AN EXPLORATION OF TEAM FLOW IN AN ISRAELI YOUTH BASKETBALL COMPETETIVE TEAM

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ABSTRACT

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Previous research in sport psychology is predominately focused on individuals rather than groups of individuals such as teams (Woodman & Hardy, 2001). This individual approach does not take into account unique aspects that characterize sport teams that are vital for sport psychologists, coaches, staff, and players who are interested in enhancing team performance. A parallel approach is evident in the frequent research on individual flow, but the scarce attention to team flow. Therefore, the aim of the present research was to build on previous research related to flow in order to enhance understanding of the concept of team flow. This was achieved by comparing relevant concepts to team flow, investigating similarities and differences between individual flow and team flow, assessing the hypothesized relationships between group cohesion and team flow, and finally exploring the relationships between emotions to performance and emotions to team flow.

The participants were 14 male players from a basketball team in Israel. Their mean age was 13 (SD=0.41). The team participated in the highest level of competition in the youth Israeli basketball league. All players were Israeli and Jewish. The team was studied during a period of two months. Emotions were studied within the frameworks of the Individual Zones of Optimal Functioning (IZOF) model (Hanin, 2000, 2007). Group Cohesion was studied using the GEQ (Carron, Widmeyer, & Brawley, 1985). Individual flow was studied using the FSS-2 (Jackson & Eklund, 2002). Team flow was studied using the TFSS **(**Cosma 1999**)**. Performance was studied using The Coach Self-Report of Team Performance Scale.

The results indicated that experiencing individual flow, as well as team flow, was a frequent experience among the players. Its occurrence was influenced by personal characteristics as well as contextual factors. A strong correlation was found between the dimensions of individual flow and the same dimensions of team flow. This finding may support the belief that team flow and individual flow are similar phenomena. However, it may also be a result of using a similar scale for measuring both individual and team flow. During the preseason, team flow and group cohesion were strongly correlated mainly in social aspects, during the mid-season team flow and group cohesion were mainly correlated in task aspects. Ranking of emotions was not significantly different as a result of experiencing flow.

The present study provides new and important information regarding team flow. Methodological considerations, future directions, and practical recommendations are suggested.

Keywords: team flow, individual flow, emotions (IZOF model), group cohesion, and basketball performance.

TABLE OF CONTENTS

List of Tables

1. INTRODUCTION TO TEAM FLOW

1.1 The significance of team flow

Individuals perform in teams requiring them to work together to reach their common goals. Sport teams are intact, dynamic groups with common identities, goals, and objectives. They have a structured pattern of interaction, they perform meaningful tasks, and their performance outcomes are unambiguous (Myers, Payment, & Feltz 2004). How well these teams perform is a function of the interactive and coordinative dynamics of their members (Bandura, 1997).

Flow, as an optimal experiential state, was the target of a great deal of interest since its inception by Csikszentmihalyi (1975). In addition, much has been learned about the term 'team' as well. However, the combination of the two, creating the term “team flow”, has been mostly neglected. This lack of research is retained in spite of the fact that most researchers will agree that team flow has a vital effect on performance. The present importance of this research, understanding team flow, is based on its major contribution to the field of sport, but it should also be noted that this perspective has important ramifications for groups in a variety of areas that deal with peak performance such as dancing, music, surgery, reading, art, business, and learning (Egbert, 2003).

Interest in team flow is based on the assumption that teams will perform best when they achieve team flow. This rises the question “Can teams learn how to create and maintain team flow that will lead to a team peak performance?” Most researchers and practitioners would agree that this ideal performance state is not a simple, one-dimensional state that is easily reachable (Hardy, Jones, & Gould, 1996) However, interest in this topic is high since most of the research in sport psychology over the past 35 years has examined the cognitive and affective processes related to performance. Many attempts have been made to understand the nature of successful performance in sports and explain its complex relationships (Harmison, 2006).

The idea that characteristics of flow can be learned, taught or improved may be a controversial one, but not unrealistic when analyzing the nine dimensions in Csikszentmihalyi's model (1990). As Csikszentmihalyi (1990) suggested it is not easy to transform ordinary experience into flow, but almost everyone can improve his or her

ability to do so, and further, opportunities alone, are not enough, we also need the skills to make use of them.

Experiencing flow is described as being "in the zone," "in the groove" (Jackson & Marsh, 1996), "blinking out" or "having the touch" (Abbott, 2000), and “when everything gelled” (Snyder & Tardy, 2001). Flow is a mindset, the crucial factor that separates winners from losers. Coaches and sport psychologists often refer to this optimal mindset as "The Zone". For some athletes, performance in the zone is achieved only a few times in their careers; however, with systematic training using sport psychology techniques, the zone can be entered almost at will (Costas, 1999). If one is able to harness or facilitate the optimal experiential state of flow, one could argue that this places a performer in the best position to perform at an optimum level (Jackson, 1996). Through qualitative research, Jackson (1995) found that 79% of the elite athletes perceive flow as controllable, and Rusell (2002) found similar result for 64% of the elite athletes. This is especially important because in the context of elite sport performance, especially in team sports, rarely the outcome is a result of physical differences between competitors (Mugford, 2006). It is frequently the emotional, cognitive and mental aspects that produce the greatest fluctuations of performance.

Flow has a big impact on the mental, emotional, and cognitive aspects in any activity. This idea that flow provides an optimal state for athletes is not only reinforced through qualitative data (Jackson,1995; Jackson & Roberts, 1992), but also through a high correlation between flow experience and performance outcomes in collegiate sports (Jackson & Roberts, 1992).

Although, flow is experienced by individuals, it does not occur in isolation; rather, it is depended on both individual characteristics and contextual variables. It may even depend on other participants in the environment. In Snyder and Tardy's (2001) study of flow, the ten teachers involved, implied that the group flow was possible when they commented that flow seemed to occur between teacher and students or took place among students. Group flow was possible when they commented that flow seemed to occur between teacher and students or took place among students. This finding enhances the differences between individual flow and team flow.

A thorough literature review of 'team flow' retrieved only three academic studies done as doctoral dissertations that remained unpublished within the sport context (Cosma, 1999; Myers, Payment & Feltz 2004; Mugford, 2006). Another unpublished doctoral dissertation considered empirical evidence for 'collective flow' in the workplace (Quinn, 2003).

The goal of this research is to explore this unplowed terrain.

By definition team flow is the optimal state which teams should aim to reach. Reaching this state is expected to lead to better performance. There is no magic road a team can take to reach this optimal state, and it is certainly not easy to reach it, however, investigating this term can lead to additional knowledge that can improve practice. Therefore this research will connect the neglected term 'team flow' with more familiar factors of individual flow, group cohesion, and emotions, in order to assess their influence on performance, and to enrich the knowledge on this interesting phenomenon.

1.2 Definition of team flow

Team flow is defined as a state of optimal experience involving a team's total absorption in a task and a state of consciousness that optimizes performance (Cosma, 1999). Team flow involves one's perception of other members of the team simultaneously experiencing flow such that the experience is perceived at the team level (Quinn, 2003). Team flow involves a team working in unison towards a collective goal (Yukelson, 1997). Typical comments to describe this collective optimal experience state includes: "we just clicked", "we gelled", "we were in the zone", and "there was 'chemistry' among us" (Cosma, 1999).

Flow experience occurs during participation in an activity and is characterized by the nine dimensions of flow first described by Csikszentmihalyi (1975). Team flow deals with the question whether particular teams (as opposed to individuals) have the propensity or ability to enter flow by virtue of the combinations and/or interactions of the team athletes' abilities (Lazarovitz, 2003). The difference between individual flow and team flow is a different of focus. Researchers interested in individual flow, proposed that there are individual differences in the propensity and ability of individuals to experience flow (Csikszentmihalyi & Csikszentmihalyi, 1988). It has been further suggested that regardless of the context, some people may be more psychologically predisposed to experience flow then others. Csikszentmihalyi (1990) used the term

"autotelic personality" to represent this propensity to experience flow. Such individuals are said to require fewer material possessions and little entertainment because much of what they do is already intrinsically rewarding.

It has been substantiated through qualitative research that the interactions among teammates help individuals attain flow (Jackson, 1996). Although it is uncertain how important this relationship is, the occurrence of a team flow experience has gained recognition (Cosma, 1999, Mugford, 2006, Quinn, 2003).
Therefore the crucial issue is in defining the phenomena of "team flow". Do we conceptualize team flow in terms of individual flow, or in terms of group factors that characterize teams in combination with factors that define a state of flow?
Interest in team flow raises the question whether this tendency may be multiplied in teams in such a way that a combination of individual characteristic can be generalized to the team context. On the other hand, it may be that some teams' posses a propensity to enter flow that is more than a simple summing of individual flow states. Certain teams may show a pattern over time that suggests a disposition to do so. This tendency may be a function of a dynamic process occurring at the team level that may be related to group efficacy (Bandura, 1997).

1.3 Team flow & team collapse

Another approach to defining a new concept is by comparing it with an opposite term. 'Team Collapse" may be perceived as the opposite of Team Flow. A collective collapse was defined as a crisis. Collective collapse occurs when a majority of the players in a team suddenly perform below expected level in a match of great, often decisive, importance in spite of a normal or good start at the beginning or when a team under performs right from the start of the match. Both situations are labeled as *c*ollective collapse but seem to have different psychological aspects (Apitzsch, 2006). Lack of sense making and structure in a group are two phenomena that can produce collective collapse in unexpected situations (Weick, 1993). Team flow occurs when a majority of the players in a team perform above an expected level.

In team flow, as in team collapse, a majority of the players are involved, thereby creating a social phenomenon that is characterized by mutual dependency. The players affect and are affected by each other. This phenomenon is influenced by a multitude of

contextual relations: the relations between the players and the relationships among the coaching staff and the supporters, the game situation, the status of the match, the group task at hand, the physical and psychological conditions of the participants, and the characteristics of the game itself (Snyder & Tardy, 2001; Yukelson, 1997; Kimiecik and Stein, 1992).

The difference between team flow and team collapse is most evident in preserving the trend of the game. When a team maintains team flow an interruption in the game, such as, time-out or substitution most likely will interrupt and stop the team flow. Csikszentmihalyi (1990) suggests refraining from bringing an athlete to think about one's situation when in flow since these thoughts will most likely interrupt the flow. In contrast, when team collapse occurs it is important to stop this trend by creating periods of breaks, timeouts, or substitutions (Apitzsch, 2006).

1.4 Team state flow & team dispositional flow

State flow was evaluated as a tendency or ability and as an actual experience. It is possible to evaluate the tendency or ability to enter flow (i.e. team dispositional flow), or the experiences related to being in a state of flow (i.e. team state flow). Studying dispositional flow was based on the hypothesis that how the team as-a-whole perceives its ability to get into flow when they need to, may be more important than how they assessed particular times they experienced flow. It was claimed that knowing that one's team has the propensity to enter flow may be just as important, if not more important, than a few instances of a team having experienced this optimal state (Lazarovitz, 2003). Interestingly, Mugford, (2006) found that team dispositional flow and team state flow were significantly and positively related on eight of the nine dimensions of Csikszentmihalyi (1975) (the exception, loss of self consciousness). That is, players who perceived their teammates as having the propensity to experience flow during the season, also recalled the team's experience with this optimal state during an actual game and furthermore, both scales were significant contributors to the actual game score measures. Therefore the choice to assess flow as a dispositional versus an experience remains undetermined.

1.5 Previous research on team flow

There is a great deal that is not fully understood about the concept of flow, particularly in a team setting, but suggestions are made for continuing research into this fascinating phenomenon. The current literature does not describe in-depth the factors that are related to the creation of team flow. It is mentioned that these factors may be found on an individual level and on a team level. However, it seems that the main focus is tied to the appearance of individual flow among the players (Quinn, 2003).

A recognized limitation of sport psychology research is the predominant focus on individuals compared to groups of individuals such as teams (Woodman & Hardy, 2001). This focus is surprising given that many sports involve teams. In some circumstances one can understand the benefits of investigating individuals which are part of a team. This investigation usually is easier, and leads to clearer results.

Such example is looking at the true relationship between group cohesion and individual performance (Westering, 1990; Wooden, 1976, 1980). In such cases, it is believed that team success is achieved through the combined efforts of the individuals on the team. It is further believed, that since individual performance measures are more under an athlete's personal control, they would be more sensitive than a team outcome measure. This individual approach to group performance that is prevalent among researchers, does not take into account all the aspects of team performance, and different aspects that teams have which individuals do not (e.g., roles inside the team, relationships/interaction between the team members). These aspects could be vital for sport psychologist, coaches, staff, and players who are interested in enhancing team performance.

Bandura (1997) speculated that in highly interactive tasks (e.g., team sports) or situations that involve a high degree of interdependent effort (e.g., ice hockey, basketball) in order to achieve success, individual team members' perceptions of the team-as-a-whole would be a better predictor of team performance than an aggregate of individual scores. Only such a comprehensive view can encompasses the unique cooperative and interactive dynamics that operate within the team.

Cosma (1999) examined the presence of team flow in soccer teams using a modified version of the original Flow State Scale developed by Jackson & Marsh (1996) called the FSS. In his research team members reported experiencing the same nine dimensions

of flow described in individual flow (e.g., Jackson & Roberts, 1992, Jackson, 1995, 1996; Jackson & Marsh, 1996, Rusell, 2002). However, the results did not support all nine factors to the same degree. The highest ranked dimension (means) for team flow were clear goals, sense of control, concentration on the task at hand, time disorientation, and autotelic experience. Subsequently, Cosma (1999) proposed a four-factor model of team flow.

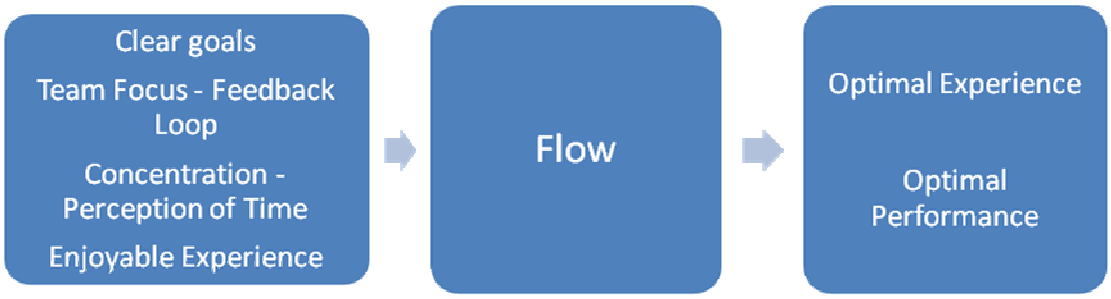

Figure 1. Proposed Model of Flow in Teams (Cosma, 1999)

There were several limitations to this unpublished study. First, Cosma (1999) examined only North American elite male Soccer teams which limit generalization of the findings to other populations. He recommended that future studies on team flow should include different sports (e.g., basketball), players, and gender. Second, Cosma, did not examine team flow as a predictor variable for performance. Therefore, he did not make the comparison between the studied relationship between individual flow and athletic performance, with team flow and athletic performance. Third, only state flow was assessed and dispositional flow was not evaluated. Therefore, his findings relate only to the experience of flow and not to the tendency or ability to enter a state of team flow. Fourth, his measures were retroactive; as athletes completed the team state flow measure only after the season had ended. This is contrary to previous research, which recommends assessing state flow immediately after participating in the activity. Assessing state flow days, weeks, or months after participating in an activity is subject to various measurement issues such as incomplete recall, retrospective distortion. (Jackson & Roberts, 1992; Privette & Bundrick, 1991). Fifth the team flow scale was adopted by changing "I" statements to "We" this naturally will lead to high correlation between individual flow and team flow, which does not necessary, exist. The results Cosma found are interesting and serve as a good start for the investigation of the term team flow.

