Videocoaching in Finland's ice hockey clubs

Teemu Karppinen

Abstract

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Teacher(s) or supervisor(s) Pasi Mustonen, Jukka Varmanen	

This bachelor thesis is a study of video coaching in ice hockey in Finland and how it is implemented. Objective is to find a model that the coaches can use in video coaching on a daily basis.

The first part of the thesis is a theory part that goes trough the teaching and learning process. It includes theoretical knowledge of how to teach, how people learn effectively, the various forms of feedback and how the feedback should be given. It also discusses motivation and its influence in learning.

The theory part also goes trough video technology, and the tools it offers along with their utilization.

The second part of this thesis is a research that examines the level of video technology usage among Finnish ice hockey coaches. The research part covers the survey, answers and the conclusions reached through the study.

The target group for the study were Finnish national team coaches, Liiga, Mesti, A-jr SM-league, B-jr SM-league and C-jr SM-league coaches. Study was implemented with eletcronic survey that was sent to the coaches via email.

The results show that Finnish ice hockey coaches use video in multiple ways to support them in coaching. The coaches experience that video has value to themselves, but also to the players and it is a great tool for developing both indivudual and team skills.

Keywords Video, Videocoaching, Learning, Teaching, Motivation, Feedback

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1 Introduction

Technology is developing and expanding everywhere in today's world. There are more and more objects that have technology inside or attachted to them. Technology can be helpful, if it's easy to use and gives value or features but it also can have drawbacks. When tecnhonology is working like it has been designed it eases people's everyday life. However dysfunctional technology creates more problem than solutions.

Video cameras and other technolocigal devices have been used in sports for many years, but today the usage of different technologies is developping faster than ever before. Devices and software offer more tools in sports to assist players and coaching. Technology provides accurate data that can be processed and used to find out what, where, when and how a fact is happening.

Different kind of technology are today used more than ever, also in coaching for supporting the coaches to perform better. Video technology is one component that is used a lot in coaching, because it adds value and gives tools and data that the human mind can not generate, process or analyze. Human memory and visual capacity itself are limited, but with the help of video technology those can be almost limitless. Recorded video can be stored on hard drives and that is how it can be used for longer periods of times. The human vision is limited to only one angle of view and it can't notice everything that is happening during, for example a game, because the limited visual area that the eye has.

The following chapter of this thesis goes through the basic teaching-learning procesess including teaching styles, learning habits, feedback and motivating that can be utilized in traditional coaching, but also in video coaching. The next chapter has also information about the technology and software and how coaches use it.

The idea of the study presented in chapter 7 and 8 was to find out, how the coaches are using available video technology in their everyday work with the players and with the team. Are they using it and how they use it? The purpose of the survey is to find

out if there is some kind of model that could be formed from the answers that the coaches have provided. Those answers were collected with an online survey from the Finnish national team coaches, Liiga, Mestis, A-jr SM-league, B-jr SM-league and C-jr SM-league coaches.

2 Teaching

Teaching and coaching hold the same basic principle in helping pupils and players to become better. A teacher aims at facilitating new skills to his or her pupils in subjects such as mathematics. In sport, the coach is in charge of the teaching of the players to become better in their field of athletism. The same key components are needed for the process to be at its best. (Armour, 2011, 11-12.)

2.1 Physical teaching styles

Muska Mosston (1925-1994) was a physical educator who developed the spectrum of teaching styles in late 1960's. Mosston was an enthusiastic sportsman and loved physical education. Mosston's studied at the Wingate Institute in Israel, The City Collage of New York and the University of Jyväskylä in Finland. (Ashworth & Mosston, 2002.)

Mosston's Spectrum of teaching styles had six premises that are the core of the model: 1. The axiom, 2. The anatomy of any style, 3. The decision makers, 4. The spectrum, 5. The clusters and 6. The development effects. (Ashworth & Mosston, 2002, 9-13.)

The axiom is that teaching requires decision making one after another. The anatomy of any style is the three basic actions that have to happen during a teaching event. These three actions are pre-impact (objectives), impact (implementation) and post-impact (feedback). The pre-impact phase includes planning the action, impact is the actual action and the post-impact phase is about processing the action. The decision maker reflects on the amount of authority either the teacher or the students hold. (Ashworth & Mosston, 2002, 8-13.)

Spectrum has eleven different styles that have the foundation about who is making the decisions in different styles of teaching-learning process. A teacher has the most

authority in the command style when the students have least. In the self-teaching style this is reversed. (Ashworth & Mosston, 2002, 9.)

List of eleven spectrums:
- The command style (A)
- The practice style (B)
- The reciprocal style (C)
- The self-check style (D)
- The inclusion style (E)
- The guided discovery style (F)
- The convergent discovery styles (G)
- The divergent discovery styles (H)
- The learner-designed individual program style (I)
- The learner-initiated style (J)
- The self-teaching style (K)

In the command style (A) the teacher makes all the decisions for the student so that he or she only needs to follow the instructions. The educator plans the action in the pre-impact phase, what it includes and how it is performed. In the impact phase the teacher explains the subject, divide the roles and organize the action. It's important that the students have lots of active time with the subject in the command style. The post-impact phase is for the feedback given to the students. (Ashworth & Mosston, 2002, 76-90.)

The teacher plans the activity and gives feedback after the activity in the practice style (B) similar to the command style. The teacher plans the routine and the student is given more decision-making in the activity. In the practice style the student have been given instructions on how to perform the routine but given their own initiative on tempo, breaks, priority of task etc. Teacher follows task but not all the time in one place. Feedback can be given during the activity individually, but also at the end of the activity for the whole group. (Ashworth & Mosston, 2002, 94-110.)

The reciprocal style (C) differs more from the previous two styles. Teacher still plans the activity, decides the subject and gives the instructions, but student's work in pairs where one performs while the other observes. Teachers have given the observer the instruction what to observe from the doer and what kind of feedback they have to give. Teacher's role in the reciprocal style is more of an observer in the impact phase and communicating with the observing student within the pair. The reciprocal style improves student's abilities to receive and give feedback. Style also encourages students to be more social with each other, but that means that the pairs can't always be the same and the social skills of the parties need to be at the same level. (Ashworth & Mosston, 2002, 116-136.)

The self-check style (D) gives students a lot of self studying and assessment about the subject. Teacher plans the activity and gives instructions in the pre-impact phase to the students, but the feedback has changed into questions. Students perform the activity and assess their performance by given instructions. The teacher's role is to ask students questions so s/he has to think carefully about the performance itself and how it was done. The teacher can also guide the student to a better performance with the questions. Self-check style is a good way to give students time to figure out what they can and cannot do. (Ashworth & Mosston, 2002,141-150.)

The inclusion style (E) has the same structure as the self-check style, but the teacher plans the activity so that there are different difficulty levels within the same subject. The student can then choose in what level to perform. Student has to assess his/her own performance and give feedback to himself/herself. Within the activity the teacher is available for students' questions, if students have questions on how the task should be done or how they can change the level of difficulty. Teacher does not decide the level of difficulty for the students. (Ashworth & Mosston, 2002, 156-180.)

The guided discovery style (F) is based on series of questions that the teacher has logically planned. The teacher plans the subject or problem and the questions so that the student can find the correct answers to the subject or problem. The teacher does not reveal the correct answer, but can add specific questions, if needed. The teacher

tries not to judge or make assumptions, if the student answers wrongly. The teacher has to keep students motivation high in order to keep the teaching style effective. The questions push student to think and motivates to learn detailed information about the subject or problem. The questions can be used in the pre-impact phase or the impact phase where student can implement the discovered answer. (Ashworth & Mosston, 2002, 212-236.)

The convergent discovery style (G) is almost the same as the guided discovery style. In the convergent discovery style, the teacher answers and asks questions but not by guiding like in the guided discovery style. The learner has to try to find the answer by himself and logically solve the problem. There are different styles to solve the problem and the learner can choose the convenient to him or her. The convergent style teaches problem solving for the learner where the teacher has decided the problem and create understanding for the learner when the problem is solved. (Ashworth & Mosston, 2002, 237-246.)

In the divergent discovery styles (H) the answer or solution is not something that the teacher can know beforehand. The teacher has the answer or solution but the learner can create or find something that even the teacher doesn't know. The learner creates multiple solutions or answers to the problem that the teacher has chosen. The teacher's role in the pre-impact phase is to create the problem and the learner then finds different ways to solve it. The divergent discovery style is especially good to use in group environments where multiple answers can be found through communication. (Ashworth & Mosston, 2002, 247-273.)

The next three styles are for individual where the focus is finding solutions to the problems. The learner-designed individual program style (I) is the first of these styles. In this style the teacher has designed a subject suitable for one learner and the learners has to create their own structure or plan to make questions or problems and find the answer to it. Because the teacher's role is so small the learner has to know a lot about the subject to actually be able to create own structure or plan. Also this takes more time than the previous styles because the teacher who has the knowledge of the subject

is not involved as much in the impact phase. In post impact phase the teacher is available for the learner to give feedback from that impact phase process. This style is motivating because learner can decide everything that is happening in impact phase. For this reason, the learner can apply the process at his own pace. (Ashworth & Mosston, 2002, 274-282.)

In the learner-initiated style (J) the learner is the one who initiates the subject to the teacher in the pre-impact phase. The learner's role is to find the subject or problem and to initiate it to the teacher. Learner also needs to plan the process in the impact phase and find the solution to the subject or problem. Basically the learner has to do everything and the teacher is just a resource to the learner that can guide or answer questions if needed. Because the learner rules the process the teacher has to trust the decisions that the learner makes. (Ashworth & Mosston, 2002, 283-288.)

The self-teaching style (K) is the spectrum's other end where the learner is so motivated and driven to learn new things. The learner makes all the decisions by himself and takes the teacher's role also in the process. The learner decides the subject, makes the plan, finds the solution and gives the feedback. (Ashworth & Mosston, 2002,209-292.)

2.2   Didactic triangle

In the didactic triangle there are three parts that are connected to each other; teacher, student and the content (figure 1). The teacher has a pedagogical relationship with the student, where teacher has more knowledge about the subject than the student. If the student is an adult, the level of knowledge is closer to the teacher's. The aim in this connection is to try to get the best out of the student. The pedagogical relationship is not only about the knowledge, but also about the psychological interaction between the teacher and the student. Content is a key part to the teacher to transfer knowledge to the student. If the student is saturated with information delivered by the teacher the content might not be processed. Balance between teacher's knowledge sharing and the understanding the level of the student, are important to the effectivity of the learning process. (Kansanen & Meri, 1999, 107-116.)

