

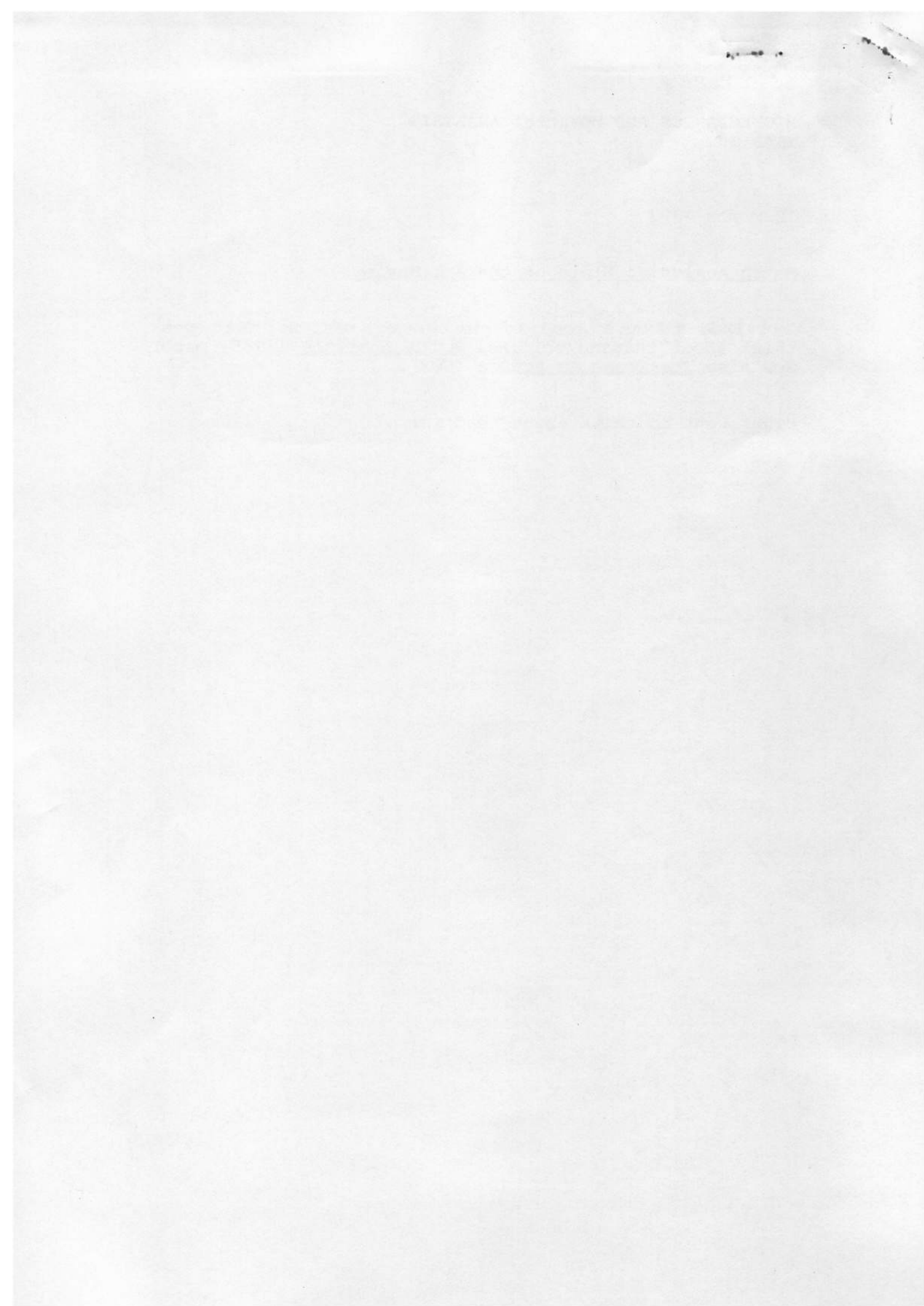
BIOMECHANICS AND MOVEMENT ANALYSIS
YEAR TWO

10 March 1993

Match Analysis: State of the Art Review

I talked through some of issues of review. Next week, think about sharing original Match Analysis (1985) paper. See also The Coach in Action (NCF).

Might want to think about read in!



BIOMECHANICS AND MOVEMENT ANALYSIS YEAR TWO

10 March 1993

Match Analysis in Sport: State of the Art Review

Introduction

In the mid 1980s, John Alderson and Celia Brackenridge of Sheffield Polytechnic were actively involved in notational analysis of sport. In 1985, the Polytechnic hosted a conference on Match Analysis and from that arose a National Coaching Foundation publication written by John Alderson and Celia Brackenridge entitled, surprisingly, Match Analysis. As a follow up to that conference, the National Coaching Foundation funded a research project to write up a state of the art review. The paper you have read in the Library is the outcome of that process. Published in 1990, the document still remains as a typescript.

It does provide an important summary of work conducted in the 1980s. It would not be unfair to say that as staff at Sheffield Polytechnic (now called Sheffield Hallam University) the centre of attention for notational analysis work has shifted to other parts of the United Kingdom. As students, you need to be aware of the kind of work that has been undertaken and what the networks of information might be should you have an interest in developing expertise in specific areas.

What is a 'state of the art review'?

A state of the art review is intended to be a definitive statement about research undertaken in a particular field of study. The aims of the review of match analysis are identified on page (i) of the document. The authors of the report are listed and from this list you can gauge the interests of the contributors. Note that Peter Treadwell is one of the authors and that he wrote Chapter Two on Invasive Games.

What can we learn from the Review?

The chapters provide a clear agenda for a student of analysis:

The development of match analysis in game sports

Invasion Games

Racket Games

Computer-Based Analysis

The report concludes with some recommendations.

As Year Two students I hope you will be able to draw a great deal from the review. I also hope that you will be able to critically evaluate the content. You should also find some of the references of some use in your own enquiry into notational analysis.

An Overview of the Development of Match Analysis

- * Coaching is an ongoing evaluative process
- * Coaches should be involved in design of applied research
- * Coaches make qualitative decisions
- * Taxonomy of sports:
 - gymnastic sports
 - athletic sports
 - games sports

10.3.93

Evaluation:

| took for 45 mins!!

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Thursday, 17 February 1993

INTRODUCTION

When we last met we had a look at presentation of data through the facilities available to us in the computer room(s). Throughout the course my intention has been to link your knowledge of sport with technology.

As an introduction to today's session I want to share with you two views of the process of observation and analysis. One takes the form of a commercial video and the other is an article from a journal.

I also want to have a look at the two articles I shared with you two weeks ago: Johnson & Franks (1991) and Wilkins et al (1991).

THE PROCESS OF BEHAVIOUR OBSERVATION

Last year, you may remember that we discussed an article of this title as part of our first year course. I wanted to draw your attention to it again briefly.

SOME POINTS MADE BY the author, DARREN NEWTON (1976):
in Journal of Human Movement Studies, 2, 114-122

1. INTRODUCTORY REMARKS

- * OBSERVATION IMPORTANT IN WIDE RANGE OF DISCIPLINES
- * WHAT MAKES A SKILLED OBSERVER?
- * WHAT ARE THE LIMITATIONS OF OBSERVER SKILL?

2. MEASURING THE PERCEