Turning points during the life of student project teams: A qualitative study

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Abstract

In this qualitative study a more flexible alternative of conceptualising changes over time in teams is tested within student project teams. The conceptualisation uses turning points during the lifespan of a team to outline team development, based on work by Erbert, Mearns, & Dena (2005). Turning points are moments that made a significant difference during the course of the collaboration as a team. In this study, they are tracked by means of team interviews and reflection papers of team members. A method of coding was created to collect all information about the turning points, their causes and consequences. By means of a thorough analysis of these coded data an overview of their nature and their effects on the rest of the team process as perceived by the team members themselves is provided. Results show that the development paths of the three teams were differentiated in terms of turning points that occurred and, especially, in the order in which the turning points occurred. However four types of turning points (two at the task level en two at the interpersonal level) were remarkable due to their occurrence in all three project teams.

Keywords: team development, knowledge work teams, turning points, qualitative

1.   Introduction

In organisations, teamwork is set up to create interdependent collaboration between team members to accomplish a common task. Typically, these teams are composed of team members with diverse background, habits and behaviour patterns concerning work and (team) work relationships. Team members are confronted with the challenge to efficiently combine their individual knowledge, skills and attitudes into an effective working team in order to finish the tasks they were assigned (Salas, Sims & Burke, 2005). The way team members recognise their diversity and learn to use it as strength is of crucial importance for the ability of the team members to work together effectively to accomplish the team goal. Based on previous research, it is well established that when teamwork is characterised by constructs such as trust, psychological safety, cohesion, interdependence, or team efficacy, it tends to be more effective (e.g. Raes, Boon, Kyndt, & Dochy, 2015.; Edmondson, 1999; Jehn, Greer, Levine & Szulanski, 2008; Raes, Kyndt, Decuyper, Van den Bossche & Dochy, 2015). The characteristics described above are in the literature referred to as emergent states, which means that they are seen as *'...properties of the team that are typically dynamic in nature and vary as a function of team context, inputs, processes and outcomes. Team emergent states describe cognitive, motivational and affective states of teams ...'* (Marks, Mathieu, & Zaccaro, 2001, p. 357). Because emergent states can be considered as both inputs and outcomes of the reality they are part of (Jehn, Greer, Levine, & Szulanski, 2008), they play a crucial role in understanding team dynamics and changes in teamwork over time. Within the teamwork research tradition, different team development models have been created that describe the occurrence of these emergent states over time (e.g. McGrath, 1991; Tuckman, 1965; Wheelan, 2005). Team development can be seen as change over time in teams (Tuckman, 1965). Change in this context is defined as *'an alteration in the nature of group interaction or performance, in the stage of the group as a whole, or a second-order change in the patterning of group processes'* (Arrow et al., 2004, p. 80). Alterations can be triggered by influences from inside (e.g. diversity among team members) or outside (e.g. deadline pressure) the team. And alterations are learning activities of the team. These learning activities occur in the form of adaptive, generative or transformational learning efforts from the team members that alter the way they approach collaboration and task work (Sessa & London, 2011). The traditional team development models describe the occurrence of emergent states as a fixed process within a prescribed pattern of sequential stages toward a more mature team (Raes et al., 2015). Based on these models it can be stated that teamwork of teams that are more mature is characterised by the presence of more robust emergent states, such as stronger cohesion and high, more stable, levels of trust between team members (Tuckman, 1965; Wheelan, 2005). There is evidence for this statement, as the presence of more robust forms of these emergent states in more mature teams is related to the occurrence of several team processes and eventually to team outcomes such as team performance (Mathieu, Maynard, Rapp & Gilson, 2008). For example, Raes, et al. (2015) found that teams who perceived themselves to be in later phases of team development also report to express more team learning behaviours and that this relationship is mediated by the presence of perceived team psychological safety and group potency. The traditional team development models have been proven useful for team members to better understand what is happening in the group they are functioning in (Bonebright, 2010). Additionally, when team members are informed about the path of development as outlined in these models, they are bound to develop faster (Wheelan, 2009).

However, these models conceptualise team development as if all teams experience the same learning curve towards effective functioning. As such, they seem to neglect that emergent states can change unpredictably over the lifetime of a team, caused by the unpredictability of influences from in and outside of the team. Different teams can respond differently to the same challenges, translating in different solutions to these challenges, and, consequently, different team paths (Sessa & London, 2011). Several researchers and practitioners have noted that traditional models are too general and rigid to be applicable to specific teams (Poole, 1983; Raes et al., 2015; Rickard & Morger, 2000; Tuckman, 1965). For example, the idea of different consecutive stages seems to be problematic in the sense that not all teams follow the different phases in the described order. Additionally, empirical confirmation for these models is scarce (Kuipers & Stoker, 2009). Starting from these observations new conceptualisations of group development leave more

and more room for unique team paths and influences from outside of the team (Raes et al., 2015). In this study, a more flexible approach towards conceptualisation of team development will be applied to study the changes over time in three temporary project teams. The inspiration for the creation of this approach was found in findings about previous research on team development. In the following paragraph an overview of these findings is given.

1.1 Team development in knowledge work teams – state of the art.

In their review of team development models Raes et al. (2015) selected 15 models that are applicable to knowledge work teams. They categorised this selection of team development models based on their flexibility. Flexibility is the degree of predictability by which the team development is conceptualised in the team development model on a dimenson from fixed to random (Raes et al., 2015). Stated differently, flexibility represents the extent to which team development models take into account the dynamic nature of teamwork. Within this review, three facets of flexibility were identified: (1) flexibility of the events described in the model, (2) flexibility of the order of the events and (3) flexibility in co-existence of development paths (Raes et al., 2015). An event refers to a phase or critical moment described in the team development models. A phase is a distinct sub period within the lifespan of a team with a specific set of characteristics that shape team interactions during that phase. A critical moment refers to a specific moment of change during the lifespan of a team (Raes et al., 2015). Because it is not within the scope of this paper to give an exhaustive overview of team development models that apply to knowledge work teams, a selected number of models are used to illustrate the different trends within the literature in the following paragraph (for an exhaustive overview, see Raes et al., 2015). Additionally, the limitations and advantages of the different presented conceptualisations will be discussed.

1.2 Fixed models of team development

A collection of traditional team development models, also referred to as linear progressive models (Chidambaram & Bostrom, 1996), that is applicable to knowledge work teams can be classified as the least flexible type of team development model on three facets. Firstly, these models describe a number of fixed events that teams go through. Additionally, the order of occurence of these events is determined. Lastly, the co-existence of different events in different paths of development (e.g., events on an interpersonal level are inevitable linked with events on the task level) is fixed (Raes et al., 2015). The textbook example of these type of models is the linear development model of Tuckman (1965) and Tuckman and Jensen (1977). The model describes the maturion of a team over time in five consecutive phases. The development of the interpersonal path and the path of task behaviours are described parallel to each other and every phase consists of characteristics that are specific for teamwork of a team in that phase. Interaction during the forming phase is characterised by orientation. Team members discover the boundaries of the social situation by testing behaviours towards and in interaction with each other and use cues from the team leaders' behaviours as a guidance in this process. At a task level, team members are preoccupied with identification of the task and necessary task behaviours. During the storming phase hostility is the key characteristic of team member interactions. Team members express resistance towards each other and the team as a whole in order to protect their individuality. A comparable process occurs in relation to the task: team members oppose against the task as a reaction to the invasion of the task into personal goals. Interaction during the norming phase is characterised by acceptance and openess. Team members accept personal idiocyncracies of others and create norms that adhere to and respect the differences and similarities between them. Task behavior is characterised by an open exchange of information and relevant interpretation related to the task. As a consequence, the stage is set for effective team work. During the performing phase, team members no longer feel the need to establish social relationships because all these issues have been handled during earlier phases. As a consequence, they can approach each other and the task in a pragmatic way. Team members are given specific roles that can be employed when and where necessary. This enhances succesfull task

completion. Ten years after the publication of the model, Tuckman and Jensen (1977) reviewed literature on empirical studies that validated the model. Based on this review, they added an adjourning stage. During this stage, team members start to alienate from the team and the team task due to approaching termination of the team members working together.