CONTENT

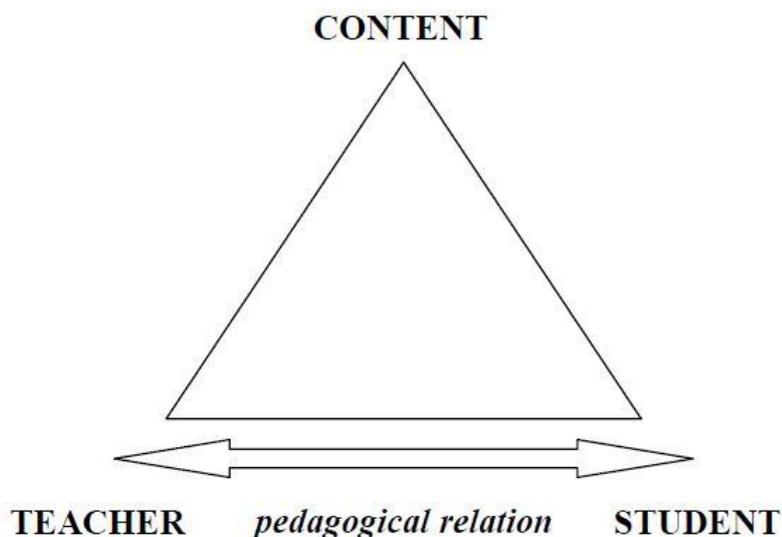**TEACHER** *pedagogical relation* **STUDENT**

Figure 1 Didactic triangle: Pedagogical relation (Kansanen & Meri, 1999, 112)

Teacher has a didactic relation to student and a content relation (figure 2). The student and the content have visible relation when the student is studying and learning is the invisible relation. The teacher can affect the visible, and the student the invisible part of the learning process. There is something to aim for and that's why the teacher is trying to guide the student to study and help with the content and all the knowledge that the teacher has. (Kansanen & Meri, 1999, 112-116.)
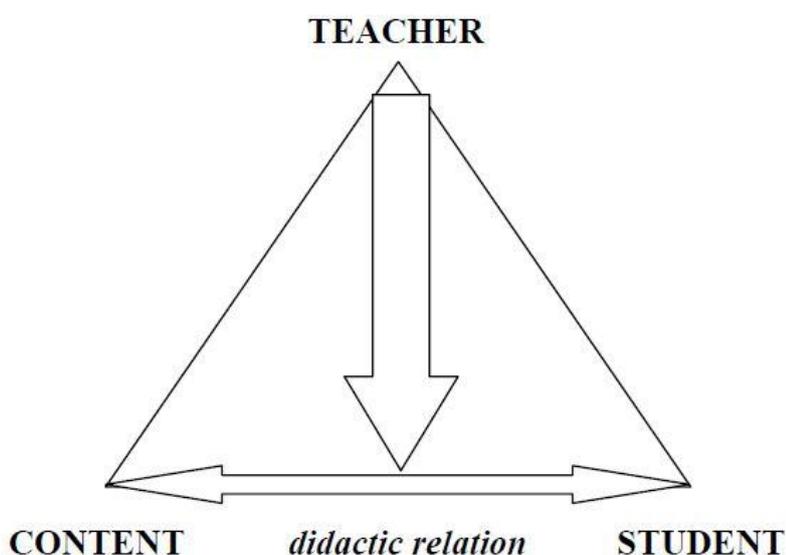
TEACHER

CONTENT *didactic relation* **STUDENT**

Figure 2 Didactic triangle: didactic relation (Kansanen & Meri, 1999, 114)

3 Learning

Learning can be done passively or actively and today's understanding about proper learning is that the learner is active and seeks information to build the knowledge from the provided information. When the learner knows his or her learning styles and learning elements it's easier to embrace information. (Forsman & Lampinen, 2008, 432.)

3.1   Theories of learning

Understanding of how people will learn has huge impact on coaching and teaching. The information to be transferred to the student needs to be effective that learning happening and not just copying. Different theories explain how this complex process can be more effective. Behaviourism, which has been the dominant theory of learning, relies on this concept, that if you provide stimulus to person he will respond to that. When the same stimulus has been given numerous times there will be learning. The receiver comes very passive for the reason of the outside source giving everything that is needed to act. A typical case of behaviourism is when a coach tells players exactly what to do and players just follow the orders. Players don't have to think anything by themselves because the coach provides everything to the players. (Armour, 2011, 41-43.)

From behaviourism developed more advanced theory where researchers started thinking what will happen between stimuli and respond. The idea behind the ideology called cognitivism was the same than in behaviourism, but the focus was in different part of the equation. In cognitive process the learner is a key part of the theory. Learner's job is to store the information that was organised by teacher or coach. Because the focus is on storing information, it was divided into two types of memory; short-term and long-term. Short-term-memorising was like copying but long-term-memorising was more of learning. The receiver is still quite passive when information is given. (Armour, 2011, 44-45.)

When realizing that a passive receiver is not the best learner, theorists focused on activating the receiver to improve the learning process. Creating an environment that makes receivers to be active and finding the information that they need gives better outcome. Constructivism's idea was to create an environment that has problems and allows the learner to actively solve problems. (Armour, 2011,45-48.)

Today the focus has been more and more on social learning. Social learning theories don't focus on how one person is learning, but how a group of people can influence learning. In a group people are able to learn and correct each other's mistakes together. In group communication it is important that other people learn also. Social learning theories make receivers to be active if he/she wants to learn. This creates an active group of individuals who know more and who help those that don't know as much (Armour, 2011, 48-50.)

3.2   Learning styles

Researchers and theorists have found three learning styles that are found in different parts in every person; these are visual-, auditory- and kinaesthetic-styles. Visual learner reacts more on visual stimulus and uses eyes to learn. Pictures, videos and viewing are in the key role for visual learner to learn. Visual data is processed in the brain and converted into memory or activity. For a visual person mimicking is one way of learning new things. (Skinner, 2010.)

Auditory learning style is based on hearing. Learner uses hearing to collect data from one's teacher, coach or audio tracks. This data is converted into learning by memorising it and bringing it into activity. Auditory learner can convert heard data to action which generates creative implementation. (Skinner, 2010.)

In kinaesthetic learning style, learning is based on doing and using the whole body. The learner can be for example doing cartwheels or other sport specific movements. Different learning styles are in a big role in teaching, because focus is to get the learner to progress as easily and as fast as possible. (Skinner, 2010.)

3.3   Learning elements

In the time when the cognitive learning style was dominant, researchers Dunn & Dunn developed a diagnosing model for elements that affect on learning. The model had characteristics, which included environment, emotional, sociological, physical and psychological stimulus (Figure 3.)
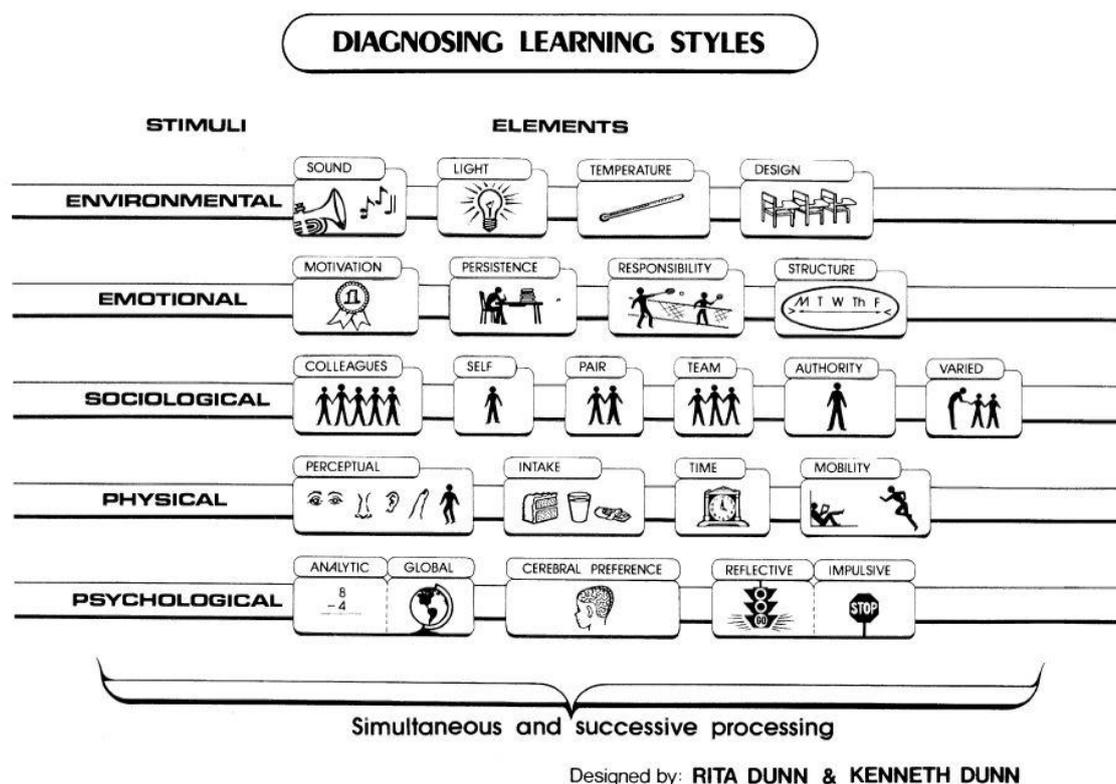

Figure 3 Diagnosing learning styles (Dunn, 1984)

Environmental stimuli elements were sound, light, temperature and design. In the environment that learning is happening those elements are present. All these elements can be altered to find the best combination for every learner, which can be challenging in a group environment. Person can modify the environment for his/her purposes so that the learning becomes more effective. Here are examples what it can be; listening music or have no music in the background, chancing the lightning, adjusting temperature in the room and changing the softness of the chair. (Dunn, How to Implement and Supervise a Learning Style Program, 1996, 31-37.)

An emotional stimulus includes motivation, persistence, responsibility and structure. The learner who is motivated learns easier than a person who isn't motivated, but persistence gives also to the not-motivated person the possibility to learn. A responsible learner takes learning seriously facilitates the learning process. Structure is teacher's responsibility in learning but also the learner can influence structure by independent studying. (Dunn, How to Implement and Supervise a Learning Style Program, 1996, 37-38.)

A sociological stimulus is how the learning experience is organized between learners and teachers. Learning experience can be organized so that the learners work alone, in pairs, in a team, with colleagues, a teacher or a coach or in a variation of these all. How the teacher has structured the class or practice depends on what elements of sociological stimulus are being used. (Dunn, How to Implement and Supervise a Learning Style Program, 1996, 38.)

Physical elements are easy to control and use in learning situations. Perceptual learning includes an auditory, visual and kinaesthetic learning style that has been explained earlier this thesis. Intake is simply eating or drinking to keep the blood sugar levels up so that the learner is able to learn. The time of the day also impacts the learner and depending on the learner, different times suit the learning process better than others. Some learners are more alert for receiving information in the morning and others later in the day. (Dunn, How to Implement and Supervise a Learning Style Program, 1996, 38,40.)

Psychological stimulus includes analytical or global model of thinking, cerebral preference and reflective or impulsive behaviour. Analytical way of thinking is the way that our schools systems work today where teachers provide facts and figures and the students build from those parts the big picture. Global way of thinking gives you the big picture first from which one can decide smaller parts to be learnt further. Cerebral preference means that the learner is either more analytical or creative depending which side of the brain is used more. Reflective learner thinks first and then speaks, but the

impulsive learner will speak first. (Dunn, How to Implement and Supervise a Learning Style Program, 1996, 4.)

3.4   Intelligence

Intelligence tests used since the early 20th century are still an important part of measuring intelligence of a person. Tests are limited to measuring only one kind of intelligence and therefore they do not take into consideration different types of learning and intelligence, which narrows the actual learning that has taken place. It took almost a century when developmental psychologist Howard Gardner challenged the idea of testing intelligence. In testing situation person is taken out of his or her natural learning environment to perform test not known to them before. Gardner's idea was to facilitate learning and problem solving in ones natural environment. (Armstrong, 2009, 5-6.)

Gardner introduced a map of intellectual abilities, which is divided in eight sections; linguistic, logical-mathematic, spatial, bodily-kinaesthetic, musical, interpersonal, intrapersonal and naturalist. (Armstrong, 2009, 6.)

A person with linguistic intelligence uses words for the benefit of selling ideas, goods or stories to others. Linguistic person can use written or spoken words, such as a coach or a journalist. Logical-mathematic person is focused on using numbers instead of using words. For example a statistician can use numbers to find out what is performing well and what's not. (Armstrong, 2009, 6.)