The most important strength of Cosma's investigation was that it adds to the increasing knowledge of flow. In his study teams were chosen with the expectation that they would be familiar with the flow experience. The team's understanding of flow was greatly valued in his investigation. Each individual added his individualistic view of the team, combined together the knowledge contributed to the total understanding of team flow. High consistency was found between the 104 athletes' and coaches' experiences of flow in a team, and the assimilation of team experiences, to the representation of flow as described by Jackson & Marsh (1996).

Another unpublished doctoral dissertation considers empirical evidence for collective flow in the workplace (Quinn, 2003). Quinn considers collective flow as the convergence of the individual flow experience among all of the members of a collective, experienced through coordination of activities involving both cognitive and affective processes. The proposed model of flow in teams is conceptualized as aligned individual flow experiences that reinforce each other in pursuit of a singular goal. A number of motivating agents excite the team members and create a desire for flow experiences, and at the same time focusing agents move the team in a common direction and align the team members to effortless execution of team tasks.

All conducted studies, known by the author, investigating team flow, relied on the definition and scale of individual flow. However, the connection between these two phenomena's is still questionable. The issue remains, are individual flow and team flow the same phenomena that is operating on the individual and on the team level, or are we creating this resemblance by using the same scale, with adaptations, to measure individual flow and team flow?

2 Related Concepts to Team Flow

2.1 Team flow & individual flow

A state of flow is a valued experience and a source of motivation for many individuals undertaking physical activity. Flow has been described as a state of optimal experience involving total absorption in a task at hand, and creation of a state of mind where optimal performance is capable of occurring (Csikszentmihalyi, 1990; Rusell, 2002). This is true whether one is in high-level competitive sport or a fitness endeavor, flow may also occur in non-sport contexts (Egbert, 2003). Being able to attain flow during

sport or exercise participation can elevate an experience to higher levels of enjoyment and achievement (Jackson, 1996). Flow lifts the experience from the ordinary to the optimal (Csikszentmihalyi & Jackson, 1999). Flow researchers indicate the optimal balance between challenge and skills is an a psychological state called "flow," characterized by: intense focus, enjoyment, engagement with the task, lack of self-consciousness ("forgetting") that leads to improved performance caused by: repetition, motivation, exploration, satisfaction, more time on task, willingness to risk which can lead to changes in competence and/or important performance condition for the flow experience to occur (Whalen, 1997).

The apparent associations between flow state and peak performance makes understanding flow tantamount to the athlete, coach, and sport psychologist. Knowledge gained of these factors is important in helping athletes to reach optimal performances (Rusell, 2002).

The flow model of optimal experience (Csikszentmihalyi, 1975) has gained considerable attention from sport psychology researchers in recent years. Much of this research has attempted to identify psychological antecedents of flow (Jackson & Roberts, 1992). The model includes nine dimensions. The first dimension is considered the most important dimension of flow. A challenge-skill balance, describes the balance perceived between the challenge of a situation and one's capabilities to meet that challenge (Csikszentmihalyi, 1990; Jackson, 1996). When one experiences a perceived balance between the challenges associated with a situation and one's capabilities to meet or accomplish these demands, flow typically arises. This balance leads to success at the task, which motivates the person to repeat the task at a more challenging level and to use the skills gained previously to accomplish the more difficult task. As people become more skillful, they need more challenge. Hektner & Csikszentmihalyi (1996) note that "in order to maintain the enjoyment of flow, people must continually engage in new challenges to match their increasing skills, and they must perfect their skills to meet the challenges" (p. 4). This balance between challenge and skills is illustrated in Figure 2.

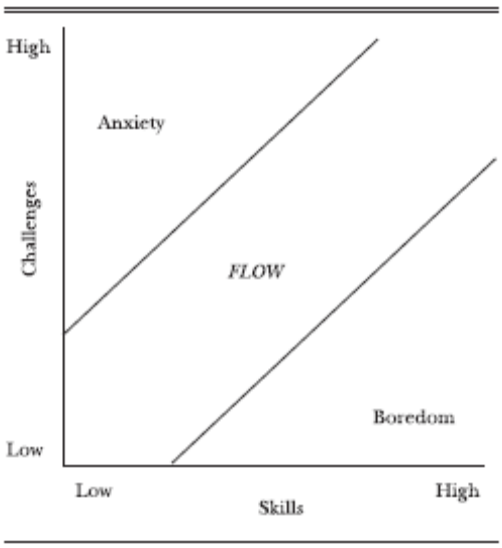

Figure 2. The “Flow Channel” where skills and challenge are balanced (Egbert, 2003).

The skill challenge balance figure shows that when the challenges and skills are perceived as being in balance, the person enjoys the moment and stretches his or her capabilities to learn new skills and increases self-esteem and personal complexity. Thus, the person feels that he or she can act on these skills without feelings of boredom, anxiety, or worry. On the other hand, when the skills outperform the challenge, there is relaxation, whereas when the skills and challenges are below average, there is apathy, and finally, when the challenges outweigh the skills there will be flow (Nakamura & Csikszentmiahlyi, 2002).

Some researchers have been critical of the focus on the high challenge-high skills balance as the most crucial dimension of flow. Jackson & Marsh (1996), for instance, noted that a sense of control may be equally or more important to the flow experience.

The second dimension, merging of action and awareness, is when deep involvement leads to automaticity and spontaneity, nothing else enters awareness and one is totally absorbed in what one is doing (Csikszentmihalyi, 1990; Jackson, 1996). The individual in flow does not operate from a dualistic perspective. Thus, one, is acutely aware of their actions but not of the awareness itself. "The moment awareness is split so as to perceive the activity from 'outside,' the flow is interrupted" (Csikszentmihalyi, 1988, pg. 151). Csikszentmihalyi (1988) suggests that one can, usually, maintain a merging of action and awareness only for a limited amount of time. When one is questioning how

he/she is doing and what should be done differently, usually the flow is broken, therefore such questions do not come to mind during a flow episode.

The third dimension is clear goals. By setting goals in advance the person in flow has a strong sense of what he or she is going to do both for the short and long term (Csikszentmihalyi, 1990; Jackson, 1996). A unique characteristic that differentiates teams from groups is common goals. Setting clear goals in advance for the short and long term can unite teams and increase group cohesion (Yukelson, 1997).

The fourth dimension, unambiguous feedback, involves clear and immediate feedback that one is succeeding in reaching one's goal. Clear and immediate feedback allows for continuous involvement in action (Csikszentmihalyi, 1990; Jackson, 1996). This feedback may be internal, external, or both. For example one may feel body sensations which encourage continuing performing and at the same time hear the coach giving positive feedback about position.

The fifth dimension is total concentration on the task at hand. In such a state, there are a minimum of thoughts distracting one from the task on hand, the mind is not wondering, one is totally involved in the task (Csikszentmihalyi, 1990; Jackson, 1996). Maslow (1962) described total concentration as: "narrowing of consciousness" and as "giving up of the past and future".

The sixth dimension is paradox of control. During flow, one has a sense of exercising control without actively trying to be in control. It is not being in control per se, but it is the sensation of the possibility of control that is enjoyable to people in flow. One feels in control without having to think about trying to be in control (Csikszentmihalyi, 1990; Jackson, 1996). In extreme situations, and even in dangerous ones, one can maintain flow only if one is not worried about the situation, or the possibility of being injured, this component is critical to the flow experience.

The seventh dimension, loss of self-consciousness, occurs when concern for the self disappears and the person feels at one or united with the activity (Csikszentmihalyi, 1990; Jackson, 1996). It can be characterized by the loss of adherence to self-security or not being concerned with what others might be thinking about you. The absence of such

preoccupation with self can be an empowering characteristic. As worries are relinquished, perception of self can become stronger, more positive as well as bring about a liberating and refreshing experience (Jackson & Csikszentmihalyi, 1999).

The eighth dimension, involves time disorientation or a loss of time awareness. This dimension describes the alteration, or sense of distortion of time, that can occur during flow (Csikszentmihalyi, 1990; Jackson, 1996). The perception of time can make hours seem like minutes, minutes seem like seconds, or in the other direction minutes seem like hours, and seconds seem like minutes, individuals may perceive they have all the time in the world for actions to be preformed.

The ninth dimension is an autotelic experience, or enjoyable experience. Doing the activity is its own reward. It is an intrinsically rewarding experience involving a sense of deep enjoyment (Csikszentmihalyi, 1990; Jackson, 1996). This experience is so enjoyable people want to engage in the specified activity for its own sake without worrying about the outcome. It is the doing itself which is the reward.

These nine dimensions are interconnected and interdependent. Thus, people experience flow as a unified "flowing" from one moment to the next in which they are in control of their actions and feel little distinction between themselves and the environment, between stimulus and response, or between past, present, and future it is not necessary for all of these characteristics to occur prior to an individual entering a state of flow. Together they represent the optimal psychological state of flow; singly they signify conceptual elements of this state (Jackson & Eklund, 2002). However, the challenge-skill balance does appear to be one of the most crucial dimensions in order for one to experience flow. In turn, once the dimensions do occur simultaneously, the flow experience becomes very enjoyable; it remains etched in memory, and provides a blueprint for returning to this optimal state (Jackson & Csikszentmihalyi, 1999). The potential to achieve this enjoyable state again and again is what keeps people motivated to pursue the activity (Csikszentmihalyi, 1975, 1990).

An important support for validation of the existence of flow state is the description of its experience by athletes. Jackson (1996) found similarity between athletes' descriptions of their flow experiences and the dimensions of flow described by Csikszentmihalyi

(1990). Through content analysis of athletes' interviews, the dimensions of flow most represented across the group's data were the autotelic experience of flow, total concentration on the task at hand, merging of action and awareness, and the paradox of control (Jackson, 1996).

The dimensions of flow have been theoretically discussed and supported by research (Jackson, 1995, 1996; Jackson & Marsh, 1996). Sport and exercise psychology researchers recognized the need for developing multidimensional and sport-specific measurements of flow (Gill, Dzewaltowski, & Deeter, 1998). However, it is recognized that it is still necessary to incorporate quantitative assessments of the relationship between flow and other variables, an investigation that may delineate systematic relationships between potential antecedents of flow.

Csikszentmihalyi (1990) claims that there are particular activities that are more likely to produce flow, and personal traits that help people achieve flow more easily. Flow is not dependent upon the objective nature of the challenges or the objective level of one's skills, but it is entirely dependent on one's perception of the challenges and their skills (Csikszentmihalyi, 1975).

Jackson (1992) further hypothesized that specific factors are related to flow occurrence. In her study with skaters she found that flow was facilitated by positive mental attitude, positive pre-competitive and competitive affect, maintaining appropriate focus, physical readiness, and partner unity. Factors perceived to prevent or disrupt flow were physical problems/mistakes, inability to maintain focus, negative mental attitude, and lack of audience response. Jackson (1995) expanded the research by examining athlete's responses to questions about what facilitated, prevented, and disrupted flow by interviewing 28 athletes from seven different fields of sports. The results revealed 10 dimensions and included salient factors such as physical and mental preparation, confidence, focus, how performance felt, optimal motivation, and arousal.

Kimiecik and Stein (1992) proposed a framework that enabled researchers to examine the interaction between personal and situational variables and flow. The resulting equation included the variables of task involvement, performance, feeling good, focus, and arousal level before competing, were collectively a strong predictor of global flow.

This findings highlights the influence of many factors on the occurrence of flow, and makes it important for any team or individuals who wishes to make an intervention geared to create individual flow or team flow to collect, understand, and analyze data regarding personal and situational variables. If optimal experience is a goal for sport psychology practitioners, then interventions that promote task involvement, focus on the task at hand, finding optimal arousal and the positive interpretation of physical cues would be potentially advantageous (Robson & Karageorghis, 2004).

2.2 Team flow & group cohesion

Group cohesion, considered by some theoreticians to be the most important small group variable (Golembiewski, 1962), is defined as: "a dynamic process that is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of members affective needs" (Carron, Brawley, & Widmeyer, 1998, p. 213).

Carron, Brawley, & Widmeyer (2002) lead the group cohesion research in sport settings, and provided a strong theoretical construct of cohesion as a dynamic process that result in a tendency for a group to be united. An individual's perception of a group to which they 'belong', can be defined in terms of his or her perception of integration within a group and their attraction to remain a member of a particular group (Brawley, Widmeyer, & Carron, 1987). Based on this definition Paskevich et al., (2001) proposed a model of cohesion.

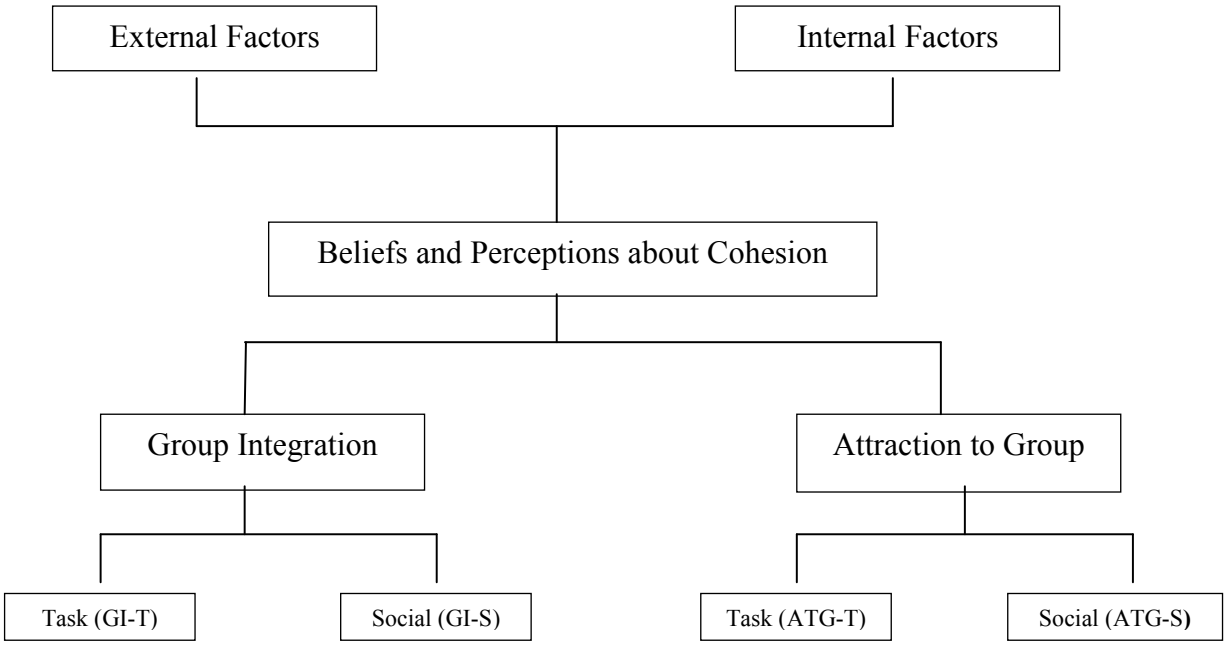

Figure 3. Model of Cohesion. (Paskevish, Estabrooks, Brawley & Carron, 2001)

The model of cohesion evolved from four major assumptions. The first assumption suggests that group cohesion is influenced by external and internal factors. These factors influence the beliefs and perception about cohesion. The second assumption suggests that cohesion, a group property, can be accessed through the perceptions and beliefs of individual and group members. These beliefs and perception influence group integration and attraction to group. The third assumption suggests that there are two social cognitions that each group member holds about the cohesiveness of the group; they are related to the group as a totality and to the manner in which the group satisfies personal needs and objectives." Carron et al. (1998, p.217) defines these two concepts, respectively: "Group integration reflects the individual's perception about the closeness, similarity, and bonding within the group as a whole, as well as the degree of unification of the group field." Individual attraction to the group reflects the individual's perception about personal motivations acting to retain one in the group, as well as one's personal feelings about the group." Both perceptions are claimed to help bind the group (Carron at al., 1985). The final assumptions suggest two important focuses to a group member's perception. The first represents a general orientation towards achieving the group's objectives ("task orientation"). The second is a general orientation or motivation to develop and maintain social relationships and activities within the group ("social orientation"). According to the model, these beliefs and perceptions act together in creating both the group's and individual members' dynamic of cohesiveness. As seen in figure 3 there are four specific constructs constituting perceived cohesiveness. 1) Group integration - social (GI-S) refers to the group members' perception of togetherness and bonding within the group as a whole around the group as a social unit. 2) Individual attraction to the group - social (ATG-S) refers to the desire of a group member to stay in the group. 3) Group integration - task (GI-T) refers to the group members' perception of togetherness and bonding within the group as a whole around the group's task. 4) Individual attraction to the group – task (ATG-T) refers to the perception about their personal involvement with the group's task.