1.3   Towards a more flexible approach to study team development

More recent but less known models of team development implemented more flexibility in their conceptualisation of team development by means of identifying multiple possible development paths. Most of these models were created as a reaction towards the unitary nature of the traditional team development models. Researchers implemented different features into their models to allow more flexibility in terms of outlining a development path (Raes et al., 2015). Morgan, Salas, and Glickman (1993) created a model that finds its roots in the model of Tuckman (1965). However, different features were added to the model to create possible alternative development paths for teams and, as such, to increase the fit of the theoretical model with the actual development path of teams. For example, the different phases are not hypothesised to occur in a strict order, they overlap and can be repeated several times. They also suggest a differential maturation of teamwork and task skills. The model of McGrath (1991) conceptualises team development by means of three functions or tracks of activities through which teams contribute to the system (production – well-being – member support) and four different modes in which these functions can be found (mode I: inception – mode II: problem solving – mode III: conflict resolution – mode IV: execution) . The functions exist independently next to each other and are not hypothesised to go through all the modes in a specific order. These models are more flexible than the linear progressive models on all three dimensions mentioned above (Raes et al., 2015). First, the events that teams encounter are not fixed, only suggested as a possible activity that could occur within a function. Secondly, the order of events is not fixed and third, the different paths are independent (in the case of McGrath's model). However, there are still restrictions in terms of the range of important events that can occur and paths that can determine team development.

1.4   Turning points

The most flexible conceptualisations of team development consist of a description of critical events during the lifespan of the team based on the judgement of the party that is asked (e.g. team members, team leader or objective external observers) (Raes et al., 2015). Erbert et al. (2005) introduced one of these conceptualisations, namely turning points. The concept of turning points is borrowed from research in romantic relationships (Bolton, 1961). A turning point is operationalised as critical moments in the lifespan of a team that is perceived as a significant change in the course of the collaboration by the team members themselves, both on a task or interpersonal level and both in a negative or positive direction. Erbert et al. (2005) identified turning points in teamwork based on interviews with individual team members during which team members were asked to report about the turning points that occurred within the lifespan of their team. Additionally, they studied the turning points with more depth in order to get more insight into the concept of change in teams using the dialectical theory. The dialectical theory recognises complexities and contradictions within social interactions and takes this into account when studying the way humans make sense of their everyday experiences. Erbert et al. (2005) asked team members to rate the importance of the turning points on six dialectical contradictions, e.g. autonomy vs. dependence. They concluded that most of the identified turning points cluster around one out of seven issues: cohesion, project management, socialization, member change, competence, workload and conflict. Additionally, the most important dialectical contradictions for the identified turning points were team vs. individual and competence vs. incompetence. Lastly, Erbert et al. (2005) asked the team members to score their satisfaction with these turning points and discovered six different paths of satisfaction over time (Erbert et al., 2005). However, contrary to other team development models, they did not use this conceptualisation to descriptively outline the development path of the teams they studied over time.

2. Present study

The main goal of this study is to enhance knowledge about the team development paths of temporary project teams taking into account the dynamic nature of emergent states. The concept of turning points, borrowed from Bolton (1961) and Erbert et al. (2005), is amplified in order to create a method to outline the development path of teams over time. The conceptualisation of team development in this study is based on the positioning of turning points towards each other over time. This approach towards conceptualisation of team development respects the uniqueness of every individual team because it allows turning points to occur at any moment in time and relative towards the position of other turning points. In further research, this method could be used in order to understand the emergence of team emergent states over time. Through further elaboration about the causes and consequences of these turning points more information about the emergence of team emergent states over time will be discovered. The focus is on turning points during the development of temporary project teams. Temporary project teams are teams that consist of highly interdependent members that each need to use their own specialised expertise, knowledge and judgement in order to accomplish the team task. These teams are composed with a specific, unique team task for which the team members have a shared responsibility (Cohen & Bailey, 1997; Devine, 2002; Tannenbaum, Mathieu, Salas & Cohen, 2012). The teams studied are knowledge work team, because their main focus is on a cognitive task that requires low physical effort (Devine, 2002). By means of focussing on one specific type of teams, it is possible to eliminate 'noise' in the results that is created by differences between different types of teams (Devine, 2002; Dochy, Gijbels, Raes, & Kyndt, 2014). As such, enhancing our knowledge about the development of one type of team allows in depth study of specific findings that appear and can give rise to recommendations for this type of team.

In this study, attention will be given to (1) the team members' perceptions about turning points in the lifespan of their team and the position of the turning points towards each other; (2) the characteristics of teamwork during, before and after the identified turning points. Using this information, the individual developmental path of three project teams will be recreated. In a next step, a cross-case analysis to look for similarities between the three teams will be conducted. This leads to the following research questions:

[1] Which turning points can be identified in each of the studied teams as perceived by the team members?
   a) Why are these moments turning points?
   b) Why do they emerge?
   c) What is their effect on the team?
   d) Where can they be situated in the lifespan of the team?
   e) On which level (task or interpersonal) are the turning points situated?
[2] How are the turning points situated within the life course of the team?
[3] Can similarities and differences be found in the observed turning points and their positioning over time across the three teams?

3. Method

3.1 The teams

The subjects of this study are the team members of three student project teams working together on an authentic problem in collaboration with real companies for a period of three months. The projects are part of the project-based course 'Labour pedagogy projects' organised in the third year of the bachelor program of Educational Sciences in a large European research-intensive university. More information about the set-up of this course is given in the next paragraph. The teams studied adhere to the characteristics of temporary project teams since they have a one-time assignment that is unique and that requires a new solution. The

team works on an authentic organisational problem within a limited timespan. The skills and knowledge of the each of the individual team members are valuable and useful to accomplish the task. In the following paragraph a short description of the three project teams and their project is given.

Team A consisted of seven female team members. The authentic assignment they were confronted with was to optimise the welcome- and socialisation procedure for new employees at a college for higher vocational education.

Team B consisted of seven female team members. The authentic question they were confronted with also came from a college of applied science. They were asked to determine the necessary steps for designing one of the educational programs as more competence based.

Team C consisted of six female team members and one male team member. The question they were confronted with came from a consultancy company specialised in guidance of change processes. The project team was asked to update a tool for guiding these processes.

3.2   The course 'Labour pedagogy projects'

In the course 'Labour pedagogy projects' that entails the subject 'learning and development in professional organisations' the student teams were confronted with an authentic question presented to them by professional organisations. The project teams worked together for a delineated period of three months at the end of which they had to deliver a tangible product to the professional organisation. The practice-oriented end product(s) had to be accompanied by a collection of relevant scientific literature on the topic of their question. Within a well-designed, supportive environment, the main focus was on the autonomy of the team. Both on a task and interpersonal level, the team was self-steering and encouraged to create an environment that facilitates their collaboration and output production. The supportive environment was shaped by a number of supporting activities that are part of the standard curriculum of the course. Every team was supported by an academic coach and a contact person from the professional organisation. The academic coach provided ad hoc guidance on a task and process level. And the team received the advice and coaching on the task from the professional coach. Additionally, more structural activities were set up. On a task level, the team received feedback on the minutes from every team meeting. The team was obliged to visit the professional organisation at the beginning of the project to ensure that the question is clear for both parties. The team had to discuss about the task and progress to a professional coach on a regular basis. At the end of the process, the team organised a closing event with the stakeholders from the professional organisation and the academic coach during which a final presentation of the work and results was given. At the midpoint of the three months, the team was asked to provide an intermediate report on the work progress. Additionally, an intermediate evaluation was set up during which the team members were obliged to organise a moment to reflect on their activities both at process level and at task level including the functioning of the group on both tracks.