The spatial part is the visual part of intelligence. Spatial person can visualize shapes, lines and form accurately with the use of vision. This part is in a big role in, for example in coaching and scouting, where you have to processes a lots of visual data. Players also need spatial intelligence to process visual data in high speed in order to make to fast decisions to perform in trainings and games. (Armstrong, 2009, 7.)

A person with bodily-kinaesthetic intelligence uses hands or body to produce objectives or to perform. This requires basic physical skills like coordination to be

applied to do it. Athletes are a good example for a person with bodily-kinaesthetic intelligence. Musical intelligence in the other hand is related to hearing and rhythm. (Armstrong, 2009, 7.)

Interpersonal part is known as reading other peoples behaviours. Teams often consist of many different kinds of people and learners and there for a coach needs to find a correct way to work with the team and to react quickly to situations and people's way to react to them. Intrapersonal intelligence knows him-/herself accurately. Intrapersonal person controls thoughts, ideas and moods. Naturalist intelligence is keen on environment and aspects that influence environment. (Armstrong, 2009, 7.)

3.5   Motivation

Psychology has been focused on two areas of motivation that have been historically relevant. First area was basic biological needs, survival and breeding. Second was extrinsic reward or punishment. Researchers recognized that these two areas were not adequate. They found that motivation is connected more at positive feelings of interest, enjoyment and satisfaction. These elements created what is known as intrinsic motivation today. In the early 1970's when researchers realize that the extrinsic reward can destroy intrinsic motivation. Extrinsic reward has shown to decrease creativity and quality of action and motivation towards the same action again after the reward is given. (Harackiewicz & Sansone, 2000.)

Intrinsic motivation is normally defined as an activity that individual does for himself/herself without nobody else having to push him/her into the action It satisfies person's basic needs to compete or control the activity and that's how it's interesting for the person himself. Intrinsic motivation activates person to work harder and be more focused on those specific tasks, because something is satisfying. When intrinsic motivation occurs there is always some goal that drives the action. Goals can be divided in two group: Specific target goals have more structure how the activity should be done and purpose goals gives the reason why the activity should be done. Intrinsic motivation can be structured from goal to activity or activity to goal. Key factor in intrinsic motivation is that it gives satisfaction without any outside source. Basic

intrinsic motivation appears when athletes wants to be better and practices or uses their own time or extra time for that. In activities that need more creativity, intrinsic motivation has been found to have a big role. Intrinsic motivation can be enhanced with challenge, control, curiosity and fantasy. (Harackiewicz & Sansone, 2000, 106-124.)

Extrinsic motivation is based on outside source that motivates activity or person toward the goal. The extrinsic motivation is so big that it motivates, even if there is no satisfaction in the activity itself. Extrinsic motivation is based for the activity or for the person. Extrinsic motivation can be different in group environment where it can mean something else to others. (Harackiewicz & Sansone, 2000, 445-446.)

4 Feedback in learning

One part of learning is giving and receiving feedback. Feedback is given in many different situation in life, example in school teacher gives feedback during the class and in the end of a term or course. In sports coach is the one that usually gives feedback before, during and after the practice or game. When there is this type of dominant discourse, teacher or coach is expert of this area and the feedback is more one-way. The expert provides information by giving feedback to the student or player. These kinds of situations, where the person who is receiving the feedback may know something already or knows nothing about it may lead to improvement. Too much information in feedback can block the improvement or the learning. The amount of information and the content in feedback is important so that it doesn't affect negatively on learning. (Askew, 2004.)

There are different types of feedback; positive and negative. Positive feedback is given when action is correct or satisfying, and negative feedback is when action is incorrect or needs for improved. Positive feedback can increase motivation, confidence, and understanding. Negative feedback is more often decreasing motivation, confidence and also criticizing receiver. In some situation positive feedback can do the opposite what it is supposed to do and same applies to negative feedback. (Askew, 2004.)

In the 1960`s new type of model for giving feedback was developed. The amount of information there is available, the more guidance receiver needs. Earlier the idea of feedback was to give the information to receiver, but nowadays feedback is given more to discovering the information that is needed. Taking the receiver into the discussion and using open-ended questions is a more effective way to use feedback for learning. (Askew, 2004.)

Giving feedback can vary in different situations and that's why the person who is giving the feedback needs to think what strategies are best for the situation. Those strategies are timing, amount, mode and audience. Timing includes when and how often the feedback is given. Feedback can be given immediately or delayed depending

of purpose. When feedback is given receiver has to be still aware of the topic and receiver has to have time to react to the feedback. (Brookhart, 2008.)

How much feedback can be given at a time? The amount of feedback given to the learner has to be regulated so that the receiver can process the feedback and take the needed information out of it. If the feedback is too short there might be information missing from receiver's point of view. Prioritizing the information in a feedback is important in order to learn from it in the best possible way. (Brookhart, 2008.)

Feedback can be given in different modes. The situation determines what mode is best suited when giving the feedback. Written feedback is optimal in situations where the information is required to be accessible more than once. Feedback given orally is commonly used due to its easiness and immediate nature. Oral feedback however looses it's accessibility for further use if it hasn't been recorded. Demonstration is an effective way to give feedback in places where receiver has to learn something physically. When combining the modes, the feedback is even more effective. (Brookhart, 2008.)

Depending on the audience it is important to find the correct way to deliver the feedback. In a group feedback the information needs to be across-the-board relevant to every member in the group. Group feedback is less specific and might miss information on the individual level. Individual feedback is more targeted to one or a couple receivers and is more informative. Dividing a bigger group into smaller ones helps feedback information to be more targeted and to create a better learning experience to the audience. (Brookhart, 2008.)

The content of the feedback is as important as the strategy. Content is more about what you want to tell where as the strategy is how you want to tell it. When thinking about the content there are few aspect that need to be thought through before giving the feedback. These are focus, comparison, function, and valence. Focus in a feedback is to find strengths and weaknesses of the work or process in hand to gain a better understanding in what was done and what was the aim. (Brookhart, 2008.)

Comparison of two different individuals doesn't give the information needed for the individual to improve. Using comparison effectively the feedback needs to be given as criteria or using receiver's previous actions as a comparison. Criteria where the person is compared gives the information about what the receiver needs to know and where he or she stands. The receiver`s own past actions and performance is also assisting the receiver to know the right direction of the learning process. Giving comparing feedback gives to the receiver a level where he or she stands and information if the action or performance has gone well. (Brookhart, 2008.)

In giving feedback it is important not to make the information judging, but more descriptive, this is referred as a function. Judgement in a feedback has a tendency to create a negative perception to the receiver and takes away the interest to improve. Describing is more rewarding for the receiver if the focus is in improving and learning. (Brookhart, 2008.)

In the end feedback`s core is positive or negative. How feedback is given and how understandable it is impacts how well the receiver is able to learn from it. Using vocabulary that is understandable also for the receiver with specific information about the action or performance improves the significance of the feedback. (Brookhart, 2008.)

5   Using video in coaching

Video has become a valuable tool to provide data out of training and sport competitions. The key in video coaching is to have a clarity in the usage of the information it provides and to receive the optimal assistance to a coach or a player. Video coaching can be a valuable source when planning practices or preparing for a game, where the data of the past performance can be explored. Video or other tracking systems provide data for example on player's speed, covered distance, acceleration and changes of direction. This is informative and accurate data that cannot be provided without this type of technology. There is a lot of different information about an individual or a team that can be provided from using video in coaching. Most common questions to be answered with the help of video coaching, especially in tactically are what happened, how it happened, where it happened and when it happened. (McGarry;O'Donoghue;& Sampaio, 2013, 89-90.)

5.1   Video Software

There is multiple software available today that can be used for video coaching. Dartfish Ltd. example provides software for smart phone's, tablet and computers. With smart phone and tablets software it is easy to record live video and give instant feedback after performance. Video can be viewed frame by frame and software can also provide tools for highlighting specific areas or example calculate joint angles. Video can be uploaded to cloud services that can be watched from different devises and share the video to its audience. Other smartphone and tablet software you can collect stats live and tag events that can be later compound in computers software with the video and that way get the video clips needed without going through all the video material. Tagging is like putting a hash tag to a video in order to find it easier. Computer software can have the same elements that the smartphone and tablets software. With mobile and computer software gives possibility to calculate distances, joint angles, enlarge video, video overlay, split screen and delayed live video feet. There are many possibilities to use video in coaching and the softwares are produced to make it easier to use technology in every day training. (Pike, 2008, 29-34)

5.2   Individual athlete environment

Video coaching can be used for analyzing technical qualities of a person in any sport. Usage of one to three cameras allows to calculate for example in swimming stroke rate, stroke length and angles of different joints. The same method works in any sport and can be used for collecting data of individual performance. Collected data can be used for improving technique or correcting false technique. (Andrew J Callaway, 2009) In ice hockey video material can be used developing for example player's skating skills by calculating ankel-, knee- and hipjoints angles. Video material provides knowledge on performance and using that with the joint calculations assists in improving skating. (Pike, 2008) Video coaching can be helpful even in youth sport where training technical skills is a big part of training process. Learning the fundamentals of tecnhical skills video material gives tools for self-assesment and self-correction. (Alfredo Di Tore;Bianchi;Polidoro;& Raiola, 2013.)

Even interactive motion video games motivates and inspires youth to practice independently. Video games have the same visual and kinestetic way of learning as video material. Interactive video games can be used for rehabilitaton, but the same method is valuable also in sport for training tecnhical skills. (Dock;Häger;Sandlund;& Waterworth, 2012.)

The video can be great tool for coaching but it has to be still reseached more to find the correct ways to use it. Reaseach has demonstrated that video feedback helped golfers at different levels in improving their skills. Although it can be a drawback in some cases. (Bertram;Guadagnoli;& Marteniuk, 2007.)

5.3   Video coaching in team environment

In a team enviroment, video coaching can be used for multiple aspects of the game depending on the nature of the activity. Invasion games like ice hockey, soccer, basketball have similar types of tactical areas and sections that can be utilized for video coaching. The common measurement that coaches use in analyzing the game from video is the success ratio showing how succesful or unsuccesful the team was or the

players were in some particular area. (McGarry;O'Donoghue;& Sampaio, 2013, 89-120.)

Tactical areas can be categorized in different ways and they have a lot of subcategories or areas that coaches desire to look at from video material. Two main categories that invasion games have are attacking and defending. The tactical aspect of coaching in a team enviroment has a big role in professional and adult levels. Coaches have to create tactics and strategies to defeat the opponent. When creating these strategies, coaches also have to be aware of the opponent's play tactics and way of playing. The high usage of video recordings at professional levels allows coaches to discover tactics from the opponent teams easily. Also the recordings of previous games between teams are valuable source of gaining information on the opponent's game tactics. The accumulated knowledge from video recordings enables teams to adjust their own tactics accordingly. Video material can be used in two ways in a coaching situation; repleying the teams own tactics in order to learn further from them or showcasing the opponents tactics as as preparetion tool for the game. (McGarry;O'Donoghue;& Sampaio, 2013, 89-120.)

The two main categories of attacking and defending can be divided in subcategories that can be studied from the video material. Attacking and defenfing must be sub-categoried in order to gain calculated success ratio of the video. All the categories a coach decides to concentrate on have an impact on tactics, developping the game and eventually winning. Basic subcategories like passing, scoring opportunitues, 1on1 situations etc. can be easily calculated from video. Video material is then prosessed based on what was a success and what was not or what should be done differently to develop the team playing. The video material from these subcategories can be used for player development by showcasing the players success and areas of improvement. From the video material it is possible to gain information of the player's speed, traveled distances by walking or running, and all this information can be utilized by the coach to develop new tactics or exersises for an individual players. The information provided by video material helps in the progress of an individual player but also the coach to develop the team.. (McGarry;O'Donoghue;& Sampaio, 2013, 89-120.)