Each construct or dimension alone may be sufficient to promote group "togetherness"; however, group cohesion is assumed to be a dynamic process. Therefore, it seems more likely that each dimension contributes at least, in part, to the team's overall level of cohesion (Lazarovitz, 2003).

Flow exists in team sport settings (Cosma, 1999; Jackson, 1995), and anecdotal evidence suggested that interaction among team members is important in inducing and maintaining a "flow" state (Cantona & Fynn, 1996). It is increasingly being recognized that team variables such as group cohesion, are important in optimizing team performance (Carron, 2002). It was therefore hypothesized that group cohesion would be positively associated with team flow.

There are some similarities between cohesion and flow constructs. Both structures are multidimensional and dynamic in nature. Athletes are known to move in and out of flow (Jackson & Csikszentmihalyi, 1999), making it a dynamic process. Two dimensions of the flow construct, clear goals and autotelic experience, exist in group cohesion. Athletes work together towards a common goal and being intrinsically motivated to experience positive affect. The flow model as mentioned is constructed by nine interdependent dimensions. Similarly, the group cohesion is characterized by multiple (i.e., four) components that differentially contribute towards the creation and maintenance of team togetherness.

Although there is no published research on the influence of group cohesion on team flow, there is an abundance of research regarding the influence of group cohesion on team performance. There have been studies in which cohesion has been found to be positively associated with team success; many of those have been from the sport of basketball. In 2002, Carron, Colman, Wheeler, and Stevens carried out a Meta analysis of 46 studies that had examined the association between team cohesiveness and team success. An overall moderate to large positive relationship was found. Moreover, the type of cohesiveness present – task versus social – is irrelevant insofar as team success is concerned (Carron, Hausenblas, & Eys, 2005).

Two unpublished dissertations focused on the relationship between team flow and group cohesion (Mugford, 2006; Lazarovitz, 2003). Mugford (2006) found that although both social and task cohesion were significantly and positively associated with flow states, rowers were more likely to achieve a flow state through positive task cohesion than by having positive social characteristics. Task cohesion produced significantly stronger positive relationships with autotelic experience ($r = .47$), unambiguous feedback ($r = .32$) and paradox of control ($r = .27$). In the same study, further analysis examined the

influence of performance outcome and competition level on these relationships. As hypothesized, winning crews (N= 69) possessed more and stronger relationships between flow and cohesion than losing crews (N=49). In fact, losing crews appeared to fail to achieve a flow state. While there were significant differences between varsity and novice rowers, the pattern of these relationships were similar to the overall sample.

Another attempt to understand the relationship between group cohesion and performance was performed by Lazarovitz (2003). The participants (N=114) were elite female ice hockey players from seven Canadian university, college, and professional teams, and their head coaches. The measures of flow were individual state flow, individual dispositional flow, team state flow, and team dispositional flow, and group cohesion. There were four measures of athletic performance including: players' perceptions of personal and team performances after a game, coaches' perceptions of team performance after the same game; and an objective score based on performance outcome (the difference between the two team scores). Several patterns of findings emerged. First, patterns of relationships occurred among the four measures of flow and group cohesion. Second, individual state flow contributed to player ratings of self-performance. Third, team state flow contributed to both player and coaches' ratings of the team performance. Fourth, team state and dispositional flow both contributed to actual game scores. Fifth, group cohesion did not provide a significant nor consistent contribution to athletic performance over and above that of individual flow or team flow. The overall findings indicated that female ice hockey players' perceptions of individual flow and team flow (state and dispositional) differentially influenced performance, depending on the kind of performance measure.

In this research team flow and group cohesion were correlated this may point in the direction of a dynamic reaction between group cohesion, to team flow, to performance.

2.3 Emotions

Sport performance at any level can involve a high degree of fluctuations in emotions, both negative and positive. Emotions are assumed to play a role in performance variability and be relevant to the quality of the sport experience (Pensgaard & Duda, 2003). Emotion is commonly defined as a prompt reaction to an actual or imagined stimulus event, which involves a subjective experience (cognitive component),

physiological response (arousal or activation), and action tendencies (Deci, 1980). Subjective experience relates to the individual's appraisal of the significance of a particular emotional situation in terms of personal harms and benefits (Lazarus, 2000). Physiological responses entail changes in heart rate, blood pressure, visceral functioning, and other autonomic nervous system reactions. These physiological changes of arousal or activation may energize approach and avoidance (or withdrawal) behaviours. Both arousal and activation involve cognitive and physiological activity on the part of the organism (Robazza et al., 2008). Indeed, within the sport literature, there has been a renewed interest in both the antecedents and consequences of emotional responses (Cerin, et al., 2000).

Emotional responses related to optimal performance were defined by the Individual Zones of Optimal Functioning. This is based on a psycho biosocial model, developed by Hanin (2000, 2007) to describe, predict, explain, and control athletes' optimal and dysfunctional experiences related to their successful and unsuccessful performances. It is an individualized alternative, recognized as a leading and much researched perspective in sport psychology.

In its current form, the IZOF model posits five basic dimensions accounting for a broad range of psycho biosocial states related to performance (Hanin, 2000, 2003). These states should include at least five interrelated dimensions: form, content, intensity, time, and context. Form, content, and intensity describe the structure and function of the subjective emotional experience and meta-experience; time and context characterize dynamics of performers' subjective experience in a specific social setting. These five basic dimensions include traditional emotion components and provide a tool for a systematic description of emotional experience (Hanin, 2007).

According to Hanin (2000, 2007), emotions can be categorized as positive and negative based on the hedonic tone (i.e. pleasant or unpleasant) as well as the functional impact (i.e. optimizing or dysfunctional) of the emotion. Therefore, a unique consideration in Hanin's approach is that any emotion (whether positive toned or negative toned) can have both an optimizing and a dysfunctional effect with respect to an athlete's performance. That is, while some emotions are deemed beneficial to one athlete, they

may prove debilitating for another, or have both functions for the same athlete even during the same game.

The IZOF model attempts to predict individually successful and less than successful performances based on current emotional states and previously established individualized criteria.

The IZOF-based emotion profiling procedure when shared with the athletes can help them become more aware of an ideal performance state that is specific to them and the sport related tasks involved thereby setting the stage for them to use psychological skills and strategies to attain and maintain this mental and emotional optimal state.

2.4 Team flow & Performance

Previous research has shown that both flow and group cohesion constructs have a positive relationship with 'peak performance' (Carron, 2002; Whalen. 1997). However, it is undecided whether this is a direct, an intervening or an interactive effect. Since the limited research done in this area has only assessed the strength of relationship and not a cause–effect inference, this question remains undetermined.

By its very nature, as an optimal performance state, flow is highly related to peak or best performances in an activity (Mugford, 2006). Peak performance was described as representing the “superior use of human potential” (Privette, 1981) and defined as “an episode of superior functioning” (Privette, 1983). Kimiecik and Jackson (2002) depicted peak performance in sport as a “release of latent powers to perform optimally within a specific competition”. During peak performances, athletes typically perform above their usual levels. They produce “personal bests” and achieve outstanding accomplishments (Jackson & Roberts, 1992; Privette, 1981).When considering a peak experience and flow we generally refer to moments or periods of ecstasy and internal enjoyment respectively. Therefore emotions play a central role in optimal performance and flow.

The focus on a high level of functioning and the achievement of desired outcomes are tied closely to the goals of elite-level performers. However flow experiences is part of the experiences of teams at all levels. Peak performance could be analyzed and achieved after the competition. Peak experience could be experienced during a break of the competition or at its very end. Team flow could be experienced during the competition itself, or even during practice.

Jackson & Roberts (1992) report that both flow and peak performance (i.e., superior functioning/one's highest level of performance) are more likely to occur when athletes focus their attention more completely on the performance task or process (i.e., mastery orientation) rather than on the performance outcome (i.e., competitive goal orientation). Thus, individuals who are more mastery-oriented are more likely to experience the components of flow (especially absorption) and are then more likely to experience peak performance (Lazarovitz, 2003). In contrast, focusing on the outcome and/or on out-performing others may not help athletes achieve a state of being fully focused on the task and experiencing a sense of control and effortlessness, which are characteristics of state flow. This is consistent with the work of Duda (1989) who suggested that mastery-oriented individuals experience greater intrinsic interest in tasks, persist longer, and perform tasks for their own sake. Several other investigators have suggested that perceptions of personal ability and ability attributions play an important role in mediating motivation and perception of success and failure (e.g., Bandura, 1986, 1997; Roberts, 1984).

Although the concept of 'team flow' is only in the initial stage of definition and exploration, we believe in its usefulness and potential as a theoretical and practical concept.

3 PURPOSES AND AIMS OF THE STUDY

3.1 Purposes of study

The concept of team flow is relatively new and unexplored. Therefore, the main purpose of this study was to highlight and emphasis the unique contribution of team flow to sport performance. This purpose was attempted by three approaches. The first approach was to define the dimensions, and occurrence of team flow. The second was to compare and contrast team flow with individual flow. The third was to assess the correlation between team flow and relevant and influential concepts.

3.2 Aims of the study:

1 To study the occurrence of individual flow and team flow.

Hypothesis:

1.1 The occurrence of individual flow and team flow are highly correlated (Quinn, 2003).

2. To study the ranking of the dimensions of individual flow and team flow.

Hypothesis:

2.1 There are significant differences in ranking the dimensions of individual flow verse team flow.

Hypothesis:

2.2 There are significant correlations between the dimensions of team flow and individual flow.

Hypothesis:

2.3 There are significant differences between the dimensions of individual flow when experiencing flow verse not experiencing flow.

Hypothesis:

2.4 There are significant differences between the dimensions of team flow when experiencing team flow verse not experiencing team flow.

3. To study changes in group cohesion during the research period.

Hypothesis:

3.1 Group cohesion significantly increases from preseason to after game six (Yukelson, 1997).

4. To study the relationship between group cohesion and team flow.

Hypothesis:

4.1 There are significant correlations between group cohesion and team flow.

5. To study the relationship between team flow and emotions.

Hypothesis:

5.1 There are significant correlations between the number of players indicating experiencing team flow to the average team's difference of intensity of the individual emotional profiling from the optimal individual emotional profiling.

6. To study the relationship between performance and emotions.

Hypothesis:

6.1 There are significant correlations between performance and the difference of intensity of to the average team's difference of intensity of the individual emotional profiling from the optimal individual emotional profiling.

4 METHODS

This research is an exploratory quantitative and follow up case study.

4.1 Participants

The participants in this research were all players in one basketball team that played in the highest level of youth basketball league in Israel. The team included 14 male basketball players and their coach. The mean age of the participants was 13 (SD= .41), with a range of 13-14 years. All the athletes were Israeli and Jewish, residing within the same geographical vicinity. The study started with 14 player, one player resigned from the research after game 4.

4.2 Measures

The Flow State Scale -2(FSS-2) (Jackson & Eklund, 2002) (Appendix 3) was based on the original FSS (Jackson & Marsh, 1996). The FSS-2 was designed to be completed after a specific event, to assess the state, or situation-specific experience of flow. The FSS-2 consists of 36 items, based on Csikszentmihalyi's (1990) nine theorized flow dimensions (challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of consciousness, time disorientation, and autotelic experience).

Participants were asked to reflect upon the 'optimal experiences' that arose during the game and report on the degree to which they perceived the existence of flow dimensions on a 5-point Likert rating scale (1: Strongly disagree to 5: Strongly agree). An example for each dimension is: Challenge-skill balance: “I was challenged but I believe my skills will allow me to meet the challenge”; Merging of action awareness: “I made the correct movements without thinking about trying to do so”; Clear goals: “I knew clearly what I wanted to do”;Unambiguous Feedback: “It was clear to me how my performance was going”; Total concentration: “My attention was focused entirely on what I was doing”; Paradox of control: “I had a sense of control over what I was doing”; Loss of self consciousness: “I was not concerned with what other may have been thinking of me”;Time disorientation: ”Time seemed to alter (either slowed down or speeded up)”; Autotelic experience: “I really enjoyed the experience”; Each dimension of flow is assessed by its own subscale and has four items.

Due to the obvious difficulties of quantitatively measuring an abstract construct, there has been a great deal of focus on establishing appropriate levels of reliability and validity for the FSS-2 (Mugford, 2006). The internal consistency of each dimension within the flow scale is acceptable as the Cronbach α coefficients range from .80 to .92, with a mean of .87 (Jackson & Eklund, 2002, Mugford, 2006). In the present study the Cronbach α ranged from .79 (min) to .83 (max) for the dimensions of paradox of control and unambiguous feedback respectively. The high internal consistency indicates that all items make up the scales that measure the same construct, individual flow (appendix 10). Research supports the multi-dimensionality of the flow construct (e.g., Jackson & Marsh, 1996). Logical and content validity were developed through qualitative analysis which investigated the perception of the experience of 'flow' (Jackson, 1995; Jackson & Marsh, 1996; Marsh & Jackson, 1999; Jackson & Eklund, 2002). Construct validity varied from .17 to .72 (median r = .50) thus providing full support for the scales (Cosma, 1999). In addition, Confirmatory factor analyses supported the construct validity of the FSS-2 (Jackson, Martin, & Eklund, 2008).