3.3   Data collection

Data were collected by means of two sources of information: individual reflection papers and team interviews. After the end of the project, the team members of the three student project teams were asked to individually reflect on the development of their team by means of writing a reflection paper. They were asked about turning points that they experienced during the development of their team. Afterwards, the team members were gathered for a team interview. These team interviews were conducted by one interviewer and were videotaped for further analysis. The approach to the interview was semi-structured (Wengraf, 2001). The interview consisted of two parts. First, the team members were asked to outline the course of their team over time collectively[1], both on a task and interpersonal level. After ten minutes of preparations, the graph

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[1] The members of the team had to provide an answer as a group.

was presented and the interviewer asked for clarifications. This information was used to position the turning points in time during the second part of the interview. During this second part, team members were asked to pinpoint and elaborate on turning points that occurred during the course of their project. A turning point was defined as a moment during which change occurred. Change could imply both progress and regression. Team members were asked to indicate the turning points on the graph with blue post-its (see Figure 1 – 2 – 3). After ten minutes of preparations, the team members were asked to elaborate on the turning points based on the interview guideline.

This two-source data collection was setup to enhance reliability of the study. The information in the reflection papers was used as a control for the information that was given during the interview (Golafshani, 2003). First, it was used to see whether similar information was reported right after the collaboration and four months after the collaboration. Additionally, it was used to avoid the creation of a fragmented picture due to a lack of safety to speak out between the team members during the team interview. Both data sources were compared for substantial differences in information about occurred turning points. As no substantial differences were found the information from both data sources was used for analysis.

3.4   Method of analysis

Data were analysed using the theoretical thematic data analysis technique (Braun & Clarke, 2006) focussing on themes in the data. In this case the themes are all the facets of information about different aspects of the turning points as described in the research questions (e.g. description, cause, consequences). As such, the coding and analysis of the data were driven by the research questions with the goal to report the reality of the participants' experiences concerning the reported turning points. A semantic analysis of what has been said and written was conducted (Braun & Clarke, 2006). To support the use of this technique, a coding procedure was created and executed with the help of the QSR International's NVivo 10 software. This is a program that facilities the coding of text documents and the additional analysis of the identified codes. In the following paragraph, the coding procedure and the following analysis activities are described.

3.4.1   Coding procedure.

First, a basic coding schema was set up to systematically collect all the given information about one turning point. Because the different teams encountered a different number of turning points, the number of basic coding schemes used was different for each of the three teams. For example, in team A, four turning points were identified. As such, the final coding schema to analyse the turning points of team A used in the Nvivo software consisted of four basic coding schemes.

Basic coding scheme. The codes in this basic scheme were created based on the sub questions under research question 1 of this study. For example, research question one focuses on the different turning points identified by the team members. The code 'objective description' was created to code all the information that was given during the interview and in the reflection papers that provides an answer to this question. The codes were fine-tuned by means of different trial versions with the data from team A. For example, the second code 'subjective description' was created to code the information that provides an answer to research question 1a, since most of the answers to the question 'Why is this moment a turning point?' entailed a description of how team members experienced this moment. The different codes and the questions to which they provide an answer are outlined in Table 1.

Table 1

Codes based on research questions

Code	Description
Objective description	Information about what happened during the turning point
Subjective description	Information about how the turning point is experienced by team members
Consequence	Consequences of the turning point as perceived by the team members
Cause	What caused the turning point?
Time	Situating the turning point in time

Additionally, the information was also coded based on the topic it was referring to. It was coded 'task' when it referred to an aspect that was directly related to the task being performed, it was coded 'procedure' when it referred to the way the team members collaborated to perform the task. It was coded 'interpersonal' when the code referred to topics that were related to individual team members and their relationships.

3.4.2   Abstracting information about the turning points from the coded data within the teams.

After coding, a document was generated via the QSR International's NVivo 10 software that consisted of an overview of all collected text data per code from both the team interviews and the reflection papers. This selection of text data was used to identify themes within these coded data. As such, a thorough answer to the different research questions was formulated based on the collected data. For example, all the coded text material about the cause of one turning point within one team was collected and studied as a whole. Based on this collection and codes, an extended description of the different turning points was made. Within this text material, an abstraction of the different themes that emerged concerning the causes of the turning points as outlined by the team members was made. This analysis resulted in a narrative description of the different themes that were determined for each individual turning point.

3.4.3   Identifying similarities and differences in the turning points across the teams.

In the next step, analysis that was done for every code for every individual team as described in the previous paragraph was scanned for recurring themes across the different teams. As such, similarities in the turning points, their causes and consequences across the different teams could be identified.

4.   Results

First, an overview will be given of the information about the turning points that was collected while analysing the coded team interviews and individual reflection papers interview. Additionally, the results of the cross case analysis will be given to outline the differences and similarities in the findings over the different investigated teams.

4.1 Turning points identified in the three teams

For the three teams, a synthesis of the recurring themes in the information about the turning points (description, cause, consequence) that was given by the team members will be presented per turning point. Additionally, a visual representation of the chronological position of these turning points within the lifespan of the team will be given. Using this set-up, research questions one and two will be addressed for every team individually. It should be noted that – since teams are unique - differences in the sort and amount of information that was given occur between the teams. Additionally, in this section the turning points are referred to by the name the team members gave them during the interview.

Team A. Figure 1 represents the course of the team A with the turning points positioned over the lifespan of the team. Four turning points were identified during the group interview.
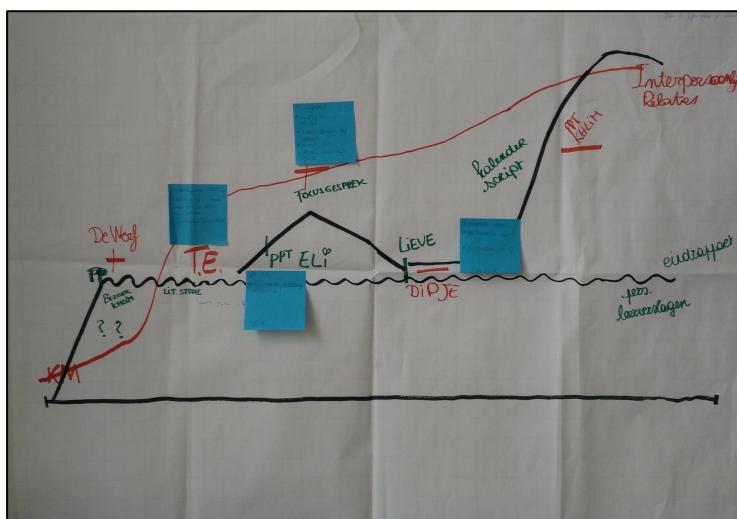
Figure 1. Course of development team A

> ***Turning point 1.*** The first turning point mentioned by the team members, and nominated as the most important turning point, is the *intermediate evaluation*. This turning point is situated at the interpersonal level.
>
> *Cause.* The team members indicated the fact that they had to reflect on their own and the others performance and the collaboration as a cause for its occurrence. They also appointed great importance to the way they choose to execute this evaluation as an important cause for its occurrence. They feel that they created a safe and stimulating environment by setting up an evaluation method that entailed one-on-one feedback for every team member followed by a group conversation about the functioning of the team.
>
> *Interviewer: 'Could you explain to me why you think this [evaluation] was so effective?'*
>
> *Team member: ' I think that, because there was a combination of one-on-one and group, I think that it is really good if one evaluates like that. When there is only in group [evaluation], there are always thinks such as this or that that you would not express towards the person involved and if there is only one-on-one [evaluation], eventually you also have to evaluate in group. I think that both is the best.'*
>
> This set-up allowed them to privately discuss what they felt could not be said in front of the whole group. The fact that they expressed both positive and negative points ensured a constructive atmosphere.
>
> *Team member: 'If it wasn't for this moment, we wouldn't have shared negative experiences.'*

Consequence. The main consequence is reported on an interpersonal level. An increase in familiarity or interpersonal knowledge between team members (Gruenfeld, Mannix, Williams, & Neale, 1996) enhanced feelings of safety.

Team member 1: 'It was a bit tricky, all girls together, it could have gotten very bitchy.'

