final grade was used as a team performance measure. Webber (2008) found that citizenship behaviours shown at Week 5 positively correlated with affect-based trust developed at Week 10. Monitoring behaviours demonstrated at Week 5 negatively correlated with cognition-based trust developed at Week 10. Affective trust and cognitive trust were found to be statistically significantly correlated at Week 10 ($r = 0.64$, $p < 0.01$) where the degree of shared variance also indicates some unique variance (or separation). Importantly, the author noted that one-dimensional early trust preceded the formation of two-dimensional trust. It should be noted that the groups in Webber's (2008) study were formed by the participants themselves, which presents a potential confound, since participants were likely to show selection bias based on friendships and prior knowledge of others' credibility. Whilst this study has good ecological validity in this setting, where students are often able to self-select project groups, it may not accurately represent the development and impact of trust in newly formed or temporary teams which are often found in organizational or sporting settings.

Developing Trust within Different Settings

According to Mayer et al. (1995), the perceived risk of developing trust among people is highly affected by the environment. A number of researchers examined trust within temporary teams, mostly within organizational settings (e.g. Meyerson, Weick, & Kramer, 1996). However, there is still little evidence about the development of trust outside organizational or managerial settings (Mayer et al., 1995). Even though some researchers looked at trust within sport settings (e.g. Hacket, 2014), they failed to examine either

different dimensions of trust (e.g. Zhang, 2004) or the effects of different antecedents on its development (e.g. Dunn & Holt, 2004). Furthermore, there have been some attempts to investigate trust within outdoor education programmes. Shooter, Sibthrop and Gookin (2010) examined the relationship between trust developed in the programme leaders and skills developed by the participants by conducting a course quality survey at the end of the outdoor education programme. Even though Shooter and colleagues followed Mayer et al.'s (1995) conceptual framework, the researchers did not examine what behaviours and outcomes were expressed by the leaders to enable the development of trust, and to what extent trust was developed. Moreover, the cross-sectional design of the study and reliance on self-reported measures does not allow for causal conclusions to be drawn.

It should be noted that outdoor education programmes (especially residential experiences such as hiking, sailing or overseas expeditions) facilitate the conditions in which trust is likely to change over the course of programme, along with other group dynamics factors (Sibthorp & Jostad, 2014), due to specific and sometimes risky situations, and the need to quickly develop essential skills and knowledge to achieve mutual goals. One such environment is sail training, which deliberately aims to provide supportive interactions with others and opportunities to develop mutual trust (Von Wald & Allison, 2011). This can create a positive environment on board for the development of two-dimensional trust. As pointed out by Mayer et al. (1995) and later highlighted by Bhattacharya et al. (1998), the perception of uncertainty and risk of the sailing context will influence the need for, and the importance of, the development of trust and trustworthiness in others.

Emerging Gaps and the Current Study

Various authors have identified four main drawbacks of the current trust literature. First, there is no clear understanding of how trust is developed over time, due to over-reliance on cross-sectional designs and under-representation of longitudinal studies (e.g. Lusher, Kremer, & Robins, 2014; Mach et al., 2010; McAllister, 1995). Second, many studies have relied on quantitative approaches (e.g. Lau & Liden, 2008; McAllister, 1995; Shooter et al., 2010) which restricts the scope of investigations to easily comprehend complex relationships within and between constructs of trust and team cohesion, including the effects of different factors such as prior familiarity among the participants (Webber, 2008). Third, Mayer et al. (1995) pointed out the limited applications of their model outside the organizational environment, which is also true for McAllister's (1995) work. Overall, most of the existing empirical studies on trust have been conducted within organizational settings, limiting their application into other environments. Last, Lusher et al. (2004) emphasized the need for future research to investigate the relationships between various factors influencing team performance, including team cohesion and trust among team members. Even though some studies of this nature have been conducted in the past, detailed investigations between different variables of these constructs (i.e., team cohesion and two-dimensional trust) have received little attention to date.

These gaps suggest that further research in a variety of real world settings, beyond organizations, and especially where trust development is salient, such as outdoor education programmes, can significantly contribute to understanding how interpersonal trust is developed as well as its relationship with cohesion. Despite some clear benefits,

longitudinal research in real world contexts has specific difficulties including: access, commitment of participants over prolonged periods, high research time cost, low context control and representativeness. Traditional research paradigms often do not fit well with such research contexts because basic assumptions are compromised. However, a pragmatic research philosophy, using mixed methods, is less prescriptive and can underpin research decisions that attempt to solve the problem of how to ask meaningful questions in complex, time pressured and challenging settings (Giacobbi, Poczwardowski, & Hager, 2005). Using a pragmatic approach, researchers are encouraged to select the best methods to collect data within the parameters of the research context and to put aside epistemological differences in the pursuit of answering applied research questions.

Therefore the current study was formulated from a pragmatic research philosophy, to use mixed methods to investigate the development of cognitive and affective trust and team cohesion, over time, in a group of novice adults undertaking a seven-day sail training programme. Two specific research questions were: in what way does reported two-dimensional trust and team cohesion change over time, and why? And: what might be the nature of the relationship between two-dimensional trust and team cohesion over time?

METHODS

A longitudinal descriptive case study design was adopted in this study to investigate the research questions. This was deemed appropriate following the suggestions made by Webber (2008) and insights presented by Mayer et al. (1995) in their literature review on factors needed to develop trust.

Participants

A convenience sample of seven people, hereafter referred to as 'crew', (mean age = 24.71 years, SD = 6.70) taking part in a seven-day sail training programme across the North Sea from UK to Germany, agreed to participate in this study. One participant dropped out after Day 2 (due to seasickness), resulting in a final sample of five men (mean age = 25 years, SD = 7.91) and one woman (age = 21). In line with recommendations for establishing validity within pragmatic research (Giacobbi et al., 2005) details of the participants, including relevant experiences and prior familiarity, are shown in Table 1.

Table 1. Participants Demographic Information

Pseudonym	Gender	Age (years)	Sailing Experience (years)	Prior Familiarity with	Context
Rose	F	21	15	Scott	University Sailing Club
Scott	M	21	3	Rose	University Sailing Club
Gregor	M	18	0		
David	M	20	4		
Adam	M	37	0		
Ben	M	29	0	Watch leader	Work place

Materials

Questionnaires. Cohesion was assessed via the Group Environment Questionnaire (GEQ; Carron et al., 1985). The GEQ comprises 18 items that measure social and task cohesion (9 items each). Trust was assessed using the Trust Scale (McAllister, 1995) comprising 15 items that measure affect-based trust (5 items), cognition-based trust (4 items), affiliative citizenship behaviour (3 items), and assistance-oriented citizenship behaviour (3 items) among crew members. The last seven items measure affect-based trust (4 items) and cognition-based trust (3 items) in sea staff members as perceived by a crew member. All items were assessed on a nine-point Likert scale (1 *strongly disagree* and 9 *strongly agree*) and were adjusted to the sailing environment (e.g. original item: *I take time to listen to this person's problems and worries*; modified item: *I take time to listen to other team members' problems and worries*). After piloting the questionnaire, additional minor changes in wording were made to increase contextual relevance.

    Interviews. An interview schedule for semi-structured interviews was developed, based on a review of the 'trust' literature. The questions were focused on individual perceptions of the development of trust and team cohesion among crew members, including the importance of various factors and the environment itself (McAllister, 1995; Mayer et al., 1995; Webber, 2008). The interview schedule was piloted using a participant from a youth development sailing programme. Consequently, questions about helping behaviours on board were added, and questions about sea staff members were separated into questions about a skipper and other sea staff members.

    Observations. Observations were recorded using an adapted observation record sheet (Allison, McCulloch, McLaughlin, Edwards, & Tett, 2007) by the first author. Observational data were supported by a reflective diary used to record researcher's holistic reflections during the voyage, following Woodcock, Richards and Mugford (2008).

    Social validation. A post-study focus group lasting for approximately 20 minutes was conducted with all participants. It was conducted in an open and semi-structured manner, and included questions about changes in natural behaviour and group dynamics due to repeated measures and researcher's presence on board (e.g. *Were you more aware / did you expect certain behaviours on board after completing a questionnaire?*).

Procedure

Ethical approval was obtained from the Ethics Committee at The University of Edinburgh. All participants were given information about this study one week prior to departure and were invited to take part in this study through a signed informed consent, within one hour of arriving on board.