The Team Flow State Scale (TFSS) (Cosma, 1999) (Appendix 4), was designed to assess the flow like experiences in teams that occur during participation in an activity. TFSS is very similar to the FSS-2 in format and content (i.e., similar contents in the 36 items and contains the same nine dimensions). The TFSS was based on amendment of the nine dimensions of the Flow State Scale (FSS) (Jackson, 1992) (challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of consciousness, time disorientation, and autotelic experience). It was developed by rewording the Individual Flow State Scale 2(FSS-2) to reflect the experience of flow from a team state perspective. For example items were re-worded by changing 'I' statements into 'we' statements, using the words "we," "team," or "us" wherever feasible. Example for item: “I perceive that the team was challenged, but we believed our skills would allow us to meet the challenge.” As with the FSS-2, participants were asked to reflect upon the 'optimal experiences' that arose during the game and reported on the degree to which they perceived the existence of the existence of flow within the team on a 5-point Likert rating scale from 1 (strongly disagree) to 5 (strongly agree).

Reliability and validity of the TFSS is based on the similarity and the strong reliability and validity of the FSS-2. In the present study the Cronbach α ranged from .84 (min) to

.87 (max) for the dimensions of challenge skill balance and unambiguous feedback, respectively. The high internal consistency indicates that all items make up the scales that measure the same construct, team flow (appendix 10). Lazarovitz (2004) and Mugford (2006) have used the TFSS in previous studies. In addition, the TFSS was piloted with current and retired elite female ice hockey players in order to assess readability and comprehension of instrument items (Lazarovitz, 2003).

Group Environment Questionnaire (GEQ) (Carron, Widmeyer, & Brawley, 1985) (Appendix 7) was designed to measure individual perception of intra-group relations (or cohesion) for athletes. This multidimensional instrument contains 18 items, based on a conceptually driven model of cohesiveness that is broken down into four separate dimensions. The summation of the four scores comprises an individual's overall perception of group cohesion. Sample of items from the four scales on the questionnaire include: "I do not like the style of play on this team" (ATG-T), "I am not going to miss the members of this team when the season ends" (ATG-S), "Our team members have conflicting aspiration for the team's performance" (GI-T), and "Our team members rarely party together" (GI-S). The items are responded to on a 9 point Likert-type scale ranging from 1 (strongly disagree) to 9 (strongly agree).
Existing validity and internal consistency for the GEQ are very positive. The GEQ has been used to examine cohesion in more than 45 sport studies, for review see (Carron, Brawley, & Widmeyer, 2002). Across the four main dimensions, specifically, individual attraction to the group-social (ATG-S), individual attraction to the group-task (ATG-T), group integration-social (GI-S) and group integration task (GI-T), possessed Cronbach α of r=.64, r=0.75, r=.76, and r=.70, respectively. In the present study ATG-S, ATG-T, GI-S, and GI-T possessed Cronbach α of r=.66, r=.69, r=.59, and r=.39, respectively (appendix 11). Researchers reported the GEQ having adequate content, concurrent (criterion-related), predictive and construct validity (Brawley, Widmeyer, & Carron, 1987). Content validity was determined by a panel of judges labeled as experts (Brawley, Widmeyer, & Carron, 1987). Concurrent validity was shown when the GEQ predicted correspondence with similar measures of cohesion and not with other constructs.

The Individual Emotional Profiling (Hanin, 2000) (Appendix 4) was designed to measure the range and intensity of emotions reported by the player during their last

game, or during their best or worst competitions. The emotional stimulus list includes 46 emotions for positive emotions and 47 for negative emotions. The Individual Emotional Profiling includes four emotional categories of pleasant/unpleasant emotions. Immediately after each game the players were asked to choose up to five emotions from the stimulus list, in each of the four categories (N- harmful negative, N+ harmful positive, P+ helpful positive, P- helpful negative)**.** The players were given the option to add an emotion that was not written in the stimulus list. The next step was to ask, the players, to copy the chosen emotions in each dimension and grade their intensity**.** The intensity range was from 0 (nothing at all) to 10*(Maximal possible).

After the six games were played an optimal profile was constructed in an individual meeting with each player, following a similar procedure as the one done after each game. The players were asked to recall their best basketball performance ever and then choose emotions which best represent how they felt during that specific game from the stimulus list (the players were given an option to add an emotion if necessary). The next step was to rate the intensity of their emotions during that game.

Empirical evidence for Hanin's model is based on the testing of athletes over many competitions and thereby demonstrating the validity of the Individual Emotional Profiling (Hanin, 1980, 1986). Adequate reliability for the positive and negative affect was shown by Hanin & Syrja (1996) Cronbach α ranging from .76 to .90 with the highest internal consistency Cronbach α=.90 observed in positive and negative optimal items.

The Coach Self-Report of Team Performance Scale (Appendix 3) was designed to measure the coach's assessment of the team performance after each game. The scale was constructed on the basis of similar forms (Lazarowitz, 2003; Mugford, 2006) and adapted by the current researcher to the basketball court, for the purpose of this study. It was designed to capture the coach's assessment of team performance. The coach's report included information about the result of the match, and the coach's assessment on two broad categories of indicators; the team's psychological indicators, and the skill-based measures. The skill-based measures included: passing, shooting, rebounding, dribbling, offense in general, and defense in general. The psychological indicators included, goals, strategy, cooperation, moral, motivation, discipline, ambition to win, perceived challenge, and group cohesion. After each game, the coach filled the coach's report of performance scale on a 7 point Likert Scale, from 1 (Very Low) to 7 (Very high). The

ratings for each domain were summed and then calculated as a percentage of the total possible score for the domain (Technique = 42; Psychology = 63). This form has face validity.

Adaptation Issues:

In the present research, the FSS-2, TFSS, Individual Emotional Profiling, and GEQ were adapted to Hebrew and piloted with three basketball players with similar characteristics to the participants in the study with respect to age, culture and sport experience. Minor modifications were made in the TFSS to make the questions clearer. As a consequence of piloting the translated Individual Emotional Profiling, the emotions of "resolute" and "furious" required clearer definition. The researcher translated these emotions again and assured the piloted participants understood the modified translation for these emotions. No modifications were needed in the FSS-2, or in the GEQ.

4.3 Research procedure

This research was done in connection to my practicum work with a basketball team, a situation which enabled me to collect data, as well as to create a trusting relationship with the players and the coach. The research included the following stages:

Consent and Cooperation - I first met with the coach and explained the research goal and the procedures that will be included in the research, and secured his interest and cooperation. Then I introduced this information to the players and asked each player to share his invitation with his parents, and to confirm their mutual agreement by signing the consent form (appendix 1). All players returned this form the following week.

Preparing and adaptation of the research instruments – Since all the instruments were written in English, I translated them to Hebrew with the help of a professional editor, and tested their clarity by requesting three basketball players with similar characteristics (age, education, ethnicity, and basketball background) as the players that would participate in the study, to fill them out. Their remarks led to minor comprehension revisions.

Collecting Data

Ethics- The players (minors) and their parents' were notified of the research goal, procedures and its demands from the players. It was stressed that the players could decide not to participate in the study, or to withdraw with no questions asked or with no

resulting consequences. If they agreed, players and their parents were asked to sign an informed consent form (appendix 1) acknowledging their agreement to participate in the study. At the beginning consent was given by all 14 team players.
Although the questionnaires were collected by the coach, he did not review them or commented on them. He made no effort to motivate or encourage the players to participate. However, his presence and authority, and possibly the fact that all their peers were taking part in the study, could have created some pressure for compliance.

The fact that one player decided to resign from the study after game 4 emphasized the players ability to exit based on their free will. The player was not encouraged to rejoin the research and his choice was respected by the researcher, the coach, and his peers. Upon completing the research, the players received individual emotional profiles for each game they participated, an optimal emotional profile, and summarization of their mean scores in team flow and individual flow, with explanations regarding each dimension and recommendation how to achieve flow.

The confidentiality of the data was assured by coding the results and presenting them anonymously and collectively. Individual results and their significance were shared with the players only in face-to-face individual meetings.

Base Line Data – At the beginning of the season, I met the players during a practice session at the basketball court and explained the purpose of this study, the requirements involved, and the expected benefits the team can expect from this research. Then I introduced each one of the questionnaires involved in the study (Demographic data, TFSS, FSS-2, GEQ and Individual Emotional Profiling), explained the instructions for completing them, and gave each player a set of the questionnaires to fill and return to the coach the following practice session. The questionnaires included were demographic data and GEQ. All players returned the questionnaires by October 2nd, 2008.

Continuous data collection – Immediately after completing each one of the next six consecutive games, the coach gave each player the questionnaires to fulfill (FSS-2, IZOF, TFSS). If the team played at home, they filled the questionnaire in the dressing room after the match. If they played away they filled the questionnaire on the bus. It took the players an average of 25 minutes to fill all the three questionnaires after each game. The coach collected the material and delivered them to me without reviewing

them. The coach filled the Coach Self-Report of Team Performance Scale after each game.

Table 1

Game schedule

Game 1	Game 2	Game3	Game 4	Game 5	Game 6
16.10.2008	23.10.2008	30.10.2008	06.11.08	27.11.08	06.12.08

Closure and Data Review

Following game six, which marked the end of the data collection period, the players filled the GEQ for the last time. I met individually with each player and discussed together with them their achievements, their overall feelings towards their team and coach, and assessed their optimal emotional state as suggested within the IZOF model developed by Hanin (2000, 2007).

During the research period, I met with the coach individually, and gave him feedback regarding individual players and the team as a whole. At our last meeting, we discussed recommendations and future interventions for the team, and for individuals in the team. Each player received his optimal individual emotional profile and a summarization of his scores in individual flow and in team flow with recommendations as how to achieve flow more frequently.

4.4 Data analysis

In order to assess the differences in team flow within the period of the six games a repeated measure ANOVA was conducted. Descriptive statistics were calculated to show the frequency, mean and standard deviation of individual flow and team flow. A Chi-square test of independence was calculated to test whether team flow and individual flow are independent or correlated events. A Cronbach α measure was used to assess the internal reliability for the scales for team flow, individual flow, and group cohesion, in this sample. A paired sample t-test of the means of each of the nine dimensions of team flow and individual flow in order to rank the dimensions into significantly different categories. An independent sample t-test between cases indicating experiencing flow and cases indicating not experiencing flow was conducted to test which dimensions are significant for the flow experience. A Spearman rho coefficient was used to calculate the correlations between the nine dimensions of team flow and

individual flow. These correlations were calculated to test if the dimensions of individual flow and team flow are the same phenomena, and to check correlations between the different dimensions. A Spearman rho coefficient was also calculated between the nine dimensions of team flow and the four dimensions of group cohesion, to check if these factors are correlated with each other. A paired sample t-test between group cohesion at pre season and group cohesion at mid season was conducted to check the differences in group cohesion between pre-season and mid-season.

A Spearman rho coefficient was used to calculate the correlations between team flow and emotions. The team difference between the intensity of the individual emotional profile to the optimal individual emotional profile was calculated in three steps. The first step was to calculate in each game, for all players, the intensity of the four categories of the individual emotional profile. The second step was to calculate the difference between this intensity to the optimal individual emotional profile. The third step was to average the difference between the individual emotional profiles to the optimal emotional profile for each game since the number of players varied from game to game. Measure of team performance was based on the coach's ratings for technique and psychology. Each domain was summed and then calculated as a percentage of the total possible score for the domain (technique =42; psychology = 63). A Spearman rho coefficient was used to calculate the correlations between the individual emotional profile and the optimal emotional profile with the performance for each game.

5 RESULTS

1. Occurrence of team flow and individual flow

Table 2

Frequency of individual flow and team flow by players in six games

Player	Game 1		Game 2		Game 3		Game 4		Game 5		Game 6		Total	
	IF	TF	IF	TF	IF	TF	IF	TF	IF	TF	IF	TF	IF	TF
1	-	-	1	0	0	1	0	0	1	0	0	0	2	1
2	1	1	-	-	-	-	-	-	-	-	-	-	1	1
3	-	-	0	1	1	0	-	-	0	1	-	-	1	2
4	-	-	1	0	1	1	0	0	0	0	0	0	2	1
5	1	0	1	1	1	1	0	0	0	0	0	0	2	2
6	-	-	0	0	1	1	1	0	0	0	0	0	2	1
7	1	0	1	0	1	1	0	0	0	0	0	0	3	1
8	0	0	0	1	0	1	0	0	0	0	-	-	0	2
9	0	0	0	0	1	0	0	0	0	0	0	0	1	0
10	1	1	0	1	0	1	0	1	0	1	1	1	2	6
11	-	-	-	-	1	1	0	0	-	-	1	0	2	1
12	1	0	0	1	1	0	0	0	1	0	0	0	3	1
13	0	0	0	0	-	-	-	-	-	-	-	-	0	0
14	-	-	0	0	1	1	0	0	-	-	-	-	1	1
Total	5	2	4	5	9	9	1	1	2	2	2	1	23	20

Notes:
0 no flow; 1 flow; - player did not participate; IF – individual flow; TF – team flow

Two players did not report experiencing individual flow in any of the games. In addition, two players did not report experiencing team flow in any of the games. Another interesting result indicated that one player experienced team flow during all the games. In the team level individual flow was experienced more frequently (23) then team flow (20). An exceptional result appears in game 3, as 9 players (75%) experienced individual flow and team flow.

Table 3
Sum of frequency and percentage of occurrence of individual flow and team flow in six games

		Team Flow		
		yes	no	Total
Individual Flow	Yes	9 43%	13 32%	22 35%
	No	12 57%	28 68%	40 65%
	Total	21 100%	41 100%	62 100%

A Chi-square test of independence was calculated comparing the result of the occurrence of team flow and individual flow. No significant relationship was found ($x^2(1)= .770$, p=0.38). Team flow and individual Flow appear to be independent events. Before proceeding with our next research question, we assessed the internal reliability of team flow and individual flow for our sample. A Cronbach α measure was used to assess the internal consistency of each scale for our sample.

Table 4
Descriptive statistics of team flow (n=61) and individual flow (n=63)

	Team Flow		Individual Flow	
Dimension	M	SD	M	SD
Challenge Skill Balance	4.23	0.91	3.98	0.81
Merging of Action & Awareness	3.53	1.14	3.27	1.15
Clear Goals	4.47	0.74	4.28	0.71
Unambiguous Feedback	4.07	1.07	3.88	1.04
Total Concentration	4.08	0.82	3.92	0.85
Paradox of Control	4.12	0.81	3.98	0.80
Loss of Consciousness	3.83	0.93	3.98	0.93
Time Disorientation	3.54	1.15	3.40	1.20
Autotelic Experience	3.92	1.00	3.67	1.12

This table is a descriptive table showing the means and standard deviations for team flow and individual flow, in the nine dimensions of flow.

Table 5

Comparative ranking and grouping of the nine dimensions of team flow and individual flow

Rank/Group	Team flow	Individual Flow
1	Clear Goals	Clear Goals
2	Challenge Skill Balance Paradox of Control Total Concentration Unambiguous Feedback	Loss of Self-Consciousness Challenge Skill Balance Paradox of Control Total Concentration Unambiguous Feedback Autotelic Experience
3	Unambiguous Feedback Autotelic Experience Loss of Self Consciousness	Autotelic Experience Time Disorientation
4	Loss of Self-Consciousness Time Disorientation Merging of Action & Awareness	Time Disorientation Merging of Action & Awareness

Ranking for the nine dimensions of team flow and individual flow by groups, shows the emergence of four consecutive groups. The groups were divided when there were significant differences between the dimensions**.** The similarity between team flow and individual flow is pronounces with the only noted significant difference in the dimension of "Loss of Self-Consciousness".

Table 6

Comparative mean of flow dimensions for cases indicating experiencing individual flow (n=23) and cases indicating not experiencing individual flow (n=40)

Dimension	Flow	M	SD	t	Sig (2-tailed)
Challenge Skill Balance	yes	4.35	0.57	3.26	**.0.002
	no	3.76	0.85		
Merging of Action & Awareness	yes	3.51	1.15	1.39	0.16
	no	3.09	1.13		
Clear Goals	yes	4.50	0.71	1.86	0.07
	no	4.15	0.69		
Unambiguous Feedback	yes	4.11	1.04	1.35	0.18
	no	3.75	1.03		
Total Concentration	yes	4.10	0.91	1.30	0.19
	no	3.81	0.80		
Paradox of Control	yes	4.31	0.75	2.58	0.01**
	no	3.79	0.78		
Loss of Self- Consciousness	yes	4.20	0.94	1.44	0.15
	no	3.85	0.91		
Time Disorientation	yes	3.43	1.40	0.14	0.88
	no	3.38	0.10		
Autotelic Experience	yes	4.21	0.95	2.90	0.006**
	no	3.36	0.33		
Total	yes	4.11	1.00	5.3	0.001**
	no	3.66	0.96		

** Correlation is significant at the 0.01 level (2 tailed)
* Correlation is significant at the 0.05 level (2 tailed)

Table 6 presents data of independent sample t-test between cases indicating experiencing individual flow (“yes” group) and cases indicating not experiencing individual flow (“no” group). In our sample of 63 cases, 23 cases reported experiencing individual flow in the period of six games. 43 cases reported not experiencing individual flow in this period. An independent samples t-test comparing the mean scores of the "yes" groups and "no" groups found a significant difference between the means of the two groups with the "yes" group being significantly higher on three dimensions: 'Challenge Skill Balance' ($t(62)=3.26$, $p=0.002$); 'Paradox of Control' $t(62)=2.58$, $p=0.013$; 'Autotelic Experience' ($t(62)=2.90$, $p=0.006$. In addition the “yes” group was higher than the ”no” group in all dimensions, and the total for the “yes” group was significantly higher than the total for the “no” group ($t(62)=5.3$, $p=0.001$

Table 7

Comparative mean of flow dimensions for cases indicating experiencing team flow (n=20) and not experiencing team flow (n=41)

Dimension	Team Flow	M	SD	t	Sig. (2tailed)
Team Challenge Skill Balance	yes	4.40	0.68	1.24	0.21
	no	4.15	0.72		
Team Merging of Action and Awareness	yes	3.412	1.25	-0.56	0.57
	no	3.591	1.10		
Team Clear Goals	yes	4.63	0.45	1.58	0.11
	no	4.39	0.62		
Team Unambiguous Feedback	yes	4.36	1.19	1.51	0.13
	no	3.92	0.98		
Team Total Concentration	yes	4.33	0.74	1.74	0.08
	no	3.95	0.83		
Team Paradox of Control	yes	4.35	0.66	1.66	0.10
	no	4.02	0.75		
Team Loss of Self - Consciousness	yes	3.52	1.20	-1.82	0.07
	no	3.98	0.74		
Team Time Disorientation	yes	3.48	1.31	-0.27	0.78
	no	3.57	1.07		
Team Autotelic Experience	yes	4.33	0.86	2.47	0.01**
	no	3.7	1.01		
Total	yes	4.09	1.05	1.95	0.05
	no	3.92	0.91		

** Correlation is significant at the 0.01 level (2 tailed)
* Correlation is significant at the 0.05 level (2 tailed)

Table 7 presents data of independent sample t-Test between cases indicating experiencing individual flow (“yes” group) and cases indicating not experiencing individual flow (“no” group). In our sample of 61 cases, 20 cases reported experiencing team flow, and 41 cases reported not experiencing team flow. An independent-samples t test comparing the mean scores of the "yes" and "no" groups was conducted. The “yes” group was significantly higher than the “no” group in one dimension: 'Autotelic

Experience' (t(60)=2.47, p=0.017). In addition the total “yes” group was higher than the total ”no” group but not significantly (t(6)=1,95, p=0.05).

Table 8

Spearman's rho correlations between individual flow & team flow

Dimension	CS	AA	CG	UF	CT	PC	LSC	TT	AE
TCS	0.41**	0.31 *	0.32 *	0.14	0.31 *	0.48**	0.42**	0.27 *	0.53**
TAA	0.47**	0.76**	0.40**	0.37**	0.43**	0.47**	0.37**	0.47**	0.29*
TCG	0.45**	0.20	0.55**	0.24	0.44**	0.57**	0.53**	0.26**	0.43**
TUF	0.17	0.45**	0.46**	0.70**	0.25	0.31 *	0.03	0.44**	0.35**
TCT	0.58**	0.38**	0.42**	0.27 *	0.75**	0.64**	0.49**	0.28**	0.57**
TPC	0.53**	0.57**	0.50**	0.32 *	0.52**	0.63**	0.43**	0.32 *	0.51**
TLC	0.33**	0.29 *	0.16	0.15	0.36**	0.41**	0.46**	0.22	0.28 *
TTT	0.44**	0.60**	0.40**	0.39**	0.35**	0.41**	0.30 *	0.63**	0.37**
TAE	0.51**	0.42**	0.42**	0.34**	0.52**	0.54**	0.40**	0.46**	0.63**

** Correlation is significant at the 0.01 level (2 tailed)
* Correlation is significant at the 0.05 level (2 tailed)
Strong Correlation r > 0.7
Moderate Correlation r > 0.5
Weak Correlation r < 0.5
CS – challenge skill balance, AA- merging of action and awareness, CG- clear goals, UF- unambiguous feedback, CT- total concentration, PC- paradox of control, LSC- loss of self- consciousness, TT- time disorientation, AE- autotelic experience.
TCS – team challenge skill balance, TAA- team merging of action and awareness, TCG- team clear goals, TUF- team unambiguous feedback, TCT- team total concentration ,TPC- team paradox of control, TLSC- team loss of self consciousness, TTT- team time disorientation, TAE- team autotelic experience.

A Spearman rho coefficient was calculated for the relationship between the nine dimensions of team flow and individual flow. Strong positive correlations were found

between Merging of Action and Awareness, Unambiguous Feedback, and Total Concentration.

Team flow and individual flow were related moderately or weakly except of team clear goals with unambiguous feedback; team unambiguous feedback with total concentration; team loss of self Consciousness with clear goals; team loss of self consciousness with unambiguous feedback; team loss of self Consciousness with time disorientation; team challenge skill with unambiguous feedback; team clear goals with merging of action and awareness; team unambiguous feedback with skill challenge balance; which were all uncorrelated.

2 Team flow & group cohesion

A paired sample t-test was calculated to compare the mean group cohesion at preseason, and at the end of six games. Mean at preseason: 7.7 (SD = 1.08, n=12) and the mean after six games: 5.91 (SD = 1.22, n=12**).** A significant decrease from preseason to after six games was found (t (11) =5.94, $p<0.001$). A paired t-test was calculated to compare the four dimension of group cohesion at preseason and at the end of six games. Mean of group cohesion-task at preseason: 7.87 (SD=1.05, n=12), and the mean after six games: 6.62 (SD=1.56, n=12). A significant decrease was found (t(11)=2.71, $p<0.02$. Mean of group cohesion-social at preseason: 7.7 (SD=1.08, n=12), and the mean after six games: 5.91 (SD=1.22, n=12). A significant decrease was found (t(11)=5.94, $p<0.001$. Mean of individual cohesion- task at preseason: 6.81 (SD=1.25, n=12), and the mean after six games: 6.43 (SD=0.86, n=12). No significant difference was found (t(11)=1.37, $p<0.19$. Mean of individual cohesion-social at preseason: 6.31 (SD=1.12, n=12), and the mean after six games: 7.35 (SD=1.02, n=12). A significant increase was found (t(11)=-2.803, $p<0.017$.

Table 9
Spearman's rho correlations between group cohesion and team flow measured after game 1 (n=8)

Dimension	ATG-S	ATG-T	GI-S	GI-T
Team Challenge Skill Balance	-0.85**	0.21	-0.81*	-0.21
Team Merging of Action & Awareness	-0.13	-0.55	-0.40	0.35
Team Clear Goals	0.72	0.19	0.84**	-0.16
Team Unambiguous Feedback	-0.35	-0.27	-0.22	0.21
Team Total Concentration	-0.49	0.11	-0.51	-0.37
Team Paradox of Control	-0.85**	0.23	-0.83**	-0.09
Team Loss of Self- Consciousness	-0.2	-0.45	-0.31	0.32
Team Time Disorientation	0.25	-0.66	0.06	0.65
Team Autotelic Experience	-0.73**	0.21	-0.55	0.06

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).
Strong Correlation $r > 0.7$
Moderate Correlation $r > 0.5$
Weak Correlation $r < 0.5$

A Spearman rho coefficient was calculated for the relationship between the nine dimensions of team flow and the four dimensions of group cohesion after game 1**.** Strong negative correlations were found between individual cohesion-social (GI-S) with team challenge skill balance, and team paradox of control. Strong negative correlations were found between group cohesion social (ATG-S) and team challenge skill balance, team paradox of control, and team autotelic experience. Strong positive correlations were found between individual cohesion social (GI-S) and team clear goals.

Table 10
Spearman's rho correlations between group cohesion and team Flow measured after game 6 (n=7)

Dimension	ATG-S	ATG-T	GI-S	GI-T
Team Challenge Skill Balance	0.57	-0.30	-0.16	0.70
Team Merging of Action and Awareness	-0.14	-0.18	-0.07	0.68
Team Clear Goals	-0.63	-0.26	-0.01	0.37
Team Unambiguous Feedback	-0.53	-0.35	-0.25	-0.1
Team Total Concentration	-0.74	-0.61	-0.56	0.43
Team Paradox of Control	-0.56	-0.43	-0.20	0.64
Team Loss of Self-Consciousness	-0.05	-0.26	0.30	0.91**
Team Time Disorientation	-0.56	-0.55	-0.18	0.82**
Team Autotelic Experience	-0.60	-0.82**	-0.6	0.30

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).
Strong Correlation r >0.7
Moderate Correlation r >0.5
Weak Correlation r <0.5

A Spearman rho coefficient was calculated for the relationship between the nine dimensions of team flow and the four dimensions of group cohesion after game 6. Strong negative correlations were found between group cohesion-task (ATG-T) with team autotelic experience. Strong positive correlations were found between individual cohesion task (GI-T) and team loss of self- consciousness and team time disorientation.

3 Emotions & Team Flow

Table 11
Spearman's rho correlations of team flow and the difference of intensity between individual emotional profiling and optimal individual emotional profiling (n=6).

	N-	N+	P+	P-
Team flow	0.5	-0.97**	0.08	0.73

** Correlation is significant at the 0.01 level (2 tailed)
* Correlation is significant at the 0.05 level (2 tailed)
Strong Correlation r >0.7
Moderate Correlation r >0.5
Weak Correlation r <0.5

A Spearman rho correlation coefficient was calculated between the number of players indicating experiencing team flow to the difference of intensity of the individual emotional profiling to the optimal individual emotional profiling for each game in the four categories (details of calculation can be found in data analysis).

The only significant correlation was found between indication of team flow and the differences of intensities of the individual emotional profiling to the optimal individual emotional profiling within the N+ category. Within the P- category a strong correlation was found however this correlation was not significant.

4 Performance & Emotions

The coach assessed the performance for each game as a function of its level of technique and psychology.

Table 12

Coach's assessment of performance by game (n=6)

Game	Technique Sum	% of overall Technique	Psychology Sum	% of overall Psychology
1	21	49	42	67
2	30	70	54	86
3	35	81	53	84
4	31	72	56	89
5	32	74	53	84
6	33	77	48	76

The ratings for each domain was summed and then calculated as a percentage of the total possible score for the domain (technique =42; psychology = 63). A Paired Samples t-test was calculated to compare the mean of overall technique and overall psychology for each game. The mean on technique was 70.5 (SD=11.22) and the mean for psychology was 81 (SD=8.1). The significance difference between them ($t(5) = -3.22$, $p=0.02$) shows that the coach evaluated the team's psychological components as higher than its technique components, during the period of six games.

Table 12

Spearman's rho correlations between performance and the difference of intensity of the individual emotional profiling to the optimal individual emotional profiling (n=6)

	N-	N+	P+	P-
Technique	0.48	0.29	-0.29	-0.29
Psychology	0.46	-0.58	0.37	0.11

** Correlation is significant at the 0.01 level (2 tailed)
* Correlation is significant at the 0.05 level (2 tailed)
Strong Correlation r >0.7
Moderate Correlation r >0.5
Weak Correlation r <0.5

A Spearman rho correlation coefficient was calculated for the correlations between performance (assessed by the coach) and the difference of intensity of the individual emotional profiling to the optimal individual emotional profiling per game. No significant correlations were found. The strongest correlation was between the category harmful positive (N+) and performance psychology.

6 DISCUSSION

The main purpose of this study was to highlight and emphasis the unique contribution of team flow to sport performance. This chapter discusses the results in light of the main areas that were studied: 1) The occurrence of individual flow and team flow. 2) Ranking of the dimensions for individual flow and team flow. 3) Changes of group cohesion during the research period. 4) Possible relationships between group cohesion and team flow. 5) Possible relationships between emotions and team flow. 6) Possible relationships between performance and emotions. Included in this chapter is a discussion of the findings that support or reject the research hypothesis, considers methodolgical issues, limitations of this study, and suggests recommendations for future research and practice.

6.1 Occurrence and frequency of flow

Flow experience was recognized as a unique phenomenon since 1975 by Csikszentmihalyi, and first applied to the sport field by Jackson (1992). In summing up our data and review of the literature we can conclude that experiencing individual flow, as well as team flow, is a frequent experience in sport (Cosma, 1999). However, its occurrence is influenced by personal characteristics as well as contextual parameters. The current research substantiates the individual differences. On one hand, one player experienced individual flow or team flow in all six games, and on the other hand, a different player did not experience individual flow or team flow in any of the games.

Individual flow and team flow are independent experiences as found by the insignificant relationship between them. This finding is controversial with hypothesis 1.1: The occurrence of individual flow and team flow are highly correlated; this may be a result of a previous definition of collective flow as the convergence of the individual flow experiences among all of the members of a collective team (Quinn, 2003). This contradiction can also be explained by the fact that Quinn (2003) did not study team flow within a sport context. The findings that only in one particular game (game 3) - most players experienced team flow and individual flow indicates that there are contextual parameters that overcome individual factors and create circumstances that enable most athletes to experience individual flow and team flow.

The occurrence and frequency of flow can be influenced by the coaching style. The extent of inclusion and the duration of play are two game factors that have an influence on flow (Cosma, 1999). These factors are a distinguishing characteristic of the field of sport. For example, in ice hockey a player can be changed after a period of several seconds, in contrast to soccer where usually at least eight players play constantly during the whole game, that lasts around 90 minutes. In basketball the situations may vary. A key player can play all the game, or can be changed after one move that can last a few seconds. These decisions are made by coaches who have different coaching styles regarding substitutions: Some "punish" their players for every mistake by substitution (Pini Gershon, Macabi Tel Aviv), while others have a specific game plan that dictates replacements with no relation to the score or the game situation (Reneses Garcia Aito, Unicaja Malaga), and more specifically the occurrence of individual flow and/or team flow. Interference in the pattern of the activity (e.g. substitution, time out), will force an athlete to think about his situation, an act that will most likely stop the flow (Csikszentmihalyi, 1990). Cosma (1999) adds another interesting finding, by demonstrating that the more playing time a team member had, the greater the chance for the team to flow. He also found that rather than experiencing team flow as a fluctuating pattern over the duration of a game, flow was experienced consistently or constantly over a period of time. These important issues have not been theoretically discussed, since data on how substitutions and coaching styles influence team flow is not available.

6.2 Barriers to creation of flow

During observations and discussions with the players and the coach, several individual and contextual variables were identified as possible barriers to the creation of individual flow and team flow. Contextual factors included low motivation and challenge due to a wide gap in the competitive ability between the studied team and most of its competitors. This situation resulted in a winning score which was usually more than fifty points. Individual players felt at time a lack of support due to insufficient immediate and unambiguous feedback from the coach or their playmates. Some players complained that in times of stress, their teammates criticized their performance, behavior that hurt their feelings and lowered their performance. The coaching style was characterized by extensive pressure to perform and many individual substitutions during the game, which caused some players to become anxious and self conscious.

An important contextual factor in the occurrence of flow is culture. Flow is considered to be culturally universal but the content of activities that support flow differs across cultures (Fave & Massimini, 2000). This research was done with a homogenous adolescent basketball team who reside in a rural area, all of them Jewish, and most of them schoolmates. Popular norms for this age group stress sport achievements and winnings but they are not graded as high as is customary in professional basketball. Individual development of the players, their enjoyment, and growth are more important. These themes were discussed and shared with the coach. However, there were always many sources of pressure on the team to excel in competitions from the players, parents, and from the club's managers.

6.3 Dimensions of individual flow and team flow

The centrality of considering all the nine dimensions of flow remains an issue in flow theory. Csikszentmihalyi (1975) claimed that what determines if an individual reaches the state of flow is one's perception of the existing challenges and the perception of one's skills. Those who see flow as a dynamic process claim that flow involves several factors that operate together. As is the case with most theories that deal with such variables as motivation, those concerning flow suggest that it is a complicated phenomenon based on the interaction of task and contextual variables (Egbert, 2003). Our research explored this issue by investigating the relations between the nine dimensions of individual flow and team flow.

In order to assess the differences between the team flow measurements in the period of the six games a repeated measure ANOVA was conducted. Significance differences in the means of team flow were found in the dimensions of team concentration, and team autotelic experience. These results may suggest that these dimensions are dynamic and therefore important to control and intervene. The same test was conducted for individual flow, no significant differences were found. When analyzing these results it is important to remember that the team played only six games, gaining more data could lead to different results.

While comparing the dimensions of individual flow with the same dimensions in team flow (e.g., CS-TCS) at least weak correlation were found between all the dimensions. A stronger correlation was found between these dimension than any correlation between different individual flow and different team flow dimensions (e.g., CS-TUF). This finding supports hypothesis 2.2: There are significant correlations between the

dimensions of team flow and individual flow; and can indicate that these dimensions have similar impact in the individual level and in the team level. This finding may support the belief that team flow and individual flow are similar phenomena. However, it may also be a result of the similarity of the scales used to evaluate individual flow and team flow. Therefore, this is an important issue for further research.

Significant differences on several dimensions were found in this research between individual flow and team flow when compared to published normative date (Jackson & Elkund, 2002). These differences did not include the two key factors for defining individual flow and team flow mentioned in the literature: Autotelic experience and challenge skill balance. We also found a difference in relation to the normative data in more dimensions of individual flow than in team flow. This may suggest that certain unique characteristics have more influence on the individual players then on the team regarding achieving flow.

Loss of self consciousness was ranked significantly different in team flow in contrast to individual flow. This finding supports hypothesis 2.1: There are significant differences in ranking the dimensions of individual flow verse team flow. This is not surprising when analyzing this specific research group of adolescent players. During this age period, a very important theme for the individual is self consciousness around popularity and concerns around how one is presenting himself. Sometimes, the individual feels in front of a crowd even when alone or when not observed by anyone (Coleman & Hendrey, 1990). In this case, playing basketball in front of a live audience that includes sometimes parents, and close friends, may arouse loss of self consciousness. During a team flow experience, the individual is less concerned with how the team is representing itself, a situation that enables the team to reach and retain team flow. We believe that it is more difficult to reach loss of self consciousness in an individual context such as individual flow, than with the support of the team, as in team flow.

6.4 Similarity and difference between experiencing and not experiencing flow

A vital question that guides this research concerns the dimensions that are significantly related to the experience of flow. The dimensions of challenge skill balance, paradox of control, and autotelic experience were significantly related to experiencing individual

flow. Autotelic experience was significantly related to experiencing team flow. The importance of having an autotelic experience for both individual and team flow should be emphasized especially in training and developing young players, by encouraging coaches to enhance basic motivation through 'having fun' and enjoying the game.

The mean on all flow dimensions as well as their total was higher for cases that reported experiencing individual flow than those who did not report experiencing individual flow. This result supports hypothesis 2.3: There are significant differences between the dimensions of individual flow when experiencing flow verse not experiencing flow; Furthermore, this result validates the scale of individual flow, and shows that flow is multidimensional by nature.

In team flow the situation was different; the differences between the total mean was not significant and only the mean in six flow dimensions was higher in cases that reported experiencing team flow in contrast to the cases which reported not experiencing team flow. An exception was the dimension of autotelic experience that was significantly different. This finding partially supports hypothesis 2.4: There are significant differences between the dimensions of team flow when experiencing team flow verse not experiencing team flow. This result can indicate that the scale of team flow is not as reliable as the scale of individual flow. It may also imply that the phenomenon of team flow has different dimensions then individual flow, which have not yet been created, or theoretically tested.

Our data shows similarities as well as differences between individual flow and team flow. Further investigation into the dynamics involved in team flow is needed in order for new dimensions of team flow to emerge as an independent conceptual and methodological concept different from individual flow.

6.5 Group cohesion

Although it is customary to expect that overall group cohesion will increase from preseason to midseason (Yukelson, 1997), our results showed a significant decrease during this time period. This result is controversial with hypothesis 3.1: Group cohesion will significantly increase from the preseason to after game six.

The decrease in group cohesion was in contrast to an increase in individual cohesion. We are uncertain of the origins of this difference. One explanation may be related to the introduction of a new coach at the beginning of the season which emphasized the social

aspects of individual cohesion over group cohesion. Another explanation may be the difference in the season's time period. At midseason the overall cohesion may be more task than social oriented while at preseason the focus is on social aspects. Individual cohesion-social and group cohesion-social were strongly correlated with some of the nine dimension of team flow at preseason. There were no strong correlations between individual cohesion-task and group cohesion-task in the preseason. In addition, strong correlations were found between individual cohesion-task and group cohesion task with some of the nine dimensions of team flow at midseason (after game 6). This supports the focus on task orientation at midseason. In addition these results support hypothesis 4.1: There are significant correlations between group cohesion and team flow.
In this research, a strong correlation was found between individual and group cohesion task, but not between cohesion on task and social aspects for the individual or the team. This suggests that it is necessary for the coach and the team to work separately on each dimension of cohesion, and not assume that achievement of the task will automatically influence individual or group social cohesion.

6.6 Emotions

Flow is an emotional phenomenon. Interestingly, in one game, which was remarkable in the appearance of flow, its outstanding features were its highest technique and the lowest difference of harmful positive category (N+) from the optimal individual emotional profile. Flow Theory posits that some stress is important in creating flow, because situations that arouse flow are those that the person perceives as important, urgent, or meaningful (Mitchell, 1988). It is therefore claimed that positive and negative emotions may be functional since a degree of anxiety or stress (perhaps some level of optimal or "eustress") is beneficial for an experience of flow. In this research, emotions were investigated by using individual emotional profiling.

Interestingly, a negative significant correlation was found between indication of team flow and the differences of intensities of the individual emotional profiling to the optimal individual emotional profiling within the harmful positive category (N+). This results support hypothesis 5.1: There are significant correlations between the number of players indicating experiencing team flow to the difference of intensity of the individual emotional profiling with the optimal individual emotional profiling. This result may suggest that in games where the players were in team flow the harmful positive category

(N+) was the most sensitive category. These results support hypothesis 6.1: There are significant correlations between performance and the difference of intensity of the individual emotional profiling with the optimal individual emotional profiling.
In addition, the strongest negative correlation was found between the category harmful positive category (N+) and performance psychology. This finding supports the importance of the harmful positive category (N+), and may suggest that enhancing harmful positive emotions (N+) can be an effective way to reach team flow. Another speculation is that negative emotions create barriers to flow that may overpower helpful emotions. Therefore, a first step to creating flow is to remove negative emotions.

Measuring emotions proved to be a complicated task for the players. Their motivation and ability to identify a range of emotions after each game were inconsistent. The confusion emerged especially when asked to report on negative emotions as functional and positive emotions as dysfunctional. This confusion could be a result of the relatively young age of the participants. During adolescence life is mainly perceived as dichotomous, either "black or white", and thinking in a different way, (e.g., choosing helpful negative emotions) as required for the individual emotional profiling seemed to be complicated. In contrast to this difficulty, when discussing emotions and optimal functioning in face-to-face meetings between the researcher and the players, a clear optimal profile emerged for each player. The players responded well to the researcher assistance in finding and indicating emotions that influenced their performance, especially positive emotions which are harmful for performance and negative emotions which are helpful for performance.

Emotions affect individuals in different ways. One could be in flow and experience certain emotions whereas another could be in flow and experience different emotions. In the present research there are hesitations about the reliability and validity of the emotions measured by the individual emotional profiling. Converting the individual emotional profile to a team emotional profile needs further exploration. This does not negate the importance of emotions to flow and their relationships to performance. A wise suggestion may be to choose a more appropriate instrument for similar populations, or find a better method to assess the individual emotional profiling to fit a team.

6.7 Methodological Issues

All the research instruments used in this study were self-report questionnaire, except for the coach's self-report of team performance. The self-report questionnaires all showed good reliability and validity ratings.

However, several methodological issues remain unclear: The first issue is concerned with defining criteria for experiencing flow. Possible questions address measurement issues: Should 'flow' be measured as a total score such as the sum of its nine dimensions, an average of each dimension, or should certain dimensions be rated higher than others? Determining flow issues: Should determining the existence of flow be contingent upon comparing the data with normative data? Adherence to how many dimensions of flow are essential in order to be considered as experiencing flow? Can only one dimension such as skill challenge balance or autotelic experience enough to determine the existence of flow? Reporting issues: Is the self evaluation of the individual player the best indicator of being in flow? Although much research was done on flow, there is not a consensual criterion to determine the existence of being in flow. This is probably due to the complex nature of the state of flow and its multidimensional nature.

The second methodological issue concerns the similarity between individual and team flow scales. In the attempt to define the new variable, team flow, our main methodological concern was the use of the familiar FSS-2 for individual flow, by simply changing the focus from the individual to the team. Despite our doubts, comparison of the results showed a significant difference in the way the players reported their assessment of individual and team flow during the same game. In addition, Cosma's (1999) findings, as well as our findings, show that all the dimension of individual flow exist in team flow. These findings support the reliability of the use of the modified FSS-2 to evaluate team flow, but leaves open questions regarding validity. We still need to wonder, did we capturing the full range of variables reflected by the term 'team flow' or just those that are in strong correlation with individual flow? Before continuing to measure 'team flow' based on the TFSS, it is recommended to collect qualitative data that may encompass the full range of meaning involved in the experience of 'team flow'.

6.8 Limitations

In assessing the results of this research, certain limitations need to be considered. A fundamental threat to the study of flow revolves around the difficulty in operationalizing flow and providing sound construct validity. Defining flow only using quantitative analyses, as was done in this and other studies, seems like an oxymoron and one should be cautious about its findings given the inherently subjective and qualitative nature of flow (Mugford, 2006). As Jackson & Marsh (1996) mentioned, the content of flow cannot be perfectly assessed by a score on a questionnaire. Researchers should take into consideration the complex nature of the flow experience. Using a triangulation of instruments and research methods will be helpful in capturing, understanding, and interpreting the experience of flow from an athlete's perspective. For example, the experience sampling method (Csikszentmihalyi & Csikszentmihalyi, 1988) could be useful in providing crucial information in the assessment and understanding of flow experience as it occurs during a sport activity.

The construction of the team flow scale by substituting individual phrases, to group phrases statements may have resulted in inaccuracies in perceiving flow in others and the possibility of projecting perceptions of one's own flow onto the team. The similarities in the wording of the team and individual flows scales, administered one after the other, may have confounded these two measures. Due to the similarity between the FSS-2 and the DFS, add the TFSS and the TDFS and the effort not to burden the players with a battery of forms, only the FSS-2 and the TFSS forms were used in this research.

The timing of filling out the scales in relation to the game played, before or after the game, may be an asset as well as a liability. In this research only team state flow was measured. Therefore, it is unknown whether the perceived state flow of a team or the overall ability of a team to achieve flow (i.e., team dispositional flow) could have contributed to team performance and success. The subjective evaluation of flow may also have been overshadowed by the result of the game. Players filled the questionnaires immediately after the end of the game, and therefore their evaluation of 'flow' may be influenced by the 'end result' of the game, winning or losing, thereby forgetting, or creating, flow experiences that may or may not have occurred during the game.

Due to the small sample size, some averaging statistics were used thereby losing valuable information. Such is the case in combining all team emotions for each domain.

Performance was evaluated solely on the coach's perceptions of the game played by the team as a whole; this evaluation was correlated to self –report questionnaires, filled by the individual players.

Since flow is a dynamic process with several factors operating together, interpreting significant findings of the individual flow scale, or team flow scale, without considering contextual factors, may be empirically undermining the construct of flow. This limitation creates a methodological and conceptual problem for both quantitative and qualitative analysis of flow (Jackson, 1995, 1996). In this study, although the awareness of contextual factors, they were not formally measured.

Limitation related to the sample

This research was based on only one basketball team with a limited amount of players (14). This is a very small sample for any statistical analysis and can only serve as an initial exploration for possible relationships. The strength of the repeated measure approach was compromised because the consistent attendance of the players in all games was unstable, due to individual factors beyond the researcher's control.

The level of challenge and skill balance for most games was low and in favour of the current team, with four games won, usually by a big score advantage (more then 50 points) with only two losing games.