Team member 2: 'Yes, but it was not the case, and that was reassuring.'

This allowed the team members to express feedback (positive and negative) towards each other and triggered the presence of more acceptance and understanding of the behaviour of other team members. These shifts had positive repercussions on the process level. Team members expressed an increase in the quality of their collaboration: the understanding of the natural division of roles was enhanced due to openness about capacities of the team members.

Team member: 'Because now I knew other team members thought I was good at this or that, I felt more secure to take up this task, without discussion about it being needed.'

Based on this knowledge, some shifts in roles occurred spontaneously.

Team member: 'I used to take on the leadership role, but it became clear that other team members were also very good at this, so I let them take the stage more often'

On a task level, their efficiency went up after the turning point. The reason this moment had such significant effect on the teamwork was that it set the stage for openness between team members to discuss frustrations, critiques and accomplishments.

Turning point 2. The second turning point refers to the moment where one of the team members prepared *a presentation* in which she presented all her considerations and questions about the state of the art of the project and the future steps in the process towards task achievement.

Cause. The turning point was caused by chaos at the task level. In the previous meeting, the team members expressed, and agreed about, a shared feeling of lack of clarity about the task, about what the professional organisation expected from them and a lack of information about what other team members were doing.

Team member: 'You are working on all kind of things and you are thrown in and after some time you just don't know [what the next step is] anymore. Everybody experienced this feeling, except for [name team member].'

Due to this feeling of safety created by the first turning point, the team members were able to express doubts and insecurities concerning the task. This was an important condition for this turning point to emerge.

Consequence. The consequence was situated at a task level: the team started working more focused. On a process level, team members started collaborating as a team and bundle their resources in a more efficient way (e.g. role division was refined as a team leader was appointed).

Team member 1: 'We started working again.'

Team member 2: 'More goal-directed looking for texts, goal-directed reading, not just because I did it that way but yes really for the assignments.'

Team member 3: 'More together again, because before it was kind of individual, everybody did her thing, but now it was very much in the same direction again.'

On an interpersonal level, this moment confirmed the safe climate that was established during the first transition point.

Turning point 3. The third transition point indicated by the team members was situated during the period of *interviews with employees* conducted in the professional organisation to collect information necessary for their task process.

Cause. The cause of this transition point was threefold. First, by interviewing the employees they came in close contact with the core of the problem they had been working on. The closeness to the authentic work situation made them realise the value of the project and their expertise to work on the problem. Secondly, by leading the interviews the team members became more confident about their competences. These two causes triggered the understanding that their project could make a useful difference for the professional organisation.

Team member: 'It was the feeling of finally something, yes, that you could lead something yes, that was weird, that you would also think that those people would see you as the one with the expertise, at least a bit.'

The third reason was the strengthening of their interpersonal relations due to getting to know each other in a setting outside the meeting room and the university (cfr. familiarity).

Consequence. As a consequence of this turning point, team members felt more motivated to work on the project. They felt very proud of themselves as individuals and as a team.

Team member: 'I think this period showed us what we were capable of.'

At a task level, the effect was visible trough high productivity during the focus interviews.

Team member: 'A drive to continue, as if we can maybe actually mean something useful for this organisation. Well, because at the beginning you do think what can we as students change there and then you notice that it might be useful, because those people [employees] also said that it was useful to talk about these things and then you think: aha we can actually contribute something.'

At an interpersonal level, this turning point improved the atmosphere in the team.

Turning point 4. The last transition point was situated around *negative feedback* they received from the academic team coach on one of their products.

Cause. They state that the moment was caused by frustration and stress due to the approaching deadline. However, as the interviewer elaborated on this moment during the team interviews of this study, it became clear that the frustration had a deeper cause: not long before, the coach had encouraged them to take initiative. By providing negative feedback on their work, they experienced a discrepancy in the behaviour of the coach. It is the experience of this discrepancy that disappointed them and made them angry. They felt that the role of the coach had shifted from being a companion in the work process to one of an evaluator of their work.

Team member: 'Everybody thought: finally we have something, it was something concrete for a change and then it got totally demolished and then yes, it's a push back, back to reality I guess.'

Consequence. The turning point created an 'us against her' - attitude in the team. At a task level, this attitude became a very strong motivator to prove that they could meet the high standards that were set by the coach.

Team B – general development. Figure 2 represents the course of team B. The turning points identified by the team members are outlined on the timeline. The team members reported seven turning points. They are not discussed in chronological order, because three of the turning points are related and as such described together under the subtitle 'a cluster of three turning points'
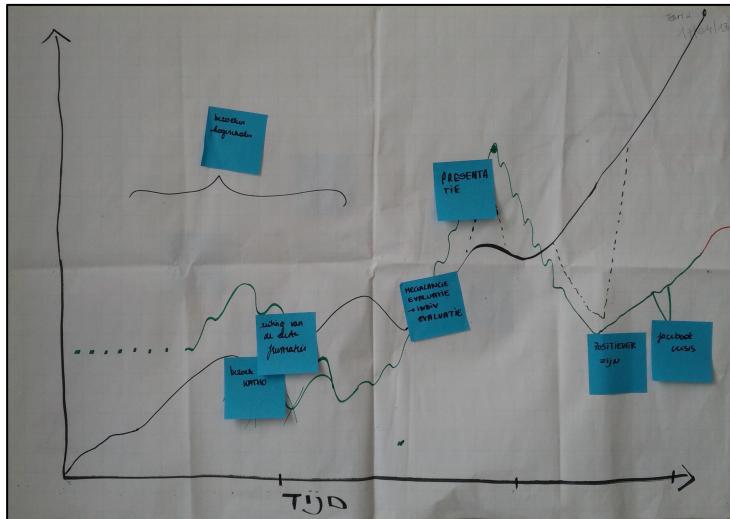
Figure 2. Course of development team B

Turning point 1. The first transition point covers a longer period of time. At the beginning of the project the team members *visited different schools* to collect information. The number of visits was divided between different sub-teams of two or three members to reduce workload.

Cause. These sub-teams spent a lot of time together. Due to the lengthy personal, one-on-one contact, familiarity between the duo's and trio's increased.

Team member: 'I think that, because you were alone with somebody for a couple of hours, it caused you to talk about the project and than you would understand better why people think in a specific manner of, yes, what their opinion was on certain things, and that helped also when you were talking to somebody else about the same topic, to tell to them how this person explained it to you.'

Consequence. This turning point had a positive effect at the interpersonal level and the process level: team members felt that a base of trust was created which had a positive effect on their collaboration.

Team member: 'You get to know each other a little better, you get more insight in how other people think and you, well, it also was a onset to be more open towards each other.'

However, they also report a negative side effect on the task level: sometimes the close friendship distracted them while working on the task.

Team member 1: 'Yeah, maybe the collaboration went a bit easier or smoother on moments when everything went fine.'

Team member 2: 'Yes, but this was also the reason, I think, that it got a bit annoying. Because in the library, I know, or when we had to collaborate somewhere, we would just be talking about all kinds of stuff while we were actually supposed to continue working. And, in itself, that was not such a good input for the task.'

Turning point 2. The second transition point that is put forward by the team members is *a meeting with their coach from the professional organisation*.

Cause. During this meeting they received the necessary information to continue their work and to channel their efforts in the right direction.

Team member: 'Before [that moment] we did not really know what to do, we were working without knowing where to go and by talking to these people, a lot became clear for us.'

Consequence. As a consequence, at the task level, they could continue working and felt very motivated to do so.

Team members: 'This lead us to continue with our work, well yes, we know what we had to do and that could go more fluent for a while.'

Cluster of three interrelated turning points 3A – 3B – 3C. From the start of the project, team members experienced frustrations about the other team members. Over time, this became stronger and more detrimental to the positive atmosphere in the team. At different points in time this came to the front triggered by specific events. The team members appointed each of these events as turning points. The first turning was appointed as such spontaneously. The second and third turning points were added during the elaboration about the first turning point. For clarity reasons they are here described jointly as three turning points within the same scope.