Video recordings can be collected in both game and practice to collect usable data. In practice, where players are developing differents kind of skills, it is also good to record video and show the players what is happening. For example, if the team is practising tactics in a full scale, the coach can replay the recordings for the players during the practise and showcase the action providing guidance for improvement. This is an excellent way to provide instant feedback and create a valuable learning experinece. Combining the vocal and visual feedback significantly helps in the learning process. This same method can be used for game also. Between player's shifts, coaches can provide video information to the players which is translated into instant learning and implementation. (McGarry;O'Donoghue;& Sampaio, 2013, 89-120.)

6 The aims and research questions

This research was made in order find how trainers use video coaching as a tool for teams and individuals training in ice hockey. The research also covers how the coaches discovered the best way to teach players and how they take into consideration the individual learning habits of the players. In the research it is also included how coaches guide or give flexibility players making them self-aware about their own learning process. The research gives a harsh model on how video coaching is used in the ice hockey environment today and directions on how it should evolve to enable the use of video recordings effectively. The research result provides data that can be used to develop Finnish video coaching and how to take player's different learning habits into account when planning video coaching.

7 Research methods

Research was implemented with electronic Webropol survey software. Webropol is an internet based survey software that can be sent to the target group with an open internet link. All the answers are automatically collected to the Webropol and the data is easily analyzed with the tools that Webropol provides. Electronic surveys has the advantage when contacting a large target group.

7.1 Study design

The survey was implemented in cooperation with IIHCE (International Ice Hockey Centre of Excellence) and had 28 questions—16 selection questions and 12 open ones where the coaches could write more informative answers. The areas covered by questions were as follows; basic informational questions, technical questions, learning and teaching questions, feedback and motivation questions and the video coaching habits that they used. (Attachment 2)

7.2 Data collection

Data was collected from Webropol software where all the answers can be analyzed either as a group or separately. Webropol software also provided all the figures about the questions that are available in this paper.

7.3 Statistical methods

The survey was made using quantitative research methods. Most questions were quantitative, but other questions had a specific character such as open questions allowing the responder to expand the answer and to provide more information on the topic.

7.4 The target group

The survey target group was Finnish national team coaches, Liiga- (highest adult ice hockey league in Finland), Mestis- (second highest adult ice hockey league in Finland,

A-jr SM-league (U20 highest league in Finland), B-jr SM-league (U18 highest league in Finland), C-jr SM-league (U16 highest league in Finland) coaches (figure 4). Of the respondents ~12% was Finnish national team, ~12% was Liiga, ~15% was Mestis coaches, which represent the professional teams. From youth ice hockey teams ~18% was A-jr SM-league, ~24% was B-jr SM-league and ~18% was C-jr SM-league coaches.
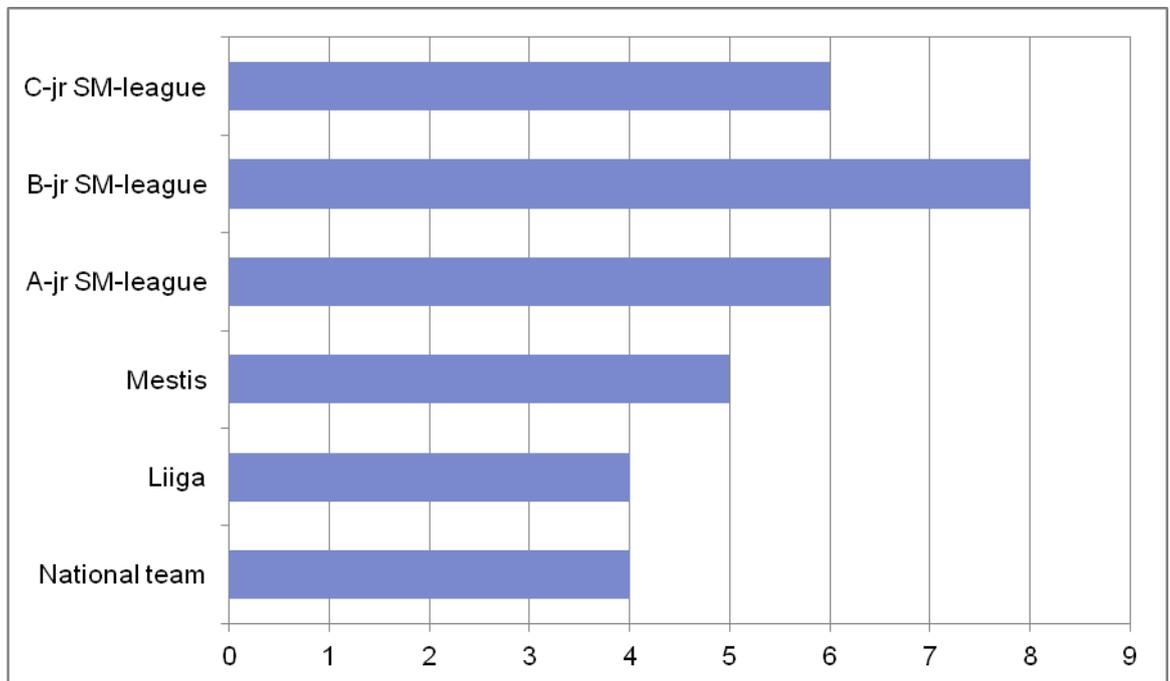

Figure 4 League level respondents

The survey was sent to 157 coaches all over the Finland via email and by the International Ice Hockey Centre of Excellence (IIHCE) which is FIHA's (Finnish Ice Hockey Association) and IIHF`s (International Ice Hockey Federation) common project that focuses on organizing educational events, ice hockey camps, production of educational material and to collect research information. (IIHCE, 2016)

The surveys was answered by 38 coaches giving a response rate of ~24%. There were no mandatory questions so different questions had different numbers of answers. Because of the low answering percentage, this survey cannot be seen as a comprehensive knowledge of video coaching.

The surveys was sent to the teams were they could decide who answers about their team video coaching. Head coaches answered the survey (~84%). Responses were

collected also from a few assistant coaches (~11%), goalie coach (~2%) and video coaches (~2%) (Figure 5).
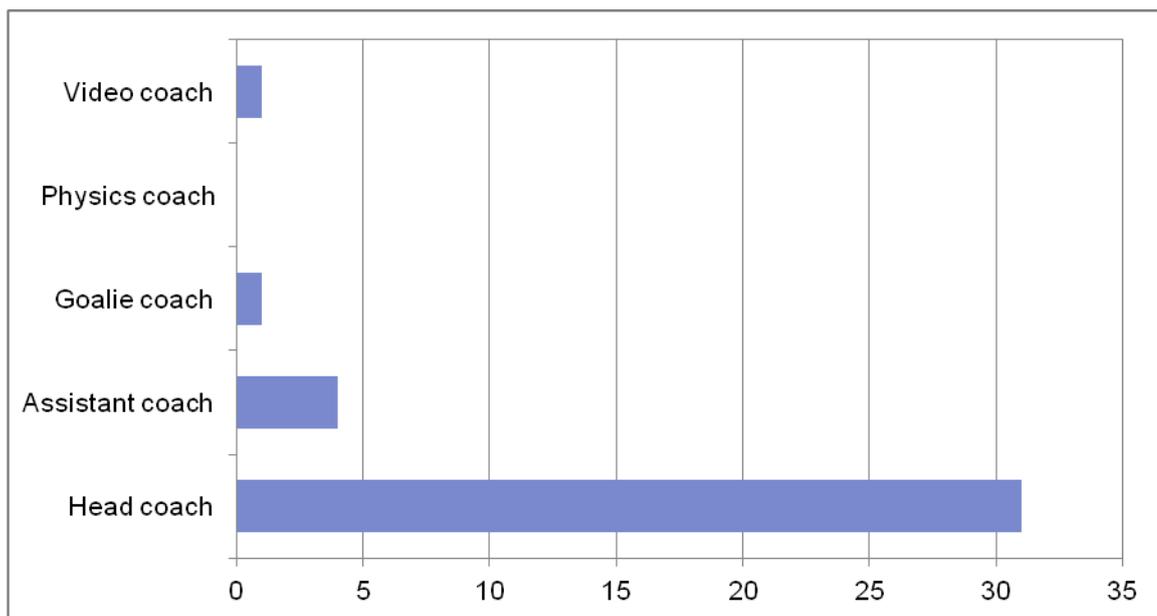

Figure 5 Role in the team

The age distribution of the coaches varied from 18-24 years old to over 45 years. Only one responder was under 25 years old and the biggest age group among the responders were the 25-34(~39%) years and over 45 years (~39%).
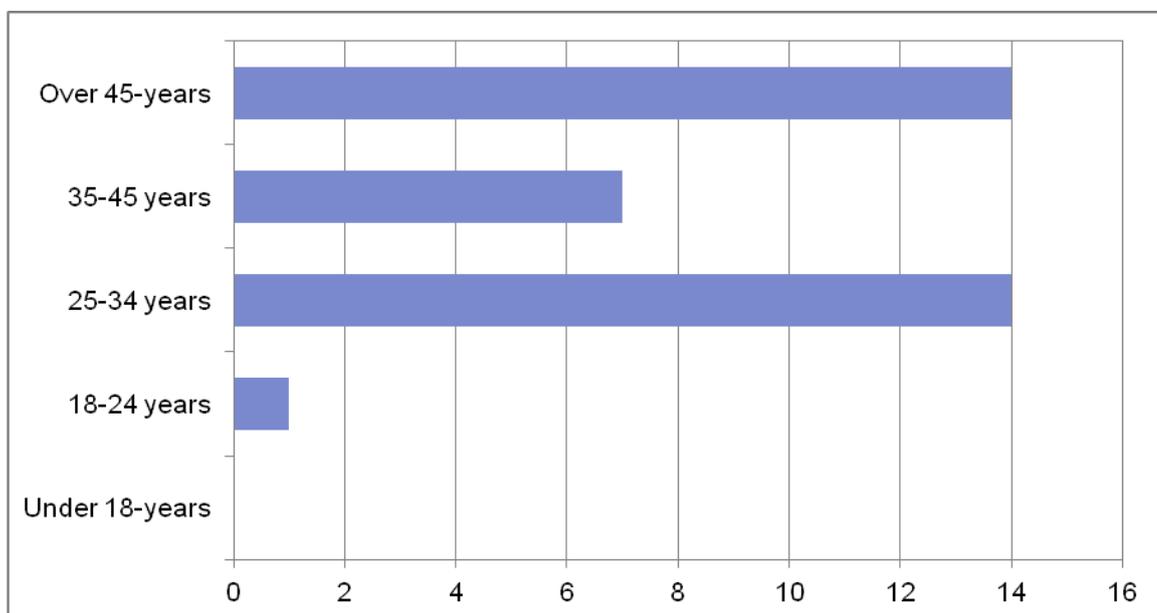