Although the players were motivated to participate in this research, and made a serious effort to fill all the relevant scales, as noted previously, filling out the individual emotional profiling scale presented a challenge for some players, and so its reliability and validity may have been compromised.

6.9 Recommendations for future research and practice

To date, despite the great interest in examining the psychological issues of athletes' performance, sport psychologists have focused mainly on the negative factors of athletes' experience, such as anxiety and stress, ignoring the positive psychological qualities underlying elevated levels of performance. Identifying the relation between optimal psychological states and athletes' performance might be helpful to the development of mental training programs to help promote optimal mental states. In addition, the study of flow experience and sport performance has been based primarily on athletes' subjective perceptions and interviews during high and low levels of

performance, as well as on the comparison of successful and less successful performances (Jackson, 1992, 1995, 1999; Jackson & Roberts, 1992). Moreover, the examination of the relation between flow factors and both subjective and objective measures of performance might provide more comprehensive information about the psychological qualities that underlie sport performance, from a quantitative perspective.

By definition flow is considered to be an optimal and positive state (Csikszentmihalyi, 1975). It is assumed that while experiencing flow positive emotions will be experienced. However no research has substantiated which emotions appear when individuals experience flow. Humans are very complex individuals. The claim that when one is in flow there are no negative emotions has not been proven. I believe this assumption should be challenged. Therefore, in this study not only the connection between positive emotions and flow were assessed but also negative ones that proved beneficial. Future research should examine if individuals can identify the negative emotions they feel during flow states. However, this task could be complicated since in flow states the positive emotions are intense and dominate.

Understanding team flow could add valuable information to our knowledge of contexts and process that influence flow. This may provide an efficient way of influencing the occurrence of flow by controlling contextual variables which are paramount in teams, rather than individual characteristics that may be harder to manipulate. An unexplored practice issue concerns the role of the coach in enhancing team flow. It has been suggested that if the teacher is engaged in flow, it is more likely that the learners will be in flow as well (Snyder & Tardy, 2001).

Our future goal should be to build and test a theory, and a corresponding model, that accurately shows and explains the combination of contextual conditions and individual factors that act together to assist in achieving team flow that will lead to optimal performance outcomes.

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Appendix 1
Consent Form

שאלון הסכמה להשתתף במחקר

שם המחקר: זרימה קבוצתית במשחק הכדורסל

החוקר: ארז מוסק, סטודנט לתואר מ.א. במחלקה לפסיכולוגיה של הספורט, אוניברסיטת יובסקולה, פינלנד.

מסמך הסכמה זה הוא חלק מתהליך המחקר. הוא נועד להסביר את הרעיון הכללי של המחקר ובמה כרוכה המעורבות שלך בו. אם תרצה אינפורמציה נוספת על הנאמר, או אינפורמציה אשר אינה כלולה כאן, הרגש חופשי לשאול. אנא קרא בעיון כדי שכל הפרטים הקשורים למחקר יהיו ברורים לך.

מחקר זה נועד להבין את המושג זרימה קבוצתית ולהרחיב את השימוש בו. אני מעריך כי תוצאות המחקר יסייעו לקבוצות להגיע לרמה אופטימאלית של ביצוע הן במשחק הכדורסל והן בענפי ספורט אחרים. כמו כן, תוצאות המחקר יגבירו את ההבנה והמודעות לתרומתה של הפסיכולוגיה של הספורט.

המטרה השנייה של המחקר היא לתגבר את הגורמים הקשורים לזרימה קבוצתית בקבוצתך. ביחד עם המאמן, אנו ננסה לשפר גורמים אלו ברמה הקבוצתית והאישית. לכן אתה כשחקן ואתם כקבוצה תיהנו מההשלכות של המידע שייאסף. שיתוף הפעולה שלך הוא קריטי עבורך ועבורי.

לשחקנים:
המעורבות שלכם קשורה במילוי שאלונים. שאלון דמוגרפי קצר, מקבץ שאלונים לאחר אימון וכן חמש פעמים מקבץ שאלונים לאחר משחק, ולבסוף מקבץ נוסף של שאלונים לאחר אימון. אני אגיע לאחד האימונים שלכם, אסביר את המחקר ואשמח לענות על שאלותיכם. מילוי מקבץ השאלונים יארך כ – 30 דקות בכל פעם.

כמשתתף במחקר חשוב שתבין את זכויותיך:
1. יש לך את הזכות לפרוש מהמחקר בכל עת, או לסרב לענות על כל שאלה. במידה ותבחר לעשות זאת לא תהיה כל ענישה על כך מצד החוקר, השחקנים, הליגה, המאמן או ההנהלה.
2. אין כל סיכון שכרוך בהשתתפות שלך במחקר.

החתימה שלך על מסמך זה מעידה כי הבנת לשביעות רצונך את האינפורמציה הקשורה להשתתפות במחקר ואתה מסכים להשתתף במחקר. עובדה זו אינה גורעת בשום אופן מהאחריות המקצועית של המאמן וההנהלה וכן אינה גורעת בשום אופן מזכויותיך החוקיות כשחקן במועדון. כאמור, אתה רשאי לפרוש בכל עת. הרגש חופשי לשאול שאלות בכל עת בנוגע להשתתפות שלך. במידה ויש לך שאלות נוספות בנוגע למחקר אנא על תהסס ליצור איתי קשר.

חתימת המשתתף: _____ תאריך: _____.

חתימת הורה : _____ תאריך_____

חתימת החוקר: _____ תאריך: _____.

Appendix 2
Demographic Data

שם .....
תאריך .....

נתונים דמוגרפים

תאריך לידה .....

השכלה : מספר שנות לימוד .....
תלמיד בבית ספר .....
כתה .....

מה התפקיד השכיח בו אתה משחק בקבוצה? .....

בכמה משחקים אתה משחק בממוצע בחודש? .....

בכמה אימונים אתה משתתף בממוצע בשבוע? .....

כמה זמן אתה כבר מתאמן בכדורסל? .....

האם התאמנת בספורט אחר, אם כן כמה זמן? .....

כמה זמן אתה משחק באותו מועדון כדורסל? .....

כמה זמן אתה משחק בקבוצה הנוכחית? .....

כמה דקות משחק אתה מקבל בממוצע? .....

Appendix 3
The Flow State Scale - 2(FSS-2)

שם: .....
תאריך: .....

זרימה אינדיבידואלית

חלק א :
האם אתה יכול להיזכר בחוויה שהתרחשה תוך כדי המשחק שהייתה יוצאת דופן באיזה שהיא דרך, חוויה שבה הרגשת לגמרי מחובר לעשייה שהייתה מאוד מתגמלת?

כן לא

אם ענית לא דלג לחלק ב.

אם כן, אנא פרט מה חשבת והרגשת בזמן החוויה:

_____

_____

_____

_____

_____

_____

_____

_____

חלק ב:

ענה על השאלות הבאות המתייחסות לתפיסה שלך לגבי המשחק שהקבוצה שלך סיימה עתה. השאלות מתייחסות למחשבות ולרגשות שלך בזמן המשחק. כל התשובות נכונות. חשוב על הרגשות והמחשבות שלך במהלך המשחק וענה בעזרת סולם ההערכה המופיע מטה. לגבי כל שאלה הקף בעיגול את המספר המתאים ביותר להתנסות שלך.

סולם הערכה:

מאוד לא מסכים	לא מסכים	נמנע	מסכים	מסכים מאוד
1	2	3	4	5

Appendix 3 (continued)

	מאוד לא מסכים				מסכים מאוד
1. הייתי מאותגר, אבל האמנתי שהיכולת שלי תאפשר לי להתמודד עם האתגר.	1	2	3	4	5
2. עשיתי את המהלכים הנכונים מבלי לחשוב על כך.	1	2	3	4	5
3. ידעתי בברור מה אני רוצה לעשות.	1	2	3	4	5
4. היה לי ברור מאוד איך הביצוע שלי מתקדם	1	2	3	4	5
5. תשומת הלב שלי הייתה ממוקדת לחלוטין בעשייה.	1	2	3	4	5
6. הייתה לי תחושה של שליטה על המתרחש.	1	2	3	4	5
7. לא הייתי מודאג ממה אחרים חשובים עלי .	1	2	3	4	5
8. חשתי שאיבדתי את תחושת הזמן. (הזמן עבר מהר יותר או לאט יותר מהמצופה.)	1	2	3	4	5
9. נהניתי מאוד מחוויות המשחק.	1	2	3	4	5
10. היכולת שלי תאמה את רמת האתגר הגבוה שנדרשה	1	2	3	4	5
11. דברים התרחשו בצורה אוטומטית.	1	2	3	4	5
12. הייתי לי תחושה חזקה לגבי מה אני רוצה לעשות.	1	2	3	4	5
13. הייתי מודע לרמת הביצוע שלי.	1	2	3	4	5
14. לא נדרשתי להתאמץ כדי למקד את מחשבותיי על המתרחש.	1	2	3	4	5

Appendix 3 (continued)

	מאוד לא מסכים				מסכים מאוד
15. הרגשתי שאני יכול לשלוט במעשי.	1	2	3	4	5
16. לא הייתי מוטרד מאיך אחרים מעריכים אותי.	1	2	3	4	5
17. חשתי שהדרך בה הזמן עבר היה שונה מאשר בדרך כלל.	1	2	3	4	5
18. אהבתי את הרגשות שלוו את המשחק והייתי רוצה לחוות אותן שוב.	1	2	3	4	5
19. הרגשתי שאני מסוגל להתמודד עם הדרישות הגבוהות של המצב.	1	2	3	4	5
20. שחקתי בצורה אוטומטית מבלי לחשוב הרבה על המצב.	1	2	3	4	5
21. ידעתי מה אני רוצה להשיג.	1	2	3	4	5
22. בזמן המשחק הייתה לי הערכה טובה לגבי כמה טוב אני משחק.	1	2	3	4	5
23. הייתי מרוכז לחלוטין.	1	2	3	4	5
24. הייתה לי הרגשה של שליטה מוחלטת.	1	2	3	4	5
25. לא הטריד אותי איך אני מציג את עצמי.	1	2	3	4	5
26. הרגשתי שהזמן עובר מהר מידי עבורי.	1	2	3	4	5
27. הרגשתי נהדר לאחר המשחק.	1	2	3	4	5
28. האתגר והיכולת שלי היו ברמה גבוהה ושווה.	1	2	3	4	5
29. עשיתי דברים בצורה ספונטאנית ואוטומטית מבלי לחשוב עליהם.	1	2	3	4	5
30. המטרות שלי היו מוגדרות בצורה ברורה.	1	2	3	4	5

Appendix 3 (continued)

	מאוד לא מסכים				מסכים מאוד
31. יכולתי לחזות על פי הביצוע שלי כמה טוב אני משחק.	1	2	3	4	5
32. הייתי לגמרי ממוקד במשימה.	1	2	3	4	5
33. הרגשתי שליטה מוחלטת על הגוף.	1	2	3	4	5
34. לא הייתי מוטרד ממה שאחרים חושבים עלי.	1	2	3	4	5
35. איבדתי את תחושת הזמן הרגילה שלי.	1	2	3	4	5
36. החוויה הייתה מאוד מתגמלת עבורי.	1	2	3	4	5

Adopted from English to Hebrew from: S.A. Jackson, University of Queensland (1995) Dispositional Flow Scale Version 2

Appendix 4
The Team Flow State Scale (TFSS)

שם: .....
תאריך .....

זרימה קבוצתית

חלק א:

האם אתה יכול להיזכר בחוויה שהתרחשה תוך כדי המשחק שהייתה יוצאת דופן באיזה שהיא דרך, חוויה שבה הקבוצה הרגישה לגמרי מחוברת לעשייה שהייתה מאוד מתגמלת?

כן לא

אם ענית לא דלג לחלק ב.

אם כן, אנא פרט מה חשבת והרגשת בזמן החוויה:

חלק ב:

בשאלות הבאות סמן את ההערכה שלך לגבי המשחק שהקבוצה שלך שיחקה. השאלות מתייחסות למחשבות ולרגשות שהיו לשחקנים האחרים ולך בזמן המשחק. כל התשובות נכונות. חשוב על התחושות שלך לגבי הקבוצה בזמן המשחק וענה בעזרת הסולם המופיע למטה. לגבי כל שאלה הקף בעיגול את המספר המתאים ביותר (1-5).

סולם הערכה:

לעולם לא	לעיתים נדירות	לפעמים	לעיתים תכופות	תמיד
1	2	3	4	5

במהלך משחק הכדורסל:

		לעולם לא				תמיד
1.	אני מאמין שהקבוצה הייתה מאותגרת אבל אנחנו האמנו שהיכולת שלנו תסייע לנו להצליח באתגר	1	2	3	4	5
2.	אני מאמין שהקבוצה עשתה את המהלכים הנכונים מבלי שהייתה צריכה לחשוב על כך	1	2	3	4	5

Appendix 4 (continued)

.3	אני מאמין שהקבוצה ידעה בברור מה אנחנו רוצים לעשות	1	2	3	4	5
.4	היה ברור מאוד לקבוצה איך הביצוע שלנו מתקדם	1	2	3	4	5
.5	תשומת הלב של הקבוצה הייתה ממוקדת לגמרי בעשייה	1	2	3	4	5
.6	אני מאמין שלקבוצה הייתה תחושה של שליטה על המתרחש.	1	2	3	4	5
.7	הקבוצה לא נראתה מודאגת ממה שאחרים חושבים עליה	1	2	3	4	5
.8	נראה כי תחושת הזמן השתנתה (הייתה הרגשה שהזמן עובר מהר יותר או לאט יותר מהמצופה)	1	2	3	4	5
.9	אני מאמין שהקבוצה נהנתה מאוד מחוויות המשחק.	1	2	3	4	5
.10	אני מאמין שהיכולת של הקבוצה הייתה מותאמת לרמה הגבוה של האתגר.	1	2	3	4	5
.11	נראה היה שהדברים קורים באופן אוטומטי עבור הקבוצה	1	2	3	4	5
.12	אני מאמין כי לקבוצה הייתה תחושה חזקה לגבי מה אנו רוצים לעשות.	1	2	3	4	5
.13	הקבוצה הייתה מודעת לרמת הביצוע שלה.	1	2	3	4	5
.14	לא נדרש כל מאמץ מהקבוצה כדי למקד את המחשבה על המתרחש.	1	2	3	4	5
.15	הקבוצה הרגישה שאנחנו יכולים לשלוט במה שאנחנו עושים	1	2	3	4	5
.16	הקבוצה לא הייתה מוטרדת מאיך אחרים מעריכים אותנו.	1	2	3	4	5
.17	הדרך שבה הזמן עבר עבור הקבוצה, היה שונה מאשר בדרך כלל.	1	2	3	4	5

Appendix 4 (continued)

		לעולם לא				תמיד
18.	אני מאמין שהקבוצה אהבה את הרגשות שלווה את הביצוע והיא רוצה לחוות אותן שוב.	1	2	3	4	5
19.	אני מאמין שהקבוצה הרגישה שאנחנו מסוגלים להתמודד עם הדרישות הגבוהות של המצב.	1	2	3	4	5
20.	הקבוצה התנהלה בצורה אוטומטית מבלי לחשוב יותר מדי	1	2	3	4	5
21.	אני מאמין שהקבוצה ידעה מה היא רוצה להשיג.	1	2	3	4	5
22.	בזמן המשחק לקבוצה הייתה הערכה מדויקת לגבי רמת ההישגים שלה	1	2	3	4	5
23.	הקבוצה הייתה מרוכזת לחלוטין.	1	2	3	4	5
24.	אני מאמין שלקבוצה הייתה הרגשה של שליטה מוחלטת.	1	2	3	4	5
25.	הקבוצה לא הייתה מוטרדת מאיך שאנחנו מציגים את עצמנו.	1	2	3	4	5
26.	ההרגשה הייתה שהזמן עובר מהר עבורנו.	1	2	3	4	5
27.	הרגשנו נהדר לאחר המשחק.	1	2	3	4	5
28.	אני מאמין שהאתגר והיכולת שלנו היו ברמה גבוהה ושווה.	1	2	3	4	5
29.	אני מאמין שהקבוצה עשתה דברים בצורה ספונטאנית ואוטומטית מבלי לחשוב עליהם.	1	2	3	4	5
30.	אני מאמין שמטרות הקבוצה היו מוגדרות בצורה ברורה.	1	2	3	4	5
31.	הקבוצה יכלה לחזות על פי הביצוע שלנו כמה טוב אנחנו משחקים.	1	2	3	4	5
32.	אני מאמין שהקבוצה הייתה לגמרי ממוקדת במשימה.	1	2	3	4	5

Appendix 4 (continued)

33.	אני מאמין שהקבוצה הרגישה בשליטה מוחלטת על הגוף שלנו.	1	2	3	4	5
34.	הקבוצה לא הייתה מוטרדת ממה שאחרים חושבים עלינו.	1	2	3	4	5
35.	איבדנו את תחושת הזמן הרגילה שלנו.	1	2	3	4	5
36.	אני מאמין שהחוויה היית מאוד מתגמלת עבור הקבוצה.	1	2	3	4	5

Adapted from Dispositional Flow Scale Version 2 @ Susan A. Jackson, 2001; with some adaptations made from @ John Cosma, The Chicago School of Professional Psychology, 1999.