A. During the first weeks of the project, frustrations about how individual team members approached the task work (e.g. the importance team members granted to the task or the amount of time they spent on the task) emerged.

Cause. These frustrations were not discussed overtly, until one of the team members explicitly expressed hers. This triggered other team members to do the same.

Team member: 'We were working for a couple of weeks and there were little frustrations. We did talk about it, but never in the group or to the people we really wanted to say it to or where the message should end up and uhm, at some point, I had the feeling that we really needed to say something about it.'

Consequence. At first, team members felt this was a positive event, because it had the potential to set the stage for talking about the issues openly. However, this turning point had a negative long-term outcome in the form of a recurring habit of outing of frustrations at the end of every team meeting.

Team member: 'In the beginning, I think it was good that we were able to say it, because it was already present at the surface for a very long time, but in general it had a very negative effect.'

Even though the frustrations were always about task or process aspects (e.g. criticising team members on spelling mistakes) some team members perceived them as personal attacks.

Team member: 'Well yeah, if you keep hearing about the spelling mistakes that you made and the fact that you didn't re-read the things you wrote, after a while… you start … [expresses frustrations with facial expressions].'

These events had a significant impact on their interpersonal relationship in terms of safety. The team members reported a constant fear of doing something wrong and of the possibility that other team members would call their attention to the mistake. The pressure of the workload strengthened this feeling. In general, these recurring events were associated with negative feelings.

B. At a certain point, the team members decided to take measures by implementing a positive attitude towards each other. At the end of every meeting they installed a round of constructive feedback supported through a shared responsibility. For example, when team members expressed a frustration in a negative way, the others reminded them that they had to focus on constructive feedback.

Cause. After subsequent meetings of strengthening the habit of expressing negative feedback, some team members were confused about this pattern to such an extent that they felt they could not respond to the repeated attacks in an appropriate way.

Team member: 'I think it kept going on until we, during one of the meetings, said that is was important to start focusing on the positive aspects again and on the positive things other people were able to do.'

Team member 1: 'At some point, I said, you guys, we should look back [to what we achieved already].

Team member 2: 'Yes, that happened'

Team member 3: 'and then we did that and everybody was very surprised. We were like: yes, actually we can be happy and proud about what we achieved so far.'

Consequence. In general, most team members felt that this approach worked, despite a couple of backdrops. But for one of the team members, this perception was not present.

C. After the last turning point (cfr. turning point 5) the team members had a very positive attitude. However, the pattern of mutual frustration occurred again very quickly.

Cause. The attitude of being positive disappeared again due to deadline stress. Different aspects of the task did not go as planned.

Team member: 'We had to start working again really hard and the frustration just came back.'

Consequence. As a consequence, new frustrations arose and were expressed, due to stress and burnout feelings of the team members. For some team members' trust disappeared due to interpersonal issues. Other team members choose to personally opt-out due to the lack of interest or the lack of coping options.

Team members: 'Yes, it became interpersonal, but also personal in the first place. I mean, it just began because it was too much. You did not see the end of it, you got annoyed from always working, you could not do anything fun, you were always working and in the end you were so annoyed that it is not so easy to let these things [frustrations towards other people] rest.

Turning point 4. *The meeting after the intermediate evaluation* is put forward as the fourth turning point of the team. This moment was situated between transition point 3A and 3B (cfr. infra). During their obliged intermediate evaluation the team mainly focused at the task and procedure level and not at the interpersonal level. A little while later, they also set up a moment to focus on this interpersonal level. This moment is the turning point.

Cause. The academic coach advised the set-up of a new evaluation moment focused on interpersonal relations and functioning of individual team members. The team members also felt that they needed some feedback on how others perceived them and their functioning.

Consequence. This turning point was perceived as a positive and useful moment. Due to the turning point the team members became aware of their work points and this awareness stayed until the end of their project. The primary effect of this turning point was on a (inter)personal level: team members felt more secure. They were more aware of their influence on the team (both positive and negative) and really started tackling their points to improve.

Team member 1: 'I think that at that moment it became clear for everybody what their position in the group was or what the others thought about them. More security.'

Team member 2: 'And you were also more aware of the things you need to work on, or thing others could see as a problem.'

The consequence at a process level was that the team members started to communicate more with each other about decisions and they got back to working (cfr. turning point 3B). However, the effect was not sustainable. Due to deadline stress, all the positive effects of this moment disappeared after a while.

Team member: 'I have the feeling that we very quickly forgot all our points to improve. Over time, we needed to keep our head above water more and more because we needed to finish so many things. Because there was so much work, we seemed to have forgotten al those points for improvement.'

Turning point 5. The last turning point put forward by the team is situated *around the final presentation of their product for the professional organisatio*n.

Cause. In preparation of this presentation the team members became aware of their competences and on the teams competences. They went to the presentation with an attitude of self-security.

Team member: 'There were things that we gave each other feedback at so many levels that we were so convinced about it that we forgot to send it to the coaches for feedback.'

During and after the presentation, the enthusiasm and praise of the different stakeholders (academic coach, professional coach, employers) about there work confirmed this feeling.

Consequence. This gave the team and the individual team members a serious boost, both at a task and interpersonal level. However, the effect of the boost was of short duration due to the pressure of the deadline that came back very soon.

Team member: 'During the train ride after the presentation we were constantly talking about the presentation and about how the employees responded to how we approach the issue and that we really had the feeling that we could make a difference and yes, that gives you a bit of a boost.'

Team C – General description. The four turning points of team C are presented chronologically in Figure 3.
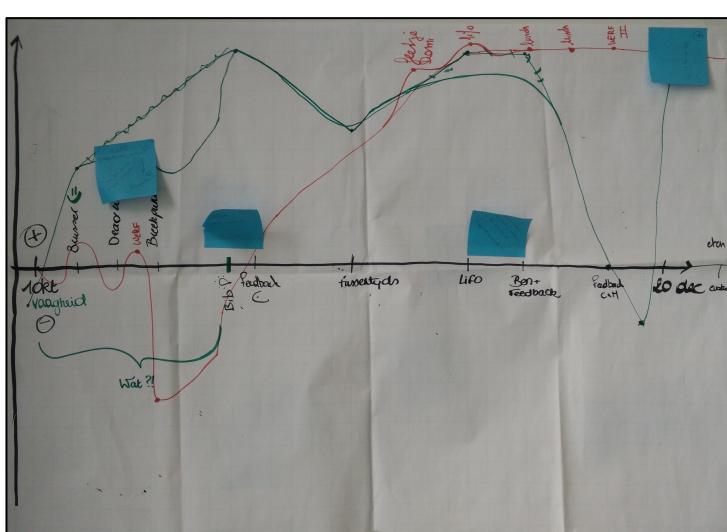

Figure 3. Course of development team C

Turning point 1. The team members referred to the first turning point as *the complex moment*. Team members referred to this as the most important turning point in the lifespan of the team. During the first meetings of the team, a number of team members with a dominant character took the lead. Other team members felt threatened by them and started back talking about these issues. At the same time they kept up appearances about the atmosphere in the team during the meetings; by organising informal lunch dates; and by making explicit statements about the importance of being honest to each other for the collaboration, while it was very clear that this was not the case at that point.

Team member: 'We were not honest during direct interaction with each other, and on the essential moments during meetings, we were just not honest on a relational level that is. And then, we went to a have lunch together with the idea to do something about this hypocrisy. But actually, that only made it worse. We were really not honest towards each other, drinking chocolate milk together pretending nothing was wrong and assuming it would pas. But that didn't work. Then the crisis came…'

At a certain moment the existing issues were made explicated. The actual turning point is situated during the meeting after this moment, when the team members agreed to openly reflect upon the events.

Cause. Due to open communication team members started to accept the different personalities of different team members.

Consequence. As a consequence of this turning point, team members became more familiar with each other and learned to understand each other better and what to expect from each other. At a process level, this facilitated collaboration. They agreed that they needed to be much more explicit in terms of their communication and planning. The performance of the task also got a boost due to this event. Team members explicitly named this the most important event for their team.