    All participants completed the questionnaire four times in total, on Days 1, 3, 5 and 7. Each participant was interviewed once during the last three days (see Figure 1). Each interview lasted approximately 20 minutes on average and was recorded for later transcription. The observations of life on board, group dynamics and behavioural responses were made, on average, four times a day during the voyage.
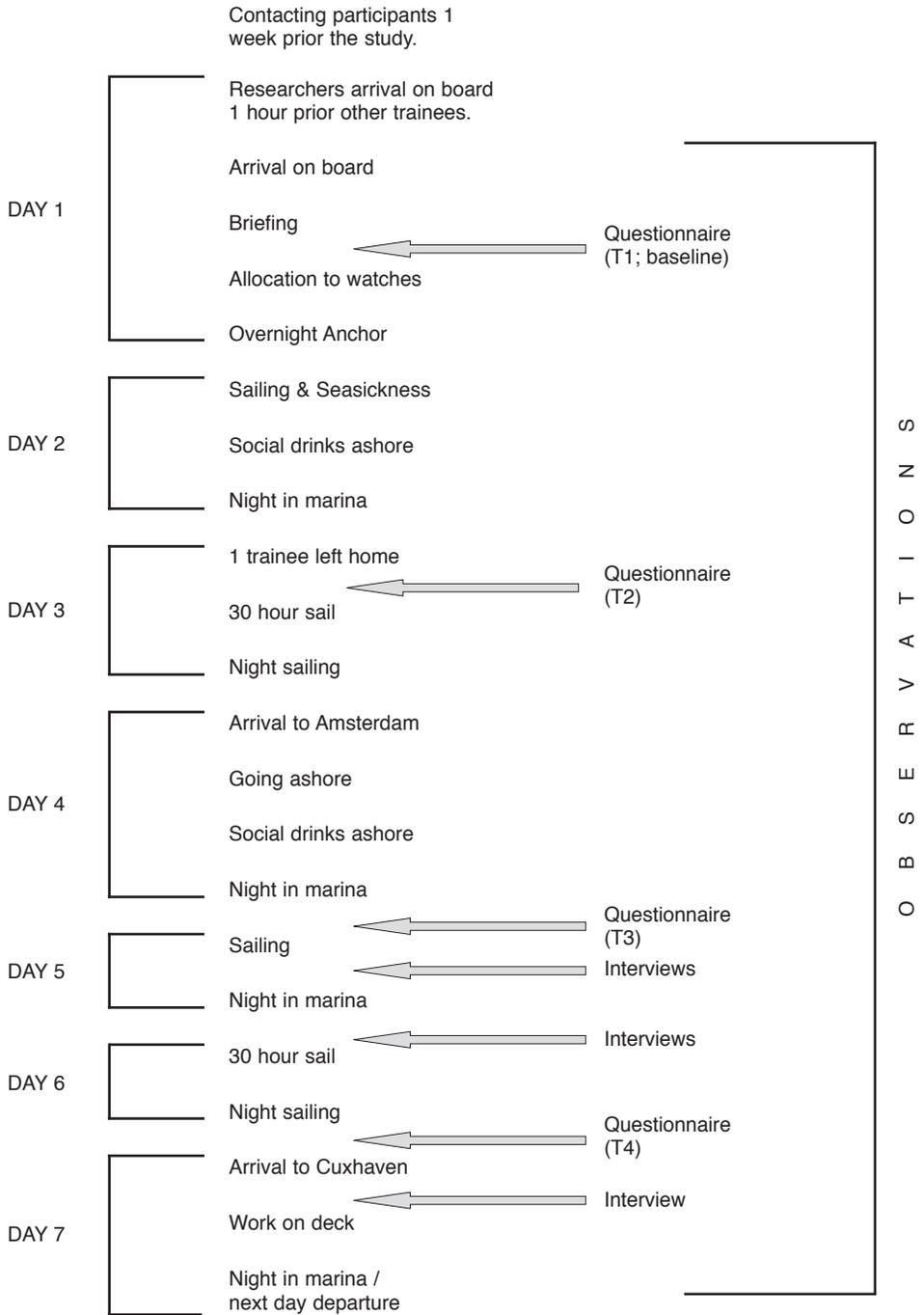
Figure 1. Procedure of the study with respect to the main events that happened on board

Analysis

All interviews were recorded and later transcribed. A short summary of each transcript was sent to each participant one week after the voyage which provided the opportunity to correct for immediate errors in the researcher's interpretation, as well as to add additional information (i.e., member check; Stake, 1995). All participants agreed with the summaries and one participant added additional information on perceived affective trust in crew members and influencing factors.

Second, content analysis was used to analyse transcripts. First, the broad themes (or categories) were identified from the interview schedule (e.g. early trust, cognitive trust; Julien, 2008). Next, each transcript was coded into meaningful units and categorised and sub-categorised under the previously identified themes (e.g. a category *getting to know each other* within *affective trust among trainees* theme).

Third, a consensus validation process was used to enhance trustworthiness of analysis, minimise researcher's bias and increase the credibility of findings (Hodge, Ammah, Casebolt, Lamaster, & O'Sullivan, 2010; Jones & Hunter, 1995). A sample of 40% of meaningful units was selected and the second author coded these to the named categories. After the consensus validation exercise, the first and second authors recorded 80% agreement. Following discussion, 36% of the disagreement was resolved, 18% per cent by shifting the perception of the first author, and 46% by merging three categories together.