Appendix 5
The Individual Emotional Profiling

שם : .....
תאריך : .....

פרופיל רגשי אינדיבידואלי

שלב א: זהה את הביצוע במשחק האחרון שלך.

התמקד במשחק האחרון שכרגע שוחק. אל תשווה את עצמך לספורטאים אחרים.

תאר את התאריך, המקום והתוצאה של המשחק האחרון.

_____

_____

פרט כל אינפורמאציה שנראית לך חשובה לגבי משחק זה והביצוע שלך במהלך המשחק.

_____

_____

_____

_____

Appendix 5 (continued)

שלב ב: זהה רגשות מועילים חיוביים ורגשות מועילים שליליים.
עבור על הרשימה של הרגשות המועילים ובחר עד 5 מילים המתארות את הרגשות שהרגשת במהלך המשחק האחרון. כל שורה מכילה מספר תיאורים. אתה יכול לבחור רק מילה אחת מאותה השורה. הקף בעיגול את המילים שאותן בחרת. במקרה ולא מצאת מילה אשר מתארת רגש אשר שחשוב לך, אתה יכול להוסיף מילה משלך בסוף הרשימה.

<u>רגשות מועילים – חיוביים (P+):</u>

אקטיבי, דינאמי, אנרגטי, נמרץ
רגוע, נוח, קל
שלו, שקט, מתון, שקול
עליז, שמח, צוהל
בטוח, משוכנע, מהימן, ודאי
מאשר, מלא עונג
מדוד, יציב, נחוש
נרגש, דגדוג, נלהב, אקסטאטי
אמיץ, נועז, ערני
מרצה, שבע רצון, מספק
מונע, מומרץ, מעורר
מהיר, זריז
נחמד, עדין, נעים, מוכן ומזומן
שמח וטוב לב, שאנן, חסר דאגה
מילה משלך : _____

<u>רגשות מועילים – שליליים (P-):</u>

מפוחד, חושש, מבוהל, בפאניקה
מעוצבן, אגרסיבי, מתוסכל, אלים
מוטרד, מייסר
חרד, דואג, מסויג
מופרע, מעורער, מאכזב, לא מרוצה
מיואש, מדוכא, עגום
ספקני, לא בטוח, הססני
חסר ישע, רופף
בטל, עצל, נרפה, זחלני
עז, פראי
עצבני, מתוח, חסר מנוחה
מצטער, אמלל, מלא חרטה, מלא צער
לחוץ, נוקשה, מאבן, מוצק
תשוש, עייף, מותש, סחוט, בלה
מילה משלך : _____.

Appendix 5 (continued)

שלב ג: זהה רגשות מזיקים שליליים ורגשות מזיקים חיוביים.
עקוב אחר אותם ההוראות כמו בשלב ב'. בחירה של 5 מילים המתארות רגשות מזיקים שליליים ורגשות מזיקים חיוביים שהרגשת במהלך המשחק האחרון. סמן בעיגול את המילים שבחרת. אתה יכול להוסיף מילה לסוף הרשימה.

<u>רגשות מזיקים – שליליים (N-)</u>:

מפוחד, חושש, מבוהל, בפאניקה
מעוצבן, אגרסיבי, מתוסכל, אלים
מוטרד, מייסר
חרד, דואג, מסויג
מופרע, מעורער, מאכזב, לא מרוצה
מיואש, מדוכא, עגום
ספקני, לא בטוח, הססני
חסר ישע, רופף
בטל, עצל, נרפה, זחלני
עז, פראי
עצבני, מתוח, חסר מנוחה
מצטער, אמלל, מלא חרטה, מלא צער
לחוץ, נוקשה, מאבן, מוצק
תשוש, עייף, מותש, סחוט, בלה
מילה משלך : _____

<u>רגשות מזיקים – חיוביים (N+)</u>:

אקטיבי, דינאמי, אנרגטי, נמרץ
רגוע, נוח, קל
שלו, שקט, מתון, שקול
עליז, שמח, צוהל
בטוח, משוכנע, מהימן, ודאי
מאשר, מלא עונג
מדוד, יציב, נחוש
נרגש, דגדוג, נלהב, אקסטאטי
אמיץ, נועז, ערני
מרצה, שבע רצון, מספק
מונע, מומרץ, מעורר
מהיר, זריז
נחמד, עדין, נעים, מוכן ומזומן
שמח וטוב לב, שאנן, חסר דאגה
מילה משלך : _____.

Appendix 5 (continued)

שלב ד : רגשות בזמן המשחק הנוכחי

שם ____________ תאריך___________ .

העתק את חמשת הרגשות שסימנת כרגשות מועילים חיוביים (P+) במשחק הנוכחי והקף בעיגול את המספר התואם את עוצמת הרגש:

* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + P
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + P
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + P
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + P
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + P

העתק את חמשת הרגשות שסימנת כרגשות מזיקים חיוביים (N+) במשחק הנוכחי והקף בעיגול את המספר התואם את עוצמת הרגש:

* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + N
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + N
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + N
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + N
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ + N

העתק את חמשת הרגשות שסימנת כרגשות מזיקים שליליים (N-) במשחק הנוכחי והקף בעיגול את המספר התואם את עוצמת הרגש:

* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - N
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - N
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - N
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - N
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - N

העתק את חמשת הרגשות שסימנת כרגשות מועילים שליליים (P-) במשחק הנוכחי והקף בעיגול את המספר התואם את עוצמת הרגש:

* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - P
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - P
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - P
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - P
* 10 9 8 7 6 5 4 3 2 1 0.5 0 __________________ - P

From *Emotions in Sport* by Yuri L. Hanin, 2000, Champaign, IL: Human Kinetics.

Appendix 6
Group Environment Questionnaire (GEQ)

שם: .....
תאריך .....

שאלון לכידות קבוצתית

שאלון זה נועד לבחון את ההערכה שלך לגבי הקבוצה. יש רק תשובות נכונות, לכן, סמוך על תגובתך הראשונית. חלק מן השאלות עשויות להיראות כחוזרות על עצמן, אך חשוב שתענה על כולן.

תשובותיך יישארו חסויות (למעט מגורמים שקשורים לקבוצה) ויתרמו לך ולקבוצתך.

השאלות הבאות מיועדות לבחון את תחושותיך לגבי המעורבות האישית שלך בקבוצה. אנא הקף בעיגול את המספר מ 1 – 9 אשר מתאים למידת ההסכמה שלך עם כל משפט.

1. אני לא נהנה להשתתף באירועים חברתיים של הקבוצה.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

2. אני לא מרוצה מהבחירה שלי להשתייך לקבוצה זו.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

3. כשהעונה תסתיים אני לא אתגעגע לשחקנים מהקבוצה.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

4. אני לא מרוצה מהשאיפה של הקבוצה לנצח.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

5. חלק מהחברים הכי טובים שלי נמצאים בקבוצה זו.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

6. הקבוצה לא מאפשרת לי מספיק הזדמנויות לשפר את היכולת האישית שלי.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

Appendix 6 (continued)

7. אני נהנה יותר במסיבות אחרות מאשר במסיבות של הקבוצה.

1 2 3 4 5 6 7 8 9

מסכים מאוד לא מסכים מאוד

8. אני לא אוהב את סגנון המשחק של הקבוצה.

1 2 3 4 5 6 7 8 9

מסכים מאוד לא מסכים מאוד

9. עבורי זוהי אחת הקבוצות החברתיות החשובות ביותר שלה אני שייך.

1 2 3 4 5 6 7 8 9

מסכים מאוד לא מסכים מאוד

השאלות הבאות מיועדות לבחון את התחושות שלך לגבי הקבוצה בכללותה. אנא הקף בעיגול את המספר המתאים ביותר לכל אמירה.

10. הקבוצה שלנו מאוחדת סביב השגת המטרות הקשורות להישגים שלנו.

1 2 3 4 5 6 7 8 9

מסכים מאוד לא מסכים מאוד

11. חברי הקבוצה מעדיפים לצאת לבלות עם חברים מחוץ לקבוצה מאשר חברים מהקבוצה.

1 2 3 4 5 6 7 8 9

מסכים מאוד לא מסכים מאוד

12. כולנו לוקחים אחריות על כל הפסד, או ביצוע רע של הקבוצה.

1 2 3 4 5 6 7 8 9

מסכים מאוד לא מסכים מאוד

13. חברי הקבוצה מבלים יחד לעיתים נדירות.

1 2 3 4 5 6 7 8 9

מסכים מאוד לא מסכים מאוד

Appendix 6 (continued)

14. לחברי הקבוצה יש שאיפות מנוגדות לגבי הביצוע של הקבוצה.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

15. הקבוצה שלנו הייתה רוצה לבלות יחד בתקופת הפגרה.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

16. אם לשחקנים בקבוצה יש בעיה במהלך אימון, כולם רוצים לעזור כדי שנוכל לחזור שוב למסלול.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

17. חברי הקבוצה לא ממשיכים לבלות יחד לאחר האימונים והתחרויות.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

18. חברי הקבוצה שלנו לא מדברים בצורה חופשית על המחויבויות של השחקנים במהלך תחרות או אימון.

1	2	3	4	5	6	7	8	9
מסכים מאוד								מאוד לא מסכים

Adapted from English to Hebrew from: Group Environment Questionnaire (GEQ) (Widmeyer et al., 1985).

Appendix 7
The Coach Self-Report of Team Performance Scale

דיווח המאמן על הביצוע במשחק

תאריך:
מקום המשחק:
תוצאת המשחק: אנחנו ___הם _____.

מטרות ואסטרטגיות קבוצתיות:

	בכלל לא						לחלוטין כן
1. כמה טוב עמדה הקבוצה במטרותיה	1	2	3	4	5	6	7
2. כמה טוב השתמשה הקבוצה באסטרטגיות	1	2	3	4	5	6	7

טכניקה קבוצתית בזמן המשחק:	נמוכה מאוד						גבוהה מאוד
1. כמה טוב הקבוצה מסרה	1	2	3	4	5	6	7
2. כמה טוב הקבוצה קלעה	1	2	3	4	5	6	7
3. כמה טוב הקבוצה לקחה ריבאונדים	1	2	3	4	5	6	7
4. כמה טוב הקבוצה כדררה	1	2	3	4	5	6	7
5. באופן כללי – התקפה	1	2	3	4	5	6	7
6. באופן כללי – הגנה	1	2	3	4	5	6	7

מרכיבים פסיכולוגיים בזמן המשחק:	נמוך מאוד						גבוה מאוד
1. שיתוף פעולה קבוצתי כללי	1	2	3	4	5	6	7
2 מורל הקבוצה	1	2	3	4	5	6	7
3. מוטיבציה של הקבוצה	1	2	3	4	5	6	7
4. משמעת של הקבוצה	1	2	3	4	5	6	7
5. רצון הקבוצה לנצח	1	2	3	4	5	6	7
6. אתגר קבוצתי	1	2	3	4	5	6	7
7. לכידות קבוצתית	1	2	3	4	5	6	7

מידע שחשוב לציין על המשחק: _____

Appendix 8

Repeated Measures ANOVA for the six games in the dimension of team flow

Dimension	F	Sig.	df
Team Challenge Skill Balance	3.18	0.11	5
Team Merging of Action & Awareness	0.74	0.62	5
Team Clear Goals	1.49	0.33	5
Team Unambiguous Feedback	1.08	0.46	5
Team Total Concentration	28.42	0.001	5
Team Paradox of Control	9.71	0.01	5
Team Consciousness	3.05	0.12	5
Team Transformation of Time	0.85	0.56	5
Team Autotelic Experience	11.89	0.008	5

Appendix 9

Repeated measures ANOVA for the six games in the dimension of individual flow

Dimension	F	Sig.	df
Challenge Skill Balance	1.19	0.34	5
Merging of Action & Awareness	2.43	0.07	5
Clear Goals	2.97	0.39	5
Unambiguous Feedback	2.97	0.36	5
Total Concentration	1.61	0.2	5
Paradox of Control	2.4	0.07	5
Loss of self - Consciousness	2.37	0.07	5
Time Disorientation	1.04	0.41	5
Autotelic Experience	0.75	0.59	5
	2.22	0.09	5

Appendix 10

The internal consistency (Cronbach α) in team flow (n=61) & individual flow (n=63)

Dimension	Team Flow	Individual Flow
Challenge Skill Balance	0.84	0.80
Merging of Action & Awareness	0.85	0.80
Clear Goals	0.86	0.80
Unambiguous Feedback	0.87	0.83
Total Concentration	0.84	0.81
Paradox of Control	0.84	0.79
Loss of Self - Consciousness	0.87	0.83
Time Disorientation	0.85	0.82
Autotelic Experience	0.84	0.81
Total Mean	0.88	0.80

Appendix 11

Mean, Standard Deviation and Internal Consistency (Cronbach α) of Cohesion

Dimension	No. of Items	m	SD	Cronbach α
ATG-S	5	6.80	10.29	0.66
ATG-T	4	7.25	8.57	0.69
GI-S	5	6.62	9.65	0.59
GI-T	4	6.83	6.89	0.39

ATG-S= Attraction to group- Social
ATG-T=Attraction to group- Task
GI-S = Group integration – Social
GI-T = Group integration - Task