Team member: 'It lead to, not only about this situation, but also in general, why aren't we always straightforward with each other. We should make things more explicit, like what we want to do and just make sure the communication is much more transparent.'

Turning point 2. The team members referred to the second turning point as the *light point*. Two team members felt that some parts of the project were very vague. They decided to look at it during an afternoon in the library. They collected all the information and had thorough discussions about it.

Cause. They figured out the missing links and presented the other team members with their solution to the lack of clarity.

Team member: 'The thing was, we did not have three goals as we believed first, but only two main goals and some sub goals and that is the way we started looking at it at that moment. We were talking about it and figuring it out and then we decided to share it with the rest of the group. And actually, what was very vague or difficult suddenly became, well, everybody was like 'yes… even though we thought that the others could just as well react with confusion to what we were saying. But it turned out that it could just as well have been two other people that did the thinking exercise that we had just done.'

Consequence. Due to their effort, the other team members also started to see the whole picture; they all felt that this information made their efforts to accomplish the task more focused and more aligned towards the goal.

Team member: 'It felt like we could finally continue'

At an interpersonal level, this strengthened the trust and openness between team members they felt that from that moment on a setback in the task could no longer break the strong interpersonal relationships.

Turning point 3. The third turning point appointed by the team members is *a workshop* that was offered to them by the professional organisation. This workshop was set up to reflect on behaviours styles of the team members and to reflect on how the different behaviour styles interrelate between team members.

Cause. During the workshop, they were confronted with the behaviour styles of the other team members, which differed a lot from theirs, but they were forced to find a fit between different behaviour styles. Experiencing this process further clarified why the team had some trouble working together at the beginning of the project and why, after getting to know each other better, they were able to overcome differences and use them as strengths of the team.

Team member: 'well, the thing that could be seen as a weakness by one person was also formulated as a strength and then you could also start understanding it as a strength. I experienced that very strongly then. And, well yes, also, we were already collaborating well at that point, but then it kind of got explained why that was.

Additionally, the academic coach provided a feedback workshop during the same period. The feeling and effect of this workshop was similar to that of the workshop provided by the professional organisation.

Consequence. As a consequence of the session those individual team members felt more involved and this made it easier for them to speak up in the group. They became closer and even more familiar and the team cohesion became stronger: more knowledge was collected about behaviours of team members, about which behaviour they could expect, how this could be interpreted and what it meant. In this way team members were able to be more thoughtful of what certain behaviours could mean and how they should be understood. As a consequence, roles became clearer, for example team members knew whom to approach when they had a problem.

Team member: 'Well yes for example, when I thought, well I don't know how to do this anymore and I am very easily confused. And then I would think: whom can I ask? ... someone with a [name of profile] profile, maybe [name of team member]. Yes that was kind of what it was like of the workshops.'

Turning point 4. The last turning point put forward by the team, is the *end of the project*. All the references were checked, spelling mistakes, typing mistakes, everything was set in the right colour.

Team member: 'It was a great moment, because all the references were checked, all different possible typo's were corrected and spelling mistakes and then it was finished and I was very happy.'

Cause. They finished the project.

Team member: 'It was really finished and that was really like we are very happy that it is finished. And not just finished because the deadline was there, but really finished as it should be finished like it is now.'

Consequence. When they handed in their work, they described the feeling of stress fading away. They describe the effect at a task level: the feeling of relief and victory.

4.2   A cross case analysis of team development and turning points

In this section, a cross case analysis of the three project teams in terms of the similarities and differences that can be discovered in the turning points and their occurrence over time will be given.

4.2.1.   The four turning points that occurred in the three teams.

Two types of turning points at an interpersonal level and two types of turning points at a task level occurred in the three teams. The first type that was identified in all teams is the turning point that triggered *openness about the relational conflicts* (Team A: turning point 1; Team B: turning point 4; Team C: turning point 1). The team members of team A and team C explicitly put forward this turning point as the most important event during the lifespan of their team due to its positive (long and short term) effects on familiarity, openness and trust. Also the team members of team B mentioned that this was an important moment during their collaboration. The notion of relational conflicts refers to '*an awareness of interpersonal incompatibilities, which includes affective components such as feeling tension and friction. Relationship conflict involves personal issues such as dislike among group members and feelings such as annoyance, frustration and irritation*' (Jehn & Mannix, 2001, p. 238). The presence of a relational conflict was situated at a covert level, but was reported during the team interviews. The type of turning point discussed here resolved the conflict by openly expressing differences and incompatibilities.

The second turning point that was traceable within the development of the three teams at an interpersonal level was the period when team members got to know each other on a more personal level, unrelated to the collaboration itself (team A: turning point 3; team B: turning point 1; team C: turning point 3). This *getting to know each other* turning point triggered the enhancement of familiarity between team members. It strengthened the interpersonal relationship regardless of the task. The main difference between the first and the second turning point discussed here is that the first one involved open communication about incompatibilities between team members. For example, team members would give each other feedback on strengths and points for improvement of individual contributions to task work; or the different aspects of the collaboration between team members would be thoroughly discussed. In the case of the second turning point, the team members were merely socializing with each other and engaging in casual conversation. The first type of turning point at a task level is the *Aha – experience* (team A: turning point 2; team B: turning point 2 ; team C: turning point 2). The different teams reported a moment during which clarity in terms of the task and the task goal was created by actions of the team members themselves or by an outside stakeholder. This event led to an increase in the performance of the different teams. The last common turning point is labelled *achievement* (team A: turning point 3; team B: turning point 5; team C: turning point 4) and is characterised by an achievement on the task level, for example positive feedback on work, finishing a product, reaching a goal.

Their similarities. The short-term effects of these turning points were very similar for the three teams (see Table 2).

Table 2.

Overview of the scope of the effects of turning points.

Task level	Interpersonal level	Process level
'Openness about relational conflict'		
	'Getting to know each other'	
'Aha – experience'		
	'Achievement'	

The main observed consequence of the *openness about relational conflic*t moment were enhanced familiarity, trust and mutual understanding of attitudes and behaviours among team members. As a consequence of this event, team members started to understand their own and the other team member's behaviours and attitudes in the team and this created awareness and understanding of processes and mechanisms that occurred within the collaboration of the team members. This understanding led to a decrease in frustration about differences in approaches to the task and an increase of a safe team climate, openness and trust. As a consequence, team members in the three teams report similar boosts at a process level: facilitation of collaboration and at a task level: focus on the task, productivity, efficiency. However the sustainability of this effect seems to depend on other dynamics at play and the subsequent events during the course of the team. In team B a process conflict about the division of the work and the responsibilities of individual team members for the work (Jehn et al. 2008; Jehn & Rupert, 2001) occurred at the same time (cfr. cluster turning point 3A – 3B – 3C). Additionally, the team members expressed the presence of a heavy workload. It seemed that these events eliminated the initial positive effect of the *openness about relational conflict* turning point. The team members of team B reported that they were able to establish a strong feeling of friendship between team members, but failed to create robust openness and trust between the different team members. The *getting to know each other* turning point created more familiarity among team members, which also contributed to an enhanced understanding of each other's behaviour during the collaboration. Additionally, the turning point also had repercussions on a mere interpersonal level: namely in terms of enhanced stronger friendship and a basis of trust among team members. The common consequence of the *Aha-experience* is focused on the task level: it created a clear and shared understanding of the task. Clearing out the confusion about the common goal facilitated the teams' focus and goal directedness. Due to a clear, shared vision of the mutual goal, the collaboration became more effective and smoother. The *achievement* turning point mainly enhanced social cohesion between team member and belief of the team members that they are capable of working on the task.