Visual inspection of quantitative data (Kratochwill et al., 2010) was used to examine the development of both cognitive and affective trust and team cohesion over time. This approach has been suggested as a suitable alternative to inferential statistics in single-case time design (Pain & Harwood, 2009). Data was extracted from the questionnaires to plot the graphs. The mean averages were calculated for trust and cohesion using the scoring procedures described by McAllister (1995) and Carron et al. (1985) respectively. It should be noted that mean average rather than sum was used for calculating GEQ scores to make easier visual examination between trust and cohesion.

Observation data and field notes were used to support the interviews and to clarify the events during the visual inspection of data.

Field Work

The current study was conducted on a 72-foot yacht *John Laing* with a total of 14 people at the beginning of the voyage (i.e., six professional sea staff members and eight crew members including the researcher). All participants were randomly divided into two watch teams (i.e., two watches) by the skipper within the first two hours on board. Each watch was assigned a staff member as watch leader. Both teams followed a four hours on and four hours off schedule to divide all work.

There were three cabins for sea staff and one mutual bunk area for the rest of the crew (see Ocean Youth Trust South (2006): http://www.oytsouth.org/about-our-boat.asp for more details about the boat). *John Laing* also has a galley (kitchen), heads (toilets) and saloon (common area) there the crew eats and spends free time when off duty. During the periods of free time, the off watch would either rest in their bunks, stay in the cockpit or gather around the table in the saloon to socialise. If more hands were needed on board (e.g. coming into

port) or if training was taking place (e.g. a man over board), the whole crew was required to stay in the cockpit. During the episode of seasickness on Day 2, everyone who avoided or could cope with seasickness was working on board regardless of the established schedule to allow others to recover. The entire complement lived on board for seven days including one overnight anchoring, two overnight passages and three nights in harbour.

The researcher who undertook participant-as-researcher role (Gold, 1958) lived in the same bunk with other crew members from the beginning to the end of the voyage. All participants were aware of the researcher's role, full participation in all activities, and formal and informal observations (Gold, 1958; Pratt, 2009). This helped to achieve prolonged engagement with participants which allowed the researcher to build rapport with the participants (Hong & Duff, 2002; Shenton, 2010) and to enhance the quality of findings.

RESULTS AND DISCUSSION

This section will report findings on early trust, the development of cognitive and affective trust, and team cohesion. The excerpts from interview transcripts are compared against quantitative data and used to illustrate the arguments, which are further discussed with relation to literature. It should be noted that the interview excerpts are the main source of data. Gender representative pseudonyms are used to protect the confidentiality of data and to give a sense of ownership (see Table 1). The reader is asked to consider these results in relation to context of sail training, which requires technical knowledge and specific skills and where some situations can be life threatening. Moreover, the reader is reminded that the entire crew lived and worked in close physical proximity, had 24/7 contact with each other and were mostly unfamiliar with sailing prior the study.

Early Trust and Previous Familiarity

One participant was familiar with a sea staff member from work which resulted in higher early trust in this sea staff member compared to others. The basis for early trust included sailing experience and being good at sailing, "I knew she was doing it for long and she was quite good at it" (Ben). It also was a mediator in early trust in other sea staff members, "Initially she was doing it with some of these other people before, so that extended the trust to other sea staff members" (Ben). This is in line with Webber (2008) who found that previous familiarity resulted in higher early trust. This finding is also consistent with Lusher et al. (2014) who found the positive effect of transitive closure on trust among football team players. That is, if player A trusted player B who trusted player C, player A will also trust player C.

Even though another two participants were fairly familiar with each other, it did not result in higher early trust between them. When asked if Scott trusted Rose more than others because of their previous familiarity, Scott answered "No, because she crashed our J24 [a yacht]" (Scott). Whilst previous familiarity results in higher early trust which is in line with both Aubert and Kelsey (2003) and Webber (2008), the outcome and context of prior familiarity is more important. This finding supports the suggestions made by Mayer et al. (1995) and Bhattacharya et al. (1998) that the outcomes of behaviour will affect the development of trust. Moreover, as found by Erdem and Ozen (2003) making mistakes

will negatively influence the development of cognitive trust as it implies lower ability levels. Therefore, prior familiarity was not linearly correlated with the development of trust. It rather helped to make clearer decisions whether a person should be trusted based on the outcomes of past experience.

The Development of Two-Dimensional Trust

Cognitive Trust. From the interview data, three main reasons emerged influencing the development of cognitive trust among crew members.