Figure 6 The age of coaches

The coaches were asked about their educational background, where they have been studying or if they have other coaching education. All together 14 coaches (~37%) had higher education either in university or university of applied sciences. The majority of coaches had a degree in FIHA's (Finnish Ice Hockey Association) coaching program. (Figure 7) Other educational backgrounds among respondents were for example physiotherapist, masseur and sport instructor.
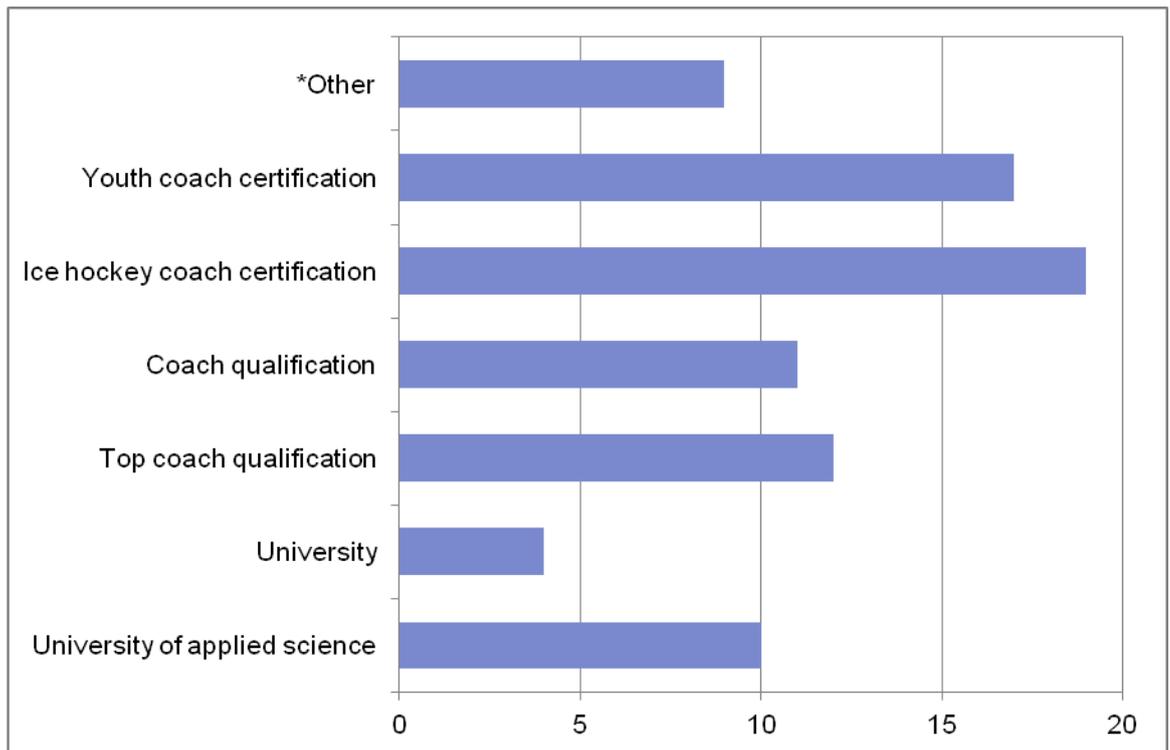

Figure 7 Education level

The amount of coaching experience varied from 0-5 year to over 20 years. Almost half of the respondents had coaching experience for 5-10 years and even ~16% had over 20 years of experience. This is an indication of the strong and long commitment in coaching (figure 8).
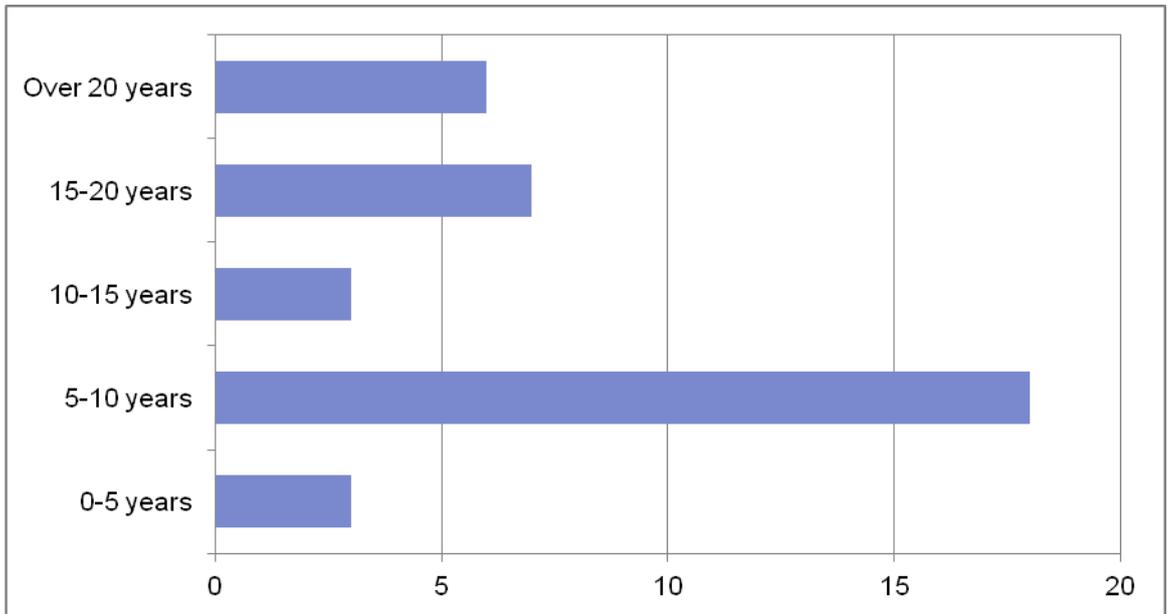
Figure 8 Coaching experience

Coaches were also asked how many seasons they have been coaching their current team. All together 14 coaches have been only one season with the current team (~38). ~24% have been with current team for two years, ~22% three years and ~16% of the coaches have been over four years with the same team. (figure 9). Coaches position in teams change a lot and that's why coaches have been with the same team for shorter periods.
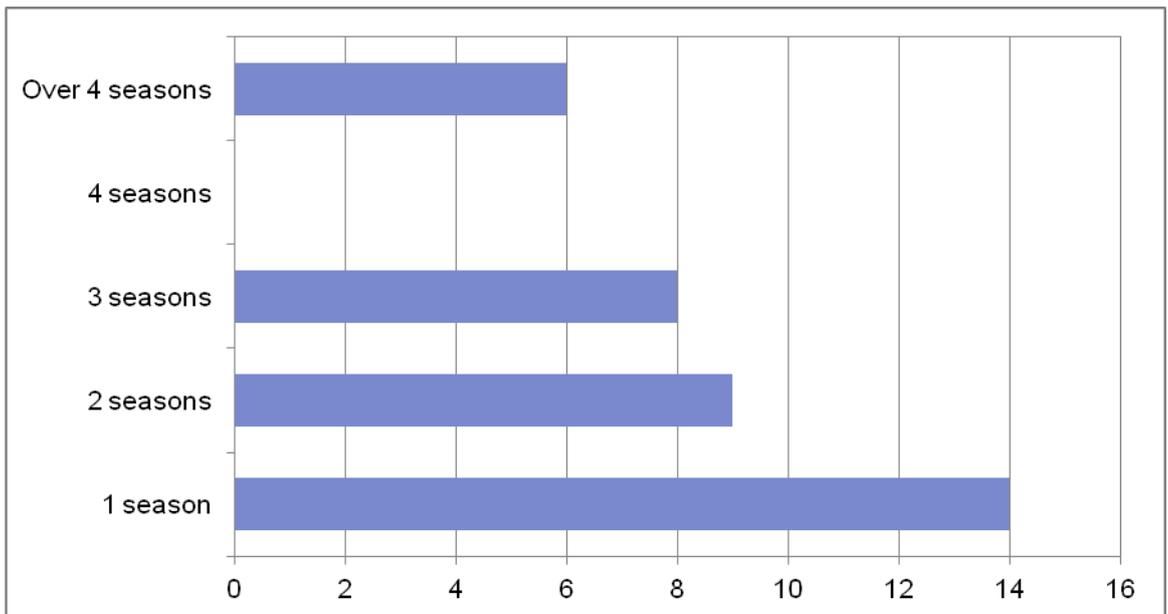

Figure 9 Years in the same team

The study also examined the average size of the coaching staff in a team. The majority of respondents had 3-4 coaches in the team (~81%). Only ~11% of the respondents had 1-2 coaches in their team (Figure 10). 3-4 coaches in team are quite normal size in youth ice hockey teams. Normally teams have a head coach, one or two assistance coaches and a goalie coach.
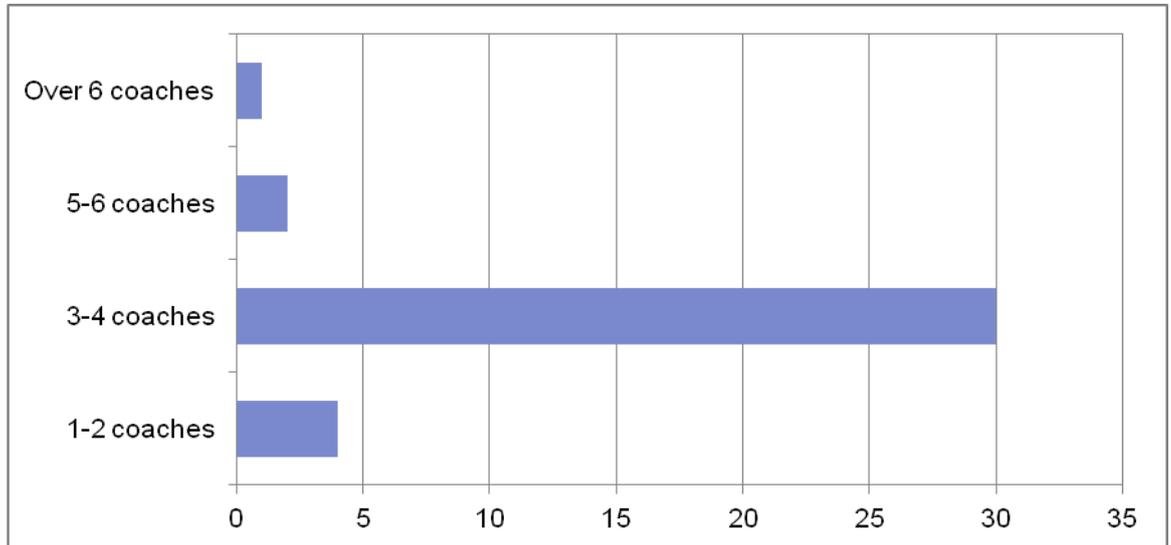

Figure 10 Size of the coaching staff in a team

8 Results

The results are presented in figures and text. The optional questions are shown in figures and described in the text. Open questions are only analysed in the text. The results are divided in the following categories; technology, learning environment, time usage with video, video meetings and feedback and motivation.

8.1   Technology

When teams were asked about which programs they use to support video coaching, around 65% answered that they use STEVA sport software inc. program. The second most used program was RovaSport ~16% and other respondents used programs such as Dartfish, Pinacle studio, Pointstreak and LongoMatch. Some teams even used video material that player's parents had recorded during games. Some of the respondents didn't have any tool for video analysis at the moment, but would be interested in using one.

Video analysis programs are different and the way to share video material with the players varied depending on the tools that the program has. Results of the survey show that the most commonly used way to share video material with a team is to put the video on a memory stick and share it with the players. The second most used way was to put the video on a cloud service, such as Dropbox, where players can watch the material themselves in their spare time. (Figure 11.)
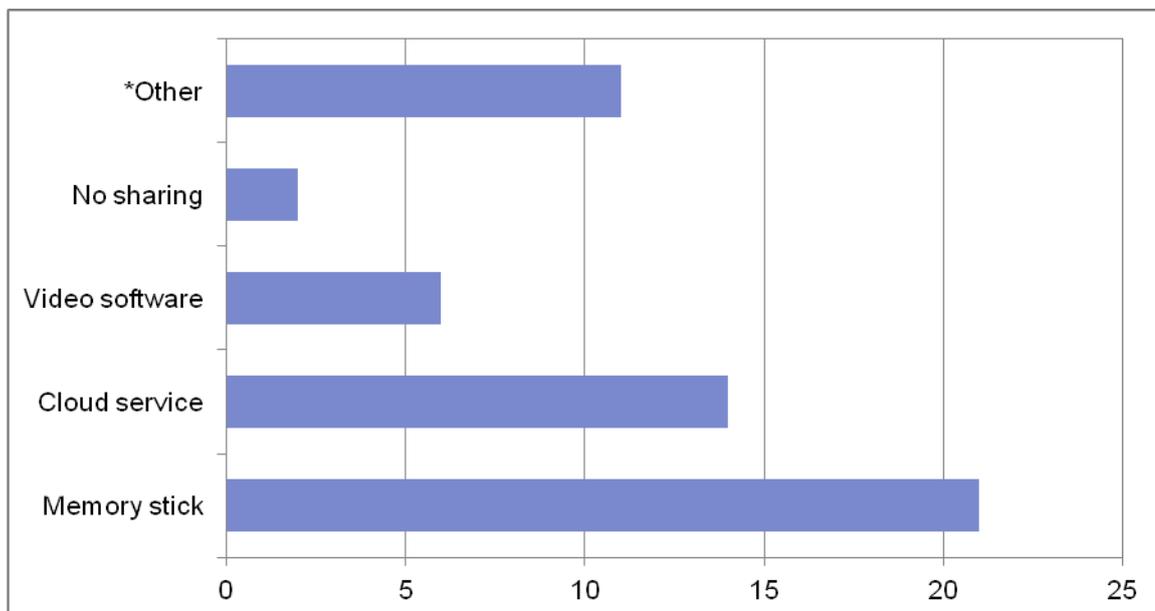
Figure 11 Sharing video material to players

Other ways to share video material among the team is to share it trough social media channels, such as YouTube and WhatsApp or go through the material in a meeting either with the whole team, smaller groups or individually with the players.

The teams mostly used normal video cameras or television grade cameras for the recording of the games. These devices are often used for game recording and for the material that is shared to the players. The advantage of video cameras is the quality to create video feeds and other features that tablets and smartphones don't have.

8.2   Learning environment

Results show that the learning elements of individual players are difficult to take into consideration. Teams have access to TV, tablets and/or screens that are available to the players and the coaches when needed, but are usually located in locker-rooms or offices. In locker rooms or offices controlling environmental elements is difficult to fit for everybody. Environmental elements like sounds, light, temperature and design are not as controllable in locker rooms and offices. Facilities that the team uses are owns by corporation or commune so they can't modify the rooms that they use. Video meetings are often organized for the whole team but even smaller groups and individuals meetings are used. Coaches go through the video with the team and groups

as well as individuals, but they also give opportunity for individuals and groups to go through the video by themselves.

8.3 Time usage with video

Coaches use a lot of time with video materials doing research or while the development of different areas during the week. Results show that coaches use between 1-2 hours up to over 15 hours per week just watching video material. Coaches also feel that they don't have always time for viewing the video materials depending on the size of the coaching staff and the level that they play at. The national team coach does not work actively with the team like the coaches in clubs do so they have more time for video material. For the national team coach, that's also practical because players can be playing in different countries. In clubs, coaches spend more time with the players and the video recordings are used in individual training, developing their team playbook and scouting opponent teams. Results show that coaches use in average ~140minutes per week watching video developing their team playing. That's the area were coaches use most of their time when watching or processing video material. The second longest time s coach uses is for developing individuals (~116 minutes). The third longest time a coach uses is for scouting opponent teams (~79 minutes). Which is almost the same time a coach spends for player profiling (~78 minutes). For other areas such as developing playbook or sport skills, a coach uses ~31 minute per week. A team with a bigger coaching staff has obviously more time to go through the video by delegating tasks, but it also depends on how interested the coaches are in using the video material.

The time used for viewing the video material seems to have value for the players, but also helps coaches to get their message through to the players. Coaches use video to convince players regarding what they saw during the game or practice. It enables also the players to see what they did from a different angle. Video material is also visual stimulus that helps the players to learn and that's one reason why it is used by coaches. According to the survey, coaches feel that video develops players a lot (figure 15). The result also shows that coaches give the players the possibility to watch their own shifts

from games or the situation that they want to see and learn from, but the coaches think that players should be more active and interested themselves.
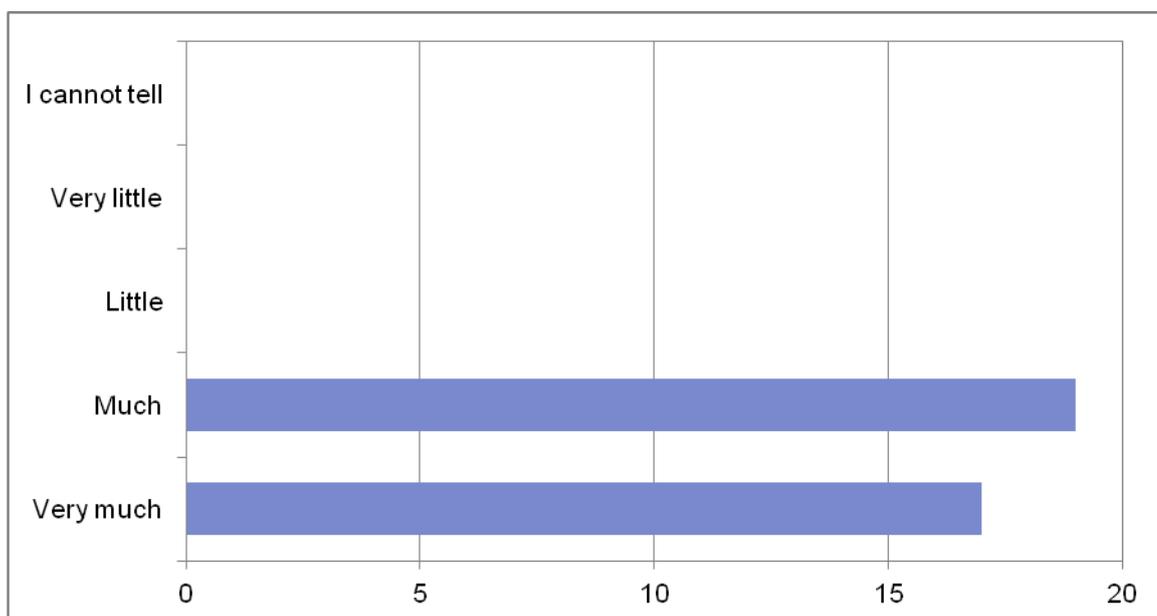

Figure 12 Do you feel that the video develops players?

8.4   Video meetings

The results show that the average time for video meeting with a team is between 10-30 minutes per session. Some teams use over 40min for one video meeting. (figure 12) Meeting times can vary depending on the season or the coach's schedule.
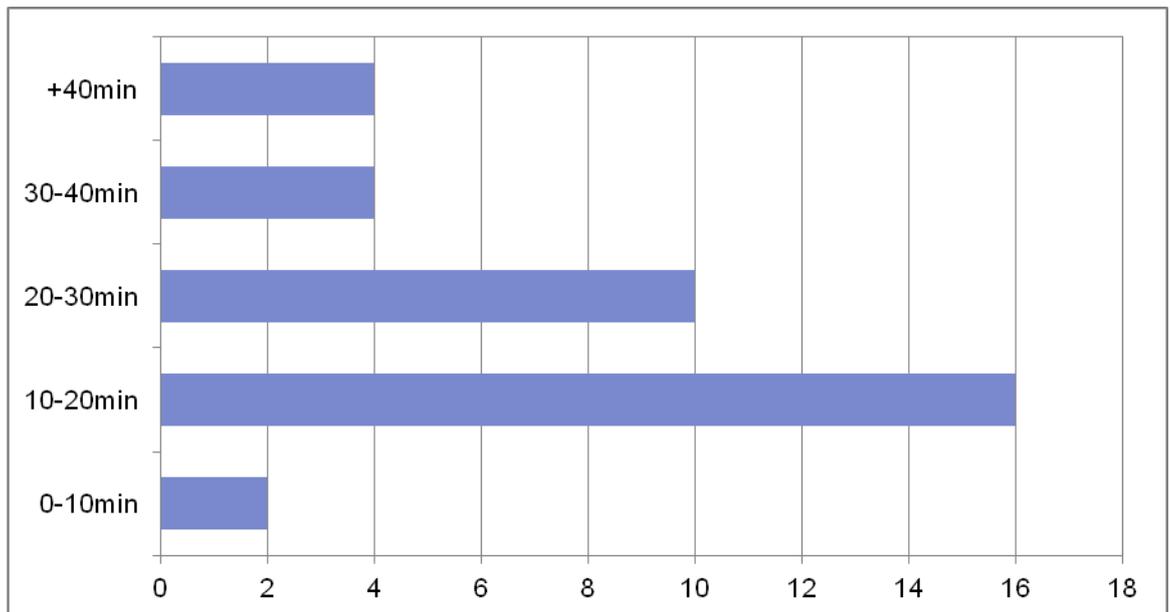
Figure 13 How much time do you reserve for video meeting?

Teams use video of the game material mostly before the next game, practise or the day after the game. This gives coaches more time to process and analyze the video material for meetings. The teams also use game video material during the game either at the bench or between the periods in the locker room. Video materials are also watched after the game. If a team does not have time to edit or watch a video, they try to find time later in the season. (figure 13)
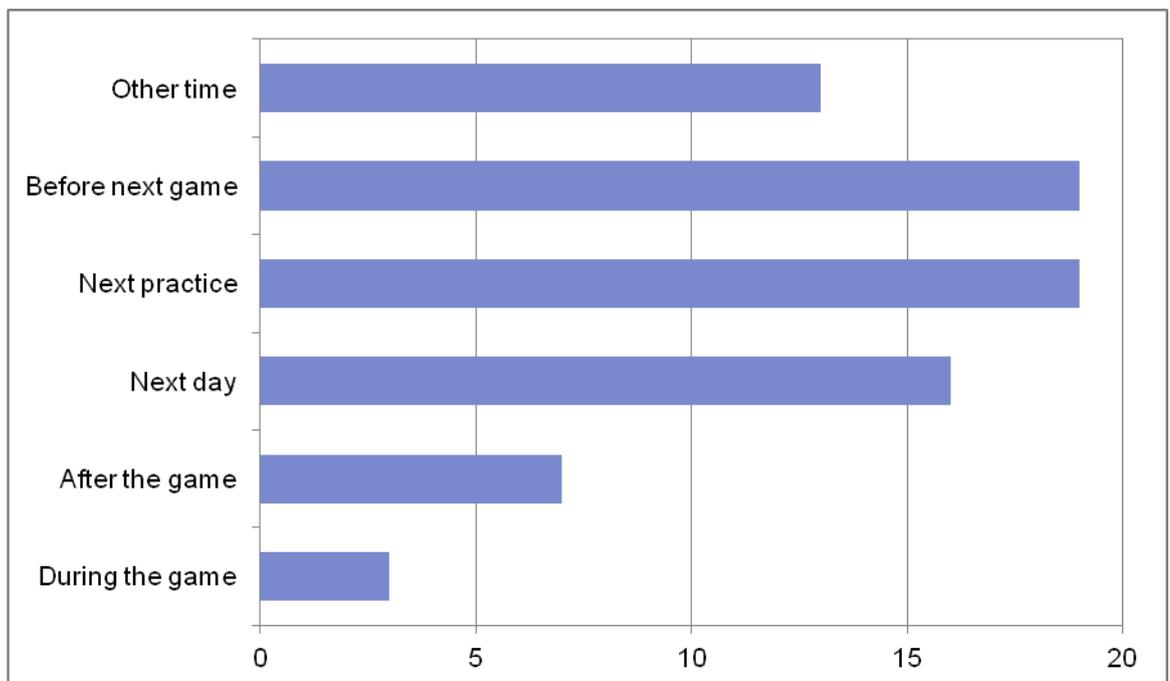