Their differences. The previous paragraph shows that four types of turning points emerged in the three teams and that these turning points had similar consequences in the three teams. Also a lot of difference can be observed concerning these events. Firstly, the specific circumstances of the turning points as they occurred within every single team are unique. Even though the main scope of the turning point is the same, each one has its own specific setup and details. For example, even though the obliged and planned intermediate evaluation triggered *openness about the relational conflicts* within two teams (team A and team B), the intermediate evaluation in both teams itself was setup differently. And within team C this turning point occurred in very different circumstances, namely escalation of the interpersonal conflict very early on in their development. Secondly, the order of the turning points within the lifespan of the project teams is different (see Figure 2, 3 and 4 for an overview of the turning points in chronological order). Additionally, the position of a turning point relative to other turning points seemed to have an effect on its impact. For

example, in team B and C an *Aha-experience* was reported very early on in the development of the team. The positive effect that was reported was situated on a task level (clarity concerning the task). In team A this moment occurred later during the lifespan of the team, when openness and trust were already established. The effects of this moment in team A was more extended as it also confirmed the trust climate that was created during the *openness about relational conflict* moment. Even though the same type of turning points seemed to have similar consequences across the three teams, the same type of turning points were triggered by different causes across the different teams. For example, the *aha-experience* was triggered by an external stakeholder in team B and C, and by a team member (internal stakeholder) in team A. Additionally, it is found that some turning points within the development of a team have a double function. The third turning point of team A was both a *getting to know each other* as well as an *achievement* turning point.

4.2.2   Differences in observed turning points across the teams.

The range of turning points in team A and B is supplemented with additional turning points that can not be placed under one of the four types of turning points mentioned above. In team C, the only types of turning points mentioned are the four mentioned above. For both teams, this entailed turning points that had a negative impact on their functioning.

5.   Conclusion

This study was set up to conceptualise team development in three temporary project teams taking into account the dynamic nature of emergent states. The focus of this conceptualisation of team development is on turning points, or significant changes in the lifespan of the team as perceived by the team members, and their positioning towards each other over the lifespan of the team. In the following section a short overview of the findings for the three teams is given. Because the interest is in the development of these teams over time, the turning points will be discussed in terms of their effect on team maturity both on an interpersonal and a task level. Next, the main take away points of the cross case analysis are given. This overview recaps the main direct conclusions of the study.

The team members of team A put forward four turning points as significant events within their development. The first turning point, which consisted of an evaluation of the task work and the team work, enhanced the feeling of being a team between team members and this was seen an important prerequisite for the following turning points and was also strengthened after every other turning point. The second turning point, which entailed a brainstorming session to clarify the future directions on the task path, focused on task work, and mostly strengthened the feeling of competence of the team motivating them towards better achievement. The third turning point, during which the team members had close contact with each other and their target audience, enhances the feeling of being a team and their feelings of competence as a team. The last turning point, which was a negative confrontation with the academic coach, had a strengthening influence on the feeling of being a team and, on after a while also enhanced motivation to deliver a better product. Over the whole line, each one of these turning points increased and strengthened the maturity of the team in terms of collaboration and performance.

The team members of team B identified five turning points. The first turning point, during which team members got to know each other better by spending time with each other in duo's, set the stage for the construction of a good team. The second turning point consisted of a meeting with the contact person of the professional organisation to clarify the organisational question and enhanced team competence and performance. A cluster of turning points around interpersonal frustrations emerged. The first two turning points in this cluster, which entailed fostering a positive attitude towards each other, had a short-term good effect on the collaboration of the team members. Their long-term effect however, was negative because their intentions to engage in constructive collaboration failed due to high stress levels. One turning point occurred

during which the team members reflected on their collaboration. This had a positive effect on their collaboration. A turning point that was created due to the success of their final presentation strengthened their team cohesion. However, the last turning point of the frustration cluster had a negative effect on the collaboration. As such, the turning points that occurred in the development of this team had an overall positive short-term effect on collaboration and team performance. However, the recurring covert and over frustrations towards each other seemed to have had a detrimental effect on this overall positive effect. Even though the team members reported successful and increasing team performance and good interpersonal relationships, the high perceived workload seemed to have had a recurring negative effect on the interpersonal maturity of the team.

In team C four turning points were identified. The first one reflected about interpersonal interaction and had a positive effect on the collaboration. During the second turning point, the team members figured out how to approach the task that lay ahead of them. This fostered their collective efficacy. The third turning point entailed reflection on individual characteristics of the team members and how this interplays with the collaboration. This enhanced their trust and facilitated collaboration as a team. Lastly, they put forward the moment at which their goals were achieved as a turning point. The turning points that occurred during the lifespan of this team each had an overall increasingly positive effect on the collaboration and team performance over time.

By approaching team development through pinpointing important moments of change during the lifespan of a team, a number of conclusions can be made when comparing the teams in the three cases. In this study, three similar teams were investigated and a common ground could be detected in terms of occurring events that shape the development of these teams, for example the occurrence of a relational conflict or a moment of task clarity. As such, four types of turning points were identified that occurred within the three teams: *openness about the relational conflict*, *getting to know each other better*, *Aha-moment* and *achievement*. The consequences of these turning points on the further lifespan of the team also show great similarity across the three teams. However, the triggers for occurrence, the timing of one type of turning point and the order of occurrence of these different turning points are different for the three teams. Additionally, the events behind the turning points are also considerably different. For example, in two teams the *openness about the relational conflict* was triggered by the intermediate evaluation. In the third team it was triggered by an unforeseen circumstance. Aside from the common turning points, two of the three teams identified unique turning points that are considered important for the development of the team. The scope and content of these turning points are different and they can thus not be compared to each other. Yet all these events had an important impact on the course of the team, as perceived by the team members.

6. Discussion

In this last section, the findings of this study are elaborated on in more depth: the turning points approach is compared with and contrasted against existing theories. First the similarities and differences with a more popular conceptualisation of team development are discussed. Based on this comparison, the strengths of the turning point method will be highlighted and potential opportunities and limitations for the use of this method are outlined. Following, the findings in this study in terms of the types of turning points that were found will be discussed in the light of relevant existing team theories.

6.1   Turning points: a more flexible way of conceptualising team development.

The turning point conceptualisation of team development is compared and contrasted with the linear development model of Tuckman (1965). This comparison is made because the Tuckman model is traditionally the most used team development model in research and in practice (Raes et al., 2015). The

scope of the four types of turning points that could be identified within each of the three teams (e.g., getting acquainted with each other, relational conflict, sudden focus on the task, achieving as a team) can also be detected in different phases of the linear development model of Tuckman (1965) (e.g. resp. forming, conflict and performing phase). Additionally, two of the three teams (team A and team C) reported a gradually increase in team collaboration and team performance. As such reporting the gradual maturation of teams over time that is outlined in the traditional models. This is not surprising because these models originate from studying the same subject: the process of team development (Raes et al., 2015). However, the turning points conceptualisation is suggested here as a more flexible alternative for the linear development model, because in contrast to the former provides an alternative path for development when a team does not pass one of the phases, skips one of the phases, relapse to one of the earlier phases or passes the phases in a different order, whereas the latter does not (Bettenhausen & Murninghan, 1985). For the teams in the current study, this is specifically problematic in the case of team B. When the development of this team was outlined based on the model of Tuckman (1965) the description would stop after the second phase, because the team did not fully pass this storming phase, even though the team members also experienced dynamics that are characteristic for the later phases of development. The development of team A and C could be fitted within the path outlined by the Tuckman model, but they also described events and orders of events that not fit the traditional model. This shortcoming of the Tuckman model could be explained by stating that it is predictive in nature (Bushe & Coetze, 2007). As such it prescribes a development path for teams that, when closely followed, results in the highest level of performance possible. However, other researchers approach this model as descriptive when using it to identify the state of development in which a team is situated at a certain moment in time (e.g. Miller, 2003; Raes et al., 2015; Wheelan, 2009). By using it as a descriptive model, these researchers assume that all teams will follow exactly this development path. Lack of clarity about the potential use of the Tuckman model, and by extension the other existing team development models, encourages misinterpretations and a very rigid view on team development.