First, *getting to know others' skills and competence* mainly through observation was mentioned by six participants: "Scott with the sails seems to be very in 'the know' what ropes to pull and all that puts a lot of trust. He can tell you what to do" (Gregor). This finding partially supports Webber (2008) who argued that previous familiarity influenced early trust. In this situation, familiarity with skills and technical competences one possesses influenced the development of cognitive trust over time. Moreover, Webber argued that monitoring behaviours such as observation have a negative influence on the development of cognitive trust, which was not supported in this study given a successful outcome. The outcome of the behaviour (successful in this case) was more important in developing cognitive trust, which is in line with Mayer et al. (1995) and Bhattacharya et al. (1998). Importantly, this findings supports Mayer et al.'s (1995) claims that ability is one of the important factors in developing trust and that it is domain specific.

The importance of *spending time together* on a professional basis was indicated by four participants. Rose explained that "Well, as we are separated into two watches, you spend more time with one watch than you do with another". This is not consistent with McAllister (1995) who suggested that interaction frequency and citizenship behaviours influence only affective trust. This finding, however, can be viewed in line with Bhattacharya et al. (1998), as spending time together will give an opportunity to see the actions of other people, and the outcomes and the consequences of those actions.

Finally, *forced dependence on each other* was identified by two participants: "You have to depend on them, you have to depend on everybody around you" (Adam). Forced dependence was facilitated by context, which is in line with Mayer et al.'s (1995) argument that the need to trust other people is partially determined by contextual factors. Hence, cognitive trust based on a member's ability to perform a task was developed quickly, as it was by the nature of the domain and the activity itself.

One main reason emerged affecting the development of cognitive trust in *sea staff members*, i.e. monitoring behaviour. The skipper proved his qualifications and skills by being able to make quick decisions, being aware of the situation, and being able to switch leadership styles (6 participants). Rose said "he took charge, went for it, took the helm and did it his way". As observed and recorded by the researcher, this change happened in an emergency situation where the skipper had to step in, take the helm and be authoritarian compared to his more democratic style in a planned situation. Other sea staff members also proved their competence and ability (5 participants): "I had a lot of trust in them anyway. Just backed it up" (Gregor). However, one participant had decreased cognitive trust in one particular sea staff member: "He [a sea staff member] gets some basic things wrong and has to be corrected by [another sea staff member] or sometimes by one of us" (Scott).

Whilst this finding is consistent with both Webber (2008) and Erdem and Ozen (2003), as observed mistakes were perceived negatively, thus influencing cognitive trust, the observed successful outcomes were perceived as positively influencing cognitive trust. This finding is in line with Lusher et al. (2014) who found that team players high in experience or successful performance are more likely to be trusted by other team members. Hence, the outcome and the consequences of specific actions were the most important factors to develop cognitive trust based on ability as previously suggested by both Bhattacharya et al. (1998) and Mayer et al. (1995). Moreover, it also supports Meyerson et al.'s (1996) notion of 'swift trust', where early trust is assumed in the temporary teams and then later confirmed. In the current scenario, the assumed early cognitive trust in the skipper was later confirmed, whereas the assumed early cognitive trust in another less experienced sea staff member was later denied resulting in decreased cognitive trust later on.

Affective Trust. There were five main reasons influencing the development of affective trust. First, all participants *got to know each other's character* during difficult time on board (e.g. seasickness), "They showed some character because when they're really ill, they can still pick themselves up and carry on" (Rose). This finding is not consistent with McAllister (1995) who argued that monitoring behaviours did not influence affective trust.

Looking after each other also facilitated the development of affective trust (5 participants), "If people aren't well, as we have seen, we all look after each other" (David). This finding is consistent with McAllister (1995), who found a positive influence of affiliative citizenship on affective trust. This finding can also be viewed in terms of benevolence in Mayer et al.'s (1995) model as a pre-requisite to the development of affective trust.

Personal disclosure was mentioned by three participants. When asked about trusting other crew members on emotional level, Adam answered: "There are some people you would open up to, some people you wouldn't." Whilst this finding is consistent with both Dunn and Holt (2004) and Pain and Harwood (2009), the latter argued that personal disclosure is more effective in professional rather than amateur sport. However, amateur sailors were keen on personal disclosure which was a natural step in developing friendships rather than a compulsory part of a team building intervention, as in Dunn and Holt's (2004) study.

Going ashore together was perceived as a good opportunity to socialise by two participants. When asked to what extent going ashore had influenced trust, Ben answered: "A bit. It is always useful to travel with people socially. Another level of personal connection that you don't get at work."

Finally, *spending time together* on different occasions facilitated affective trust among crew members (2 participants) and in sea staff members (4 participants): "Some were little bit edgy to begin with. […] Things have changed as they've got to know us, and we've got to know them" (Rose). This finding is consistent with both Webber (2008) who argued that taking a personal interest in other people positively influences affective trust and McAllister (1995) who found the positive effect of interaction frequency on affective trust.