Figure 14 When is the video of the game being watched

When a video is filmed during practice, it is watched mostly during, after the practice, or next day (figure 14). Video material defines when the coach wants to view it and when is time to show it to the players. In situations where coaches need more time to analyze the video material it is viewed before next practice or day. If needed the video material can be also viewed straight after recording.
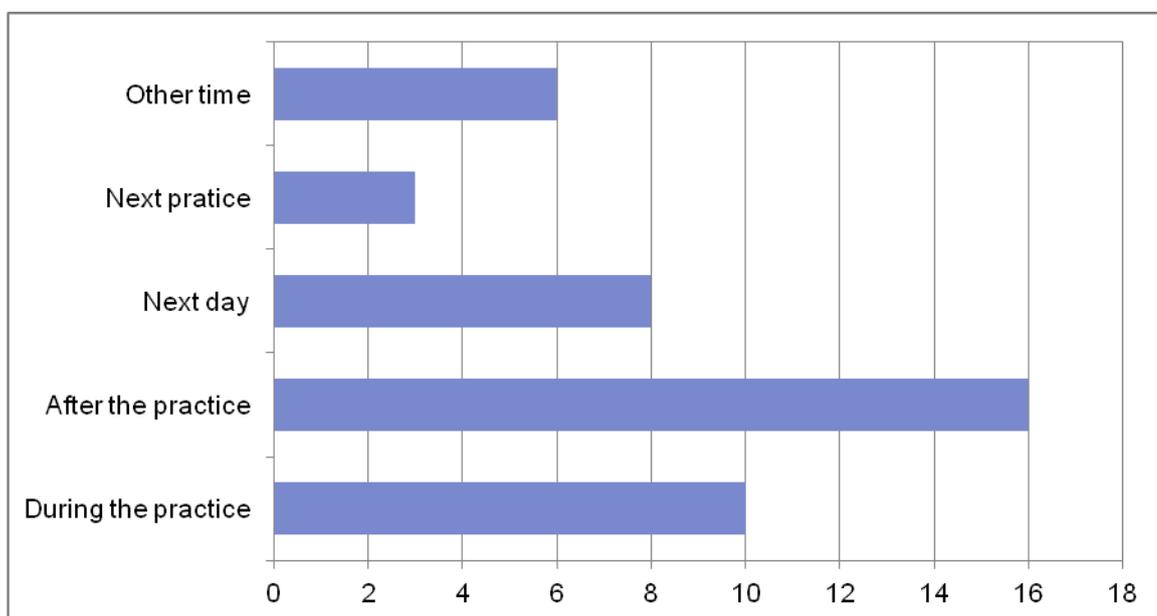

Figure 15 When the video of the practice is being watched

Goal keepers have mostly their own video meetings with goalie coach. Video is either recorded from game videos or using a dedicated goalie camera. Goalie coaches commonly use in practice tablets or smart phones to record video.

8.5   Feedback and motivation

The research shows that the coaches choose mostly positive video clips to show to the team in video meetings. Coaches experience that positive feedback trough video is more effective than negative. Coaches also use a lot of clips that has something that the player or the team need to improve. This can be something that has been done incorrectly or is missing. Coaches do not use negative clips as much, but of course there are situations where also negative clips have their time and place. With the individual video meetings coaches use mostly clips showing something that has to be improved.

In general, coaches give feedback verbally to the players during team, individual and small group meetings. Only three coaches gave written feedback to the players. Verbal feedback means that the coach has to be present when the video is viewed. (figure 16)
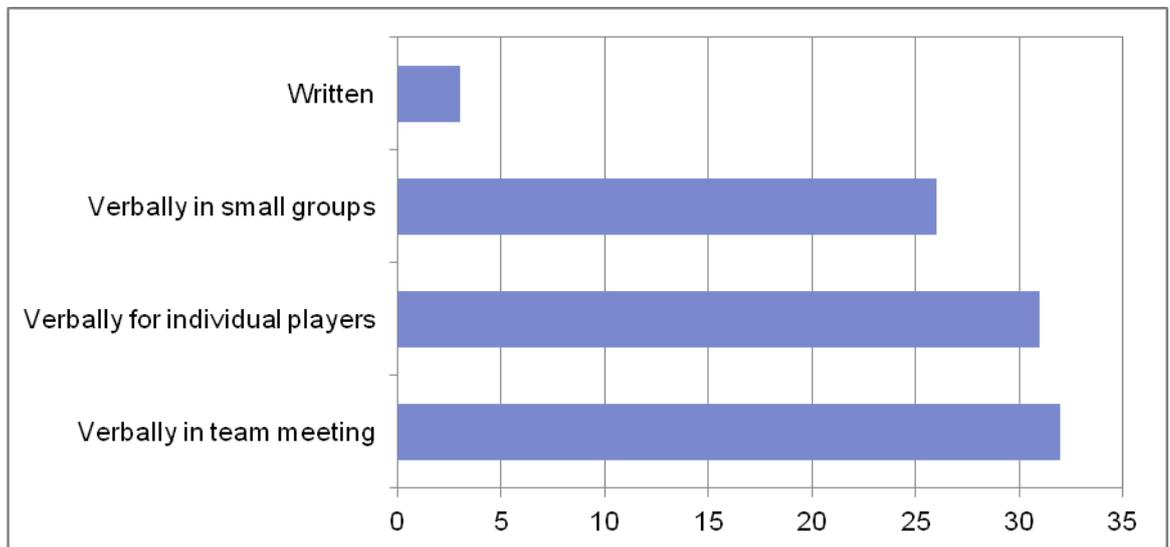

Figure 16 How feedback is given to players

The result shows that video is not only used for giving information to the players but also motivating them. (Figure 17) Video can be used for motivating players by choosing positive clips from games and practice.
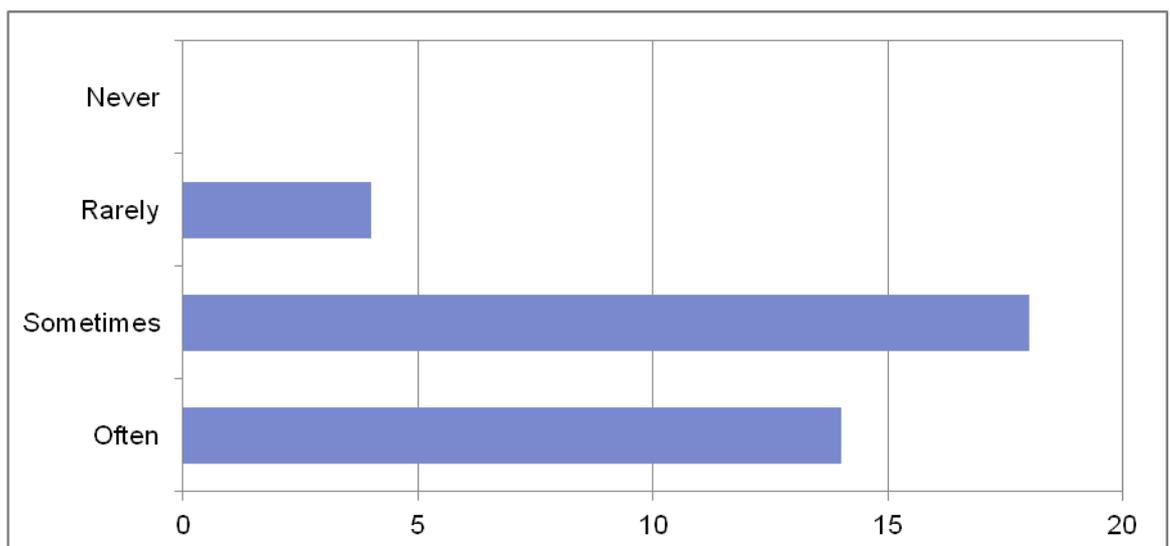

Figure 17 Is video used for motivating player?

Coaches find that video motivates players to perform at a higher level. (figure18) That's also one reason why video is used in coaching. The video material that coaches use for positive feedback has also an impact on players' motivation.
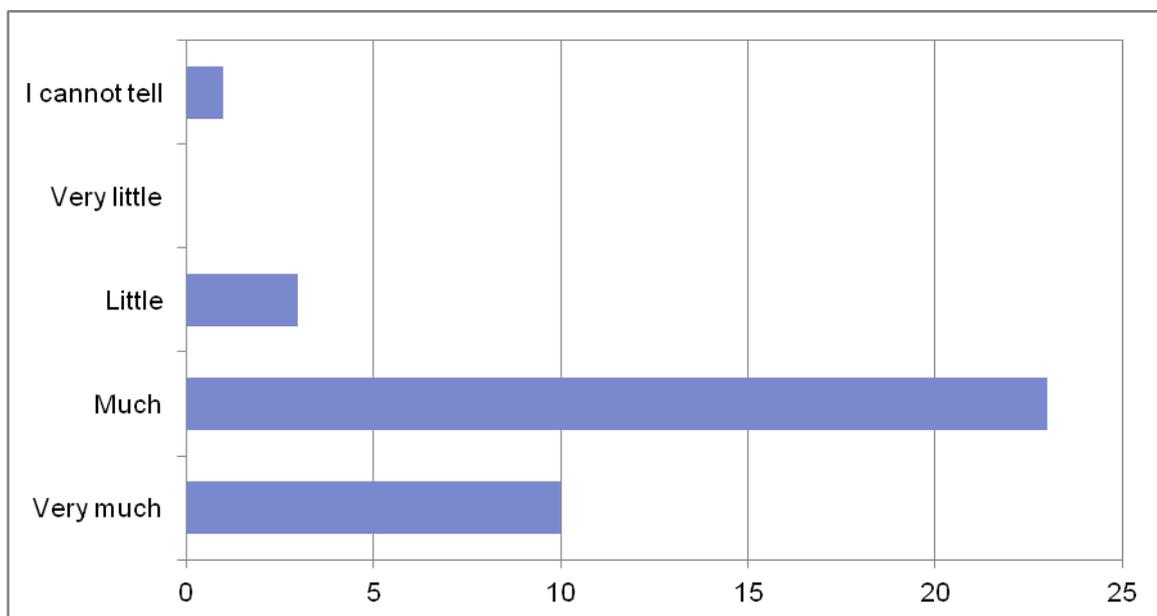

Figure 18 Do you feel that the video is motivating players to play and practice better?