The strength of the turning point conceptualisation as an alternative for the Tuckman model consists in the fact that it is more flexible in terms of descriptive possibilities to outline team development of individual teams. The important events that teams encounter during their lifespan are well captured in the traditional models. However, these models do not allow for the description of other events that play a role that could have an important influence, or do not allow to report about events that occur in a different order then described by the model. Teams can encounter every possible event that influences their development and change. This conceptualisation allows other events to play a role in team development than the ones described in a fixed model, including events with a negative outcome. And it also allows events that have an overall influence during the development, such as the cluster of turning points in team B. As such, this approach should thus be considered a descriptive approach. It can be used to describe team development paths taking into account specific dynamics of individual teams, because it allows flexibility on different aspects. This description has potential for both research and practice. Using this approach, more in depth knowledge of the dynamics of emergent states over time could be collected by identifying the effect of these turning points on a specific emergent state, such as psychological safety, instead of the explorative approach used in this study.

6.2   Contrasting the findings in this study with earlier research on teamwork.

Teamwork has been studied for many years; as such the findings in this study can be compared with earlier theories studying phenomena that were discovered when studying turning points over the lifespan of temporary project teams.

First, as mentioned above Erbert et al. (2005) identified several turning points in their study. Interestingly, the scope of the turning points identified in their studie and in this study show considerable overlap. Most identified turning points clustered around following topics: cohesion, project management, socialisation, member change, competence, workload and conflict. Additionally, most turning points were positioned at the dialectical contradictions of team vs. individual and competence vs. incompetence. The
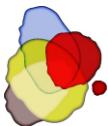
turning points identified in this study can be situated on the described topics, except for project management and member change. The later one is not so relevant for the type of teams studied here due to fixed membership of the studied teams. Additionally, the identified turning points were mainly situated on the two dialectical contradictions described above. The turning points at an interpersonal level entailed events during which the team members encountered a tension between the identify of the individual and the identity of the team played an important role: the *openness about relational conflicts* turning point started with tensions due to diversity between the different team member and created a collective understanding of the influences of the diversity of these individual team members on the collective collaboration. This dialectical contradiction can also be identified within the dynamics of the *getting to know each other* turning point. It also enhances understanding of the position of individual team members within the whole of the team. The *aha-experience* and *achievement* turning point are situated at the competence vs. incompetence contradiction for the obvious research that they increased a feeling of competence among team members, and, in some cases, started from a feeling of incompetence (cfr. turning point 2, team A). Also in the case of the turning points that were only observed in one of the three teams at least one of the contradictions can be observed. Turning point 5 in TEAM A could be situated at both, as this turning point was about (1) the team against the coach and (2) feeling incompetent due to negative feedback from the coach. The cluster of turning points in TEAM C is clearly situated at the individual vs. team contradiction due to the interpersonal frustration that repeatedly arose.

In two of the three teams, the team members spontaneously[2] put forward the 'openness about the relational conflict'- turning point as the most important event within the team development. Additionally, the effect of this turning point was particularly important for fostering a positive interpersonal context for constructive collaboration. The third team also recognised its importance and short-term positive effect on collaboration. Due to the importance team members ascribed to this event and its facilitating effect, we decided to confront the findings of our study with earlier research on conflict and conflict management. This finding is not completely in line with previous research and theory about relational conflict in teamwork. Jehn and Mannix (2001) state that the occurrence of relational conflict is always undesirable in a team context in terms of performance. In their questionnaire study, they confirmed the hypothesis that high-performing teams experience lower levels of relational conflict compared to low-performing teams. However, based on the findings of the current study, it seems that the occurrence of a relational conflict, defined as team members' awareness of interpersonal incompatibilities accompanied by an emotion of friction or frustration (Jehn & Mannix, 2001), is a natural part of the process of the examined teams. Moreover, the uncovering of this conflict has led to an increase of social learning, defined as *'the process though which team members get to know each other better as individuals and learn to interpret each other's behaviour in the context of personal life and personality'* by Jehn and Ruppert (2008, p. 128) within each of the three teams. When social learning is present and it enhances familiarity and understanding of each other's motives for behaviour it can create empathy and facilitates relational interaction with other team members (Huckman, Staats, & Upton, 2009; Jehn & Rupert, 2008). This has positive influences on the team work because it facilitates collaboration which in turn leads to higher team effectiveness and efficiency (for an overview of beneficial effects, see Jehn & Rupert, 2008). The team members also reported a positive effect of this turning point on team performance. It seems that sometime at the beginning of the project, the openness about relational conflict is to some extent necessary in order to facilitate future collaboration. This mechanism could be identified thanks to the qualitative nature of the currend study and the focus on studying a longer period of time.

De Dreu and Van Vianen (2001) found in their study that avoidance of relational conflict is most beneficial for team functioning and team performance. The current study suggests that it is necessary to uncover the relational conflict in order to make task conflicts effective. The presence of trust and openness fostered by the turning point enhances the quality of constructive task conflict (Van den Bossche et al.,

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[2] This was not a question during the team interview and the interviewer did not ask team members to elaborate on this topic.

2006). Overlooking this mechanisms, could also explain why De Dreu and Weingart, 2003 found that both task and relational conflict are negative for team functioning. They found that a small amount of conflict is good for team performance; however, an increase in intensity of the conflict is detrimental to the functioning of the team. It could be that whenever a conflict, no matter which type of conflict, becomes too intense, a relational aspect of awareness of perceived differences is experienced. However, when relational frictions are solved, task conflict can occur without the emergence of intense negative emotions. In line with this, the statement that a relational conflict is unrelated to the task (De Dreu & Weingart, 2003; Jehn & Mannix, 2001) can be refuted for the studied teams: it requires collaboration on the task and task processes for team members to become aware of incompatibilities and for irritations and frictions to emerge. Clearing out emotions by overtly discussing relational conflicts seems to have beneficial effects. However, occurrence of this confrontation does not necessarily mean that the collaboration is safeguarded (cfr. team B). The question remains what triggers a good outcome of this event and what triggers a bad outcome both on the long and short term. The three teams reported a stronger influence of interpersonal processes on task processes than the other way round. Dysfunctional interpersonal relations had a detrimental effect on the task process. However, when they were going good, this had a positive effect on the task process. The task did not have this kind of effect on the interpersonal relations. This emphasises the importance of the quality of these interpersonal processes. When interpersonal matters are openly discussed, this openness can also prevent escalation of a relational conflict. More research is necessary to tap into the specific timing and characteristics of this turning point.

6.3   Context of this study and future research.

The subjects of this study were functioning within the context of a course that is part of the curriculum of an educational program. One reason to set up this type of education is to familiarize students with working in teams. Within the context of the course, a number of interventions are organised to enhance collaboration and facilitate the task process. This context can be considered as a limitation of the study, because some of the interventions that are part of the course set-up are closely linked to some of the identified turning points. For example, the visit to the client organisation is a mandatory part of the program for the teams. In one of the teams this triggered the *Aha-experience*. Another example is the *openness of the relational conflicts* turning point that was closely related to the intermediate evaluation with two of the three teams. The closing event triggered the *achievement* turning point in team B. These observations raise the question to what extent the observed turning points occurred as a natural aspect of the development of the teams. Given the scope of this study, it is not appropriate to make statements about (the absence of) causal effects of interventions. However, it is a valid observation that these turning points occurred in the three teams with different triggers, in some cases related, and in some cases unrelated, to the organised interventions in context of the course. Further research is necessary to untangle the complexity of the dynamics of different influencing factors of the turning points.

The method developed in this study to identify changes in the emergent states over time can be used with different purposes in future research. For example, it can be used to specifically focus on the fluctuations of one emergent state over time to understand its emergence more in-depth. Additionally, changes in other aspects of teamwork can be measured before and after the occurrence of a turning point. Or interventions can be tested to trigger turning points and as such foster collaboration. This can contribute to the entanglement of the complexity of teamwork.

Keypoints

- Individual teams report unique team development paths over time, which is not in line with the traditional team development models.

- The innovative flexible approach towards team development allows unique paths of individual teams and provides opportunities to study generalizability and common grounds.

- Openness about relational conflict is the most important turning point within the development of student project teams.

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