After visual examination of quantitative data, affective trust among crew members gradually increased over seven days following the same pattern as cognitive trust. The biggest increase in both cognitive (i.e. 25.33%) and affective trust (i.e. 23.51%) was during the first two days of sailing, with their peaks at Day 5, i.e. after crossing the North Sea (see Figure 2). This finding is consistent with Webber (2008) who also found increased levels of trust develop over time.

Whilst cognitive trust was lower than affective trust among crew members, affective trust in sea staff members was lower than cognitive trust in sea staff members during the voyage (see Figure 3). The latter finding partially supports McAllister (1995), who argued that some level of cognitive trust is needed for affective trust to be developed. However, the latter finding confirms the earlier findings that more cognitive trust was assumed in sea staff members prior the voyage as they were expected to be experienced professionals. Within the crew members, the reverse pattern was observed as the crew was expected to be inexperienced in sailing but sharing the same hobby which caused higher initial levels of affective trust rather than cognitive. This is partially in line with Meyerson et al. (1996), as in temporary teams some trust has to be assumed initially with later confirmation. Nevertheless, the given circumstances and existing information will determine whether it is cognitive or affective trust which can vary from one team member to another one.
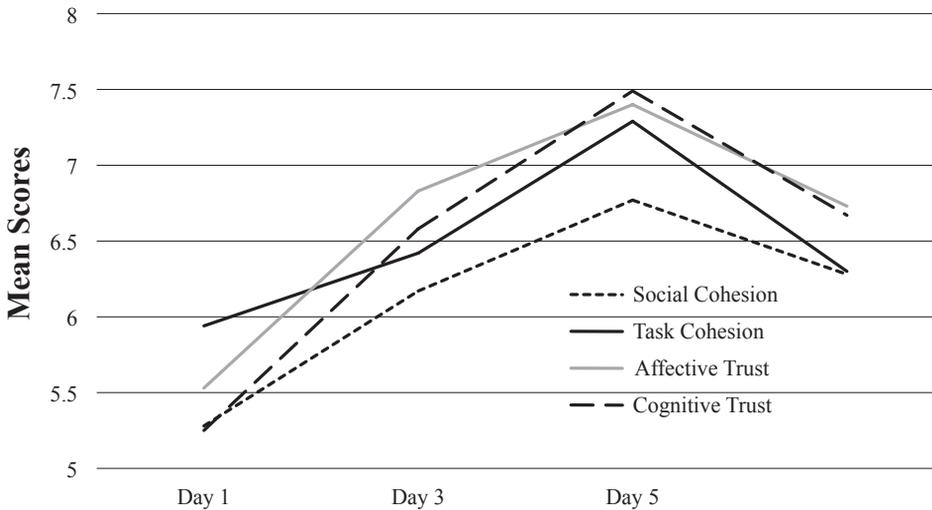

Figure 2. The development of two-dimensional trust and cohesion among crew members over time
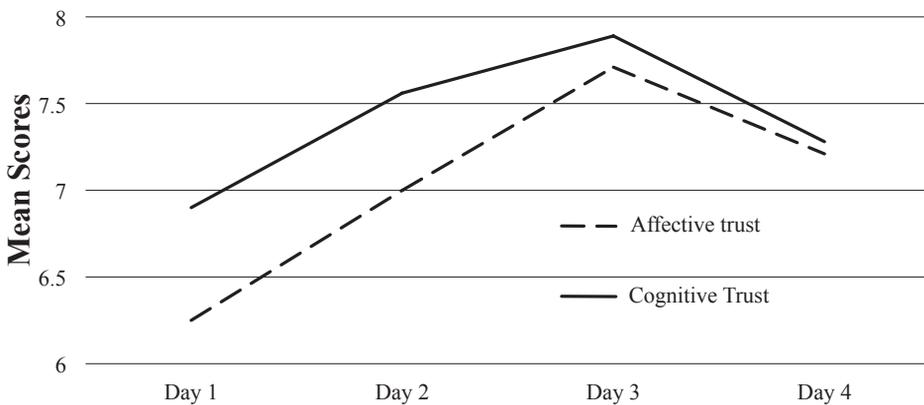

Figure 3. The development of two-dimensional trust in sea staff members over time

The Development of Team Cohesion

The analysis of interview data identified five reasons influencing a change in team cohesion that were all broadly connected to knowledge and understanding of, and about, others.