According to the result of the study, coaches experience that video is making players more self-directed. (figure 19) The majority of the coaches experience that the video is either making players a lot or little self-directed when using it as a tool in coaching. This can be hard for the coach to see if the players use their time outside the team environment to improve themselves. Team environment can be structured so that the self-direction is not utilized because the coach is directing the players too much.
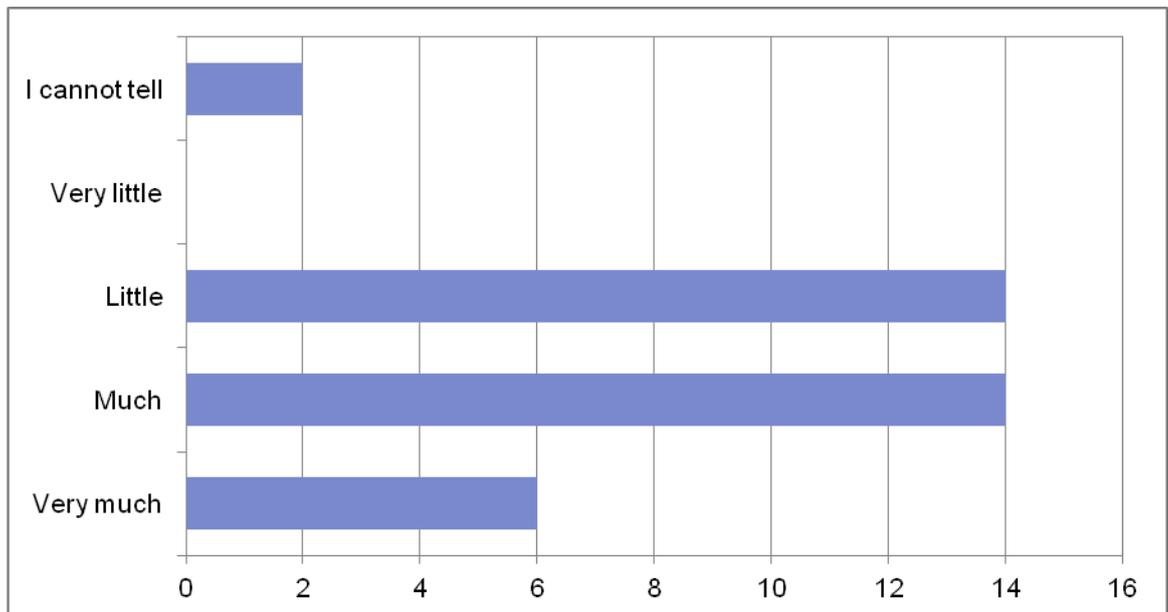
Figure 19 Do you feel that the video is making the players more self-directed?

8.6   Conclusions

Finnish ice hockey coaches use video in multiple ways to assist them in coaching, but also to give players an effective way of learning. Coaches have interest for working with video in order to develop the team and individual players.

Video material is used to present the information to the players so they can develop themselves and be more motivated to practice. Coaches experience that the video is a good tool for coaching and it has value for both the individual and the team.

Video is concrete and that's why it is a good tool in coaching because the feedback is not based only on what the coach sees. Also video can confirm or correct what the coach saw before he gives the feedback to the players. Video material is a great tool to collect statistics from games to get data.

The disadvantages that video technology represents to the coaches are time consuming and the technical problems they encounter. Coaches believe that video will be a great tool in the future helping in the coaching and learning processes with great effect.

Discussion

Technology is becoming more and more involved in coaching as it provides a tool for coaches and players. Because the technology is still relatively new, coaches feel that they are not using the full potential of video.

Coaches' age can be one factor in not knowing how to use technology and that's why they opt for more traditional methods that's they are familiar with. Learning video technology can be an unpleasant experience or too time consuming affecting its use. Also there is not so much education for video coaching in ice hockey and how to use video in coaching. Having education and information about video coaching and technology could help coaches to try video more in the process.

Teams usually don't have a video coach. That's why it takes time for the head coach or other coaches to process the video so that they can use it to their liking. Teams could rethink their coaching staff and employ a video coach who could also assist in other areas.

Video technology has a great potential to support coaches and it can provide tools that can create an environment that helps players and coaches to the next level. Today's adult players especially have not been using video technology that is presented to them so it takes more time for them to use it. In the future, players will know the technology and use it daily if the coaches keep up with the development and provide these players with what they can handle. That's why video technology should be used with children because they are more willing to embrace it and they could become more self-directed.

Technology is developing fast all the time and that's why a team should have the right equipment so it is not a limiting factor making it easy to use. This will allow time to be used effectively. Video has a future in coaching but there is still lot of work to do to make it a normal tool for coaching, allowing it to gain full potential in assisting coaches and players.

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Attachments

Attachment 1.

Tervehdys Vierumäeltä,

Videoanalyysien käyttö urheilussa on lisääntynyt nopeasti teknologian kehittyessä. Videoteknologia mahdollistaa tällä hetkellä niin joukkue- kuin myös yksilövalmentamisen kehittämisen aivan uudella tavalla. Videota pystytään hyödyntämään tällä hetkellä paremmin ja helpommin kuin koskaan aikaisemmin.

Kyselyn tarkoituksena on selvittää, miten videota hyödynnetään jääkiekossa sekä miten eri joukkueet ovat ottaneet nykyaikaisen videoteknologian käyttöönsä ja kokevatko he että siitä on enemmän hyötyä kuin haittaa. Kysely ei keskity teknologiaan vaan lähinnä siihen, miten oppiminen ja opettaminen ovat otettu huomioon videovalmennuksessa. Kyselyn perusteella toivomme saavamme tietoa siitä, kuinka jääkiekkojoukkueissa eri tasoilla toimitaan ja kuinka videovalmennusta voidaan mahdollisesti kehittää. Kyselyyn vastataan nimettömänä.

Kysely on osa opinnäytetyötä jossa ovat osallisina Haaga-Helian AMK:n opiskelija sekä Kansainvälinen Jääkiekon Kehityskeskus.

Kyselyn vastaaminen vie sinulta noin 15 minuuttia. Vastaa kyselyyn viimeistään keskiviikkona 4.11.2015

Kyselyyn liittyvissä ongelmatilanteissa ota yhteyttä Teemu Karppiseen sähköpostilla: teme.karppinen@gmail.com tai puhelimella 040-7759141.

Kyselyn linkki: https://www.webropolsurveys.com/S/EE0E646D70874DB1.par

Osoitelähde: Suomen Jääkiekkoliitto

Kiitos vastauksistasi,

Terveisin,

Kansainvälinen Jääkiekon Kehityskeskus / International Ice-hockey Centre Of Excellence

osoite / address Urheiluopistontie 373, 19120 Vierumäki, Finland
internet http://www.vierumaki.fi / http://www.iihce.fi
facebook facebook.com/vierumaensivu

twitter @Vierumaki #vierumäki @kehityskeskus

Attachment 2. Survey

Suomalaisen videovalmennuksen mallintaminen jääki

1. Sarjataso

○ Maajoukkue ○ Liiga ○ Mestis ○ A-sm ○ B-sm ○ C-sm

2. Roolisi joukkueessa

☐ Päävalmentaja ☐ Apuvalmentaja ☐ Maalivahtivalmentaja ☐ Fysiikkavalmentaja

3. Ikä

○ Alle 18-vuotias ○ 18-24 vuotias ○ 25-34 vuotias ○ 35-45 vuotias ○ Yli 45-vuotias

4. Löytyykö sinulta liikunta-alan koulutus?

☐ AMK

☐ Yliopisto

☐ Huippuvalmentajatutkinto (HVT)

☐ Valmentajan ammattitutkinto (VAT)

☐ Jääkiekkovalmentajakoulutus (JVK)

☐ Nuorten valmentajakoulutus (NVK)

  *Muu mikä

☐

_____

5. Kuinka pitkä valmentajakokemus sinulla on?

○ 0-5 vuotta ○ 5-10 vuotta ○ 10-15 vuotta ○ 15-20 vuotta ○ yli 20 vuotta

6. Kuinka monta kautta olet toiminut nykyisessä joukkueessasi?

○ 1 kauden   ○ 2 kautta   ○ 3 kautta   ○ 4 kautta   ○ Yli 4 kautta

7. Kuinka monta valmentajaa yhteensä on nykyisessä joukkueessasi?

○ 1-2 valmentajaa   ○ 3-4 valmentajaa   ○ 5-6 valmentajaa   ○ yli 6 valmentajaa

(Sivu 1 / 5)

8. Mitä video-analyysiohjelmaa käytätte joukkueessasi?

_____

_____

_____

9. Miten videomateriaali jako pelaajille on toteutettu joukkueessasi?

☐ Muistitikulla

☐ Pilvipalvelulla (esim. dropbox)

☐ Video-ohjelman oma työkalu

☐ Ei jakoa pelaajille

  *muu, mikä

☐
   _____

10. Mitä videokuvaus välineitä käytätte ja mihin?

_____

_____

_____

(Sivu 2 / 5)

11. Onko oppimisympäristö otettu huomioon joukkueessanne? Millä tavalla?

Oletteko muuttaneet tiloja/toimintoja joita käytätte oppimisen kannalta suotuisaksi jotta pelaajilla
ympäristö oppimiselle.

_____

_____

_____

12. Miten erilaiset oppimistavat otettu huomioon joukkueessanne? Millä tavalla?

Jokainen ihminen oppii asioita eri tavoin. Toinen oppii asian kun sen heille näyttää mutta toiselle se
myös asioita nopeammin tai hitaammin kun muut ryhmässä olevat.

_____

_____

_____

13. Kuinka paljon aikaa käytät valmentajana videomateriaaliin viikossa keskimäärin?

Laita vastauksesi minuuteissa, 5 minuutin tarkkuudella

Joukkuepelaamisen kehittämiseen

_____

Yksilön kehittämiseen

_____+5___

Pelaajaprofiilin tekemiseen

_____

Lajitaitojen kehittämiseen

_____

Vastustajan tarkkailuun

_____

Pelikirjan luomiseen

_____

*Muuhun, Mihin?

_____

14. Miksi teidän joukkuenne käyttää videota valmennuksen apuvälineenä?

_____

_____

_____

15. Miten pelaajilla on mahdollisuus vaikuttaa videomateriaaliin?

Voiko pelaaja päättä itse mitä haluaa nähdä vai päättääkö sen valmennus

_____

_____

_____

16. Kuinka paljon aikaa varaatte yhden videopalaverin pitämiseen joukkueessanne?

○ 0-10min

○ 10-20min

○ 20-30min

○ 30-40min

○ +40min

(Sivu 3 / 5)

17. Milloin käytte otteluvideota läpi joukkueen/pelaajan kanssa?

☐ Ottelun aikana   ☐ Ottelun jälkeen   ☐ Seuraavana päivänä   ☐ Seuraavissa harjoituksissa   ☐ Ennen seuraavaa ottelua   Muuna aikana ☐ _____

18. Milloin käytte harjoituksissa kuvattua videota läpi joukkueen/pelaajan kanssa?

☐ Jääharjoitusten aikana   ☐ Jääharjoitusten jälkeen   ☐ Seuraavana päivänä   ☐ Seuraavissa harjoituksissa   Muuna aikana ☐ _____

19. Miten maalivahtien kuvaaminen ja palaute on toteuttettu?

_____

_____

_____

20. Minkä tyyppistä palautetta valmennus antaa joukkueelle/pelaajalle videomateriaalista?

_____

_____

_____

21. Missä muodossa palaute videosta annetaan joukkueelle/pelaajalle?

☐ Suullisesti yhteisessä palaverissä   ☐ Suullisesti yksityisesti pelaajalle   ☐ Suullisesti pienryhmissä pakkipari)

22. Käytättekö videota pelaajien motivoimiseen?

○ Usein ○ Joskus ○ Harvoin ○ Ei koskaan

23. Koetko videopalautteen kehittävän pelaajia?

○ Todella paljon ○ Paljon ○ Vähän ○ Todella vähän ○ En osaa sanoa

24. Koetko videomateriaalin motivoivan pelaajia harjoittelemaan/pelaamaan paremmin?

○ Todella paljon ○ Paljon ○ Vähän ○ Todella vähän ○ En osaa sanoa

25. Koetko video käyttämisen tekevän pelaajista enemmän itseohjautuvia?

○ Todella paljon ○ Paljon ○ Vähän ○ Todella vähän ○ En osaa sanoa

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26. Millaisia etuja näet videon käytössä joukkueen/pelaajan kehittämisessä?

_____

_____

_____

27. Millaisia haasteita olet kohdannut video käyttämisessä valmentamisessa?

_____

_____

_____

28. Mitä uskot videovalmennuksen tuovan jääkiekkoon tulevaisuudessa?

_____

_____

_____

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