Three participants mentioned *getting to know each other*: "So in the start you're all strangers, you don't know each other, by the end of this you're pretty good friends" (Gregor). *Working together* was identified by two participants: "Well, at the beginning of a week we didn't know each other, we were individual people and now you work well as a team" (David). *Spending time together* was perceived important by three participants: "And obviously going out when we are getting into the port. You get to know people. We've come a lot closer" (Gregor). *Getting to know skills and competence* was mentioned by two participants: "They are all strangers, you don't know what their skill sets are, what they are good at. By the end, where we are now, you know what everybody can do" (David). Finally, *helping each other* was mentioned by one participant: "Even though it is one team's watch, the other team has often come up to help [team cohesion]" (Adam).

Based on quantitative data, team cohesion gradually increased during the first five days, during which the crew crossed the North Sea and spent time ashore in Amsterdam. This finding is consistent with data obtained from the interviews, as three out of six participants identified the North Sea crossing as the point of "the transformation" (Scott). Task cohesion had the highest increase between Day 3 and Day 5 (from 6.42 to 7.29 = 13.55%) during which the North Sea crossing happened. Social cohesion had the biggest increase between Day 1 and Day 3 (from 5.28 to 6.17 = 16.86%), i.e. during the first two full days on board that might logically be associated with quickly getting to know others (see Figure 2).

These findings are in line with Glass and Benshoff (2002) who found that outdoor challenge experiences positively influenced the development of team cohesion. It should be noted that task cohesion, in general, was higher than social cohesion during the voyage. This finding suggests that task cohesion in novices can developed via teamwork and mutual learning. Moreover, the temporarily formed crew did not have enough opportunities or did not have enough motivation to develop and maintain social relationships outside work, as the crew would never come together after the voyage was finished. The former was noted by Scott who thought that team cohesiveness is highlighted by "being ashore and still sticking together as opposed to being on the boat where you have to stick together regardless".

On the other hand, perceived team cohesion dramatically dropped after Day 5 (see Figure 2) which contradicts Jirasek and Dvorackova's (2016) findings. There are two main reasons that could explain this phenomenon. First, participants were experiencing physical and mental fatigue on the final day of the voyage, caused by the nature of the final leg (i.e., 30 hours sail; see Figure 1) and by the design of the study (4 measures in 7 days). Secondly, the final measure was obtained *after* reaching the final destination, which meant that there was no need to maintain high cohesiveness among the crew, as the team goals were achieved and the crew would leave home shortly with little possibility to meet again.

Overall, the development of team cohesion was affected by similar factors to those that influenced the development of two-dimensional trust. This evidence supports existing knowledge that trust and cohesion are closely related and one influences the other (e.g. Mach et al., 2010). In particular, affective trust and social cohesion were perceived as closely related, implying the close relationship between these two phenomena. Moreover, social cohesion was developed through assistance-oriented behaviours and affiliative citizenship suggesting the same antecedents of affective trust and social cohesion. Furthermore, team cohesion was perceived as a result of a more trusting team suggesting that the development of interpersonal trust may be a precursor to the development of team cohesion, a view that is consistent with Erdem and Ozen's (2003) suggestions. In other words, people have to get to know each other first and to be familiar with each other's skills and competencies before social and task cohesion can be developed.

General Discussion

The findings of the current study support the idea of the three-step development of trust: initial perception of shared identity (or swift trust in temporary teams), to early trust, to affective and/or cognitive trust in newly formed teams. This conclusion partially confirms both Meyerson et al. (1996), who proposed the idea of swift trust in temporary teams, and Webber (2008), who investigated one-dimensional early trust in her study. Donnelly and Young (1988) proposed a four-step formation of a group which begins with presocialization and then goes through selection and recruitment, socialization, and acceptance or ostracism. The presocialization stage is based on gathering information about the activity, enrolling, paying money and physically arriving to the first session. The perception of shared identity gives some level of trust among people who have never met before, but came together for the same reasons. In the current study participants came on board with some levels of trust based on perceived shared identity, as everyone was interested in sailing and had to go through the same process to be there. One-dimensional early trust was developed next, as participants introduced each other and started working in their teams. In the sail training environment, two-dimensional trust developed shortly after the early trust stage, although some people developed higher affective than cognitive trust in other crew members. This suggests that in some environments and circumstances two-dimensional trust is very difficult to develop, due to a lack of interaction on a professional or social basis, low intensity, etc.

The current findings confirm the importance of context-specific ability when developing cognitive trust and various forms of benevolence when developing affective trust. Moreover, the development of all forms of trust is highly dependent on the outcomes of specific situations and behaviours that will influence what form of trust, if any, will be developed first: cognitive or affective. It is also anticipated that whilst team cohesion and interpersonal trust were found to be closely related by having overlapping antecedents, team cohesion was likely to be a by-product of more trusting temporary team members.

Limitations

There are several limitations in this study that are relevant for future research as well as allowing a balanced interpretation of findings. First, the nature of the environment and

the small number of participants restricts the ability to make broad generalisations. To address this partially, a thick and detailed description of the social and physical context was provided to increase the naturalistic generalisability of current findings (Shenton, 2010). Applying questionnaires to small sample sizes or single subjects follows a long-accepted approach in sport psychology (e.g. Barker & Jones, 2006; Mahoney & Avener, 1977). In doing this it is important not to mislead the reader or apply inferential statistics to make broad generalisations from the data, and so we have explicitly drawn attention to the limits of the study and provided specific implications from the data. Second, convenience sampling inherent in field research did not allow age, gender, previous familiarity and sailing skills to be controlled for. The planned time of measurements had to be adjusted with respect to events happening on board, taking into account time demands. As such, the possibility of physical and mental fatigue towards the end of the study may have a confounding effect on the last measurements obtained. However, the naturalistic setting of this study has provided a better understanding of the environmental and behavioural factors influencing the development of cognitive and affective trust and task and social cohesion. Finally, the participants were constantly prompted about the study and group dynamics with the questionnaire, which presents a potential confound to the natural group dynamics within the crew.

Future Research

Tracking change over time is an important feature for future research to concentrate on in order to investigate the development of two-dimensional trust. It is also important to compare findings from other technical environments with similar intensity (e.g. adventure sports) to examine further how environmental factors and perceived risk affect the development of trust and team cohesion. Future research should clearly identify a type of team which is of interest: temporary, newly formed or existing. Taking into consideration quickly evolving technologies, the same principles of developing trust should be applied and examined into virtual teams, too. By investigating different types of teams within different environments, a deeper understanding of initial (or swift trust in temporary teams), early, cognitive, and affective trust and their antecedents could be achieved. It would provide a better understanding of the circumstances under which different types of trust are likely to be developed by tracking the antecedents of trust longitudinally using structural equation modelling. Additionally, there is a lack of qualitative longitudinal studies examining the development of trust, that could be used for the refinement of quantitative measurements of interpersonal trust within different environments. Finally, the mediating effect of previous familiarity among the team members should be further investigated to understand better the factors influencing the development of trust.

Implications for Professional Practice

The results of the current study could be practically applied to various professional settings (e.g. sport, business or academia). First, managers and formal leaders of the teams should be aware of their capacity to influence cognitive trust formation among followers, especially in new team members. This can be both direct and

indirect by influencing conditions and context to deliberately foster key behaviours. As such, formal leaders should provide some supervision for newcomers to foster the development of trustworthiness in their skills and abilities among other team members. Additionally, team members should be made aware of the influence of the citizenship and observing behaviours in developing two-dimensional trust with their peers. Observing behaviour is particularly influential in newly formed teams within specific contexts (e.g. sports teams including national squads), where team members are not familiar with each other's competencies and abilities. Furthermore, team leaders should foster personal disclosure among team members by organizing activities and creating a context that facilitates the development of both affective trust and social cohesion. As such, more socially cohesive teams would perceive the work environment to be more relaxed, honest and pleasant, which would increase job satisfaction and performance outcomes (e.g. Braun, Peus, Weisweiler, & Frey, 2013). Finally, making the leaders and team members aware of the multifaceted nature of trust and the relationship between trust and other factors in group dynamics would help to differentiate between different behaviours, levels and types of trust, which would help to resolve possible conflict occurring on and off the pitch.

CONCLUSION

This study focused on gaining insight into the development of two-dimensional trust over time by adopting a mixed method approach. It sought to examine different antecedents of two-dimensional trust developed over time in an intense and often risky environment. Data collected during a seven-day voyage provided a deeper understanding of the impact of environmental and behavioural factors on the development of cognitive and affective trust in a temporary team of amateur sailors. The findings from this study lead us to propose that neither cognitive nor affective trust develops straight away, but rather via initial uni-dimensional stages, i.e. initial perception of shared identity (or swift trust in temporary teams), to early trust, to affective and/or cognitive trust. Depending on the given circumstances, the initial perceptions of shared identity and early trust may have either cognitive or affective basis for its development. Depending on the given environment, cognitive trust is not necessarily a prerequisite for affective trust to be developed. Instead, it could be developed even more slowly than affective trust. As expected, cognitive trust was closely related to a level of perceived ability and competence relevant to the context. Trust was also identified as a prerequisite for team cohesion to develop where cognitive trust was associated with smooth teamwork and affective trust was associated with social cohesion. The fine line between the latter two constructs was identified during the interviews.

The current study indicated that environmental and behavioural factors influence the development of interpersonal trust and team cohesion, and that these two are interconnected during short but intense periods of time. Further studies should be conducted to investigate the dynamic development of trust and cohesion and to strengthen research approaches to redress weaknesses that exists in the current literature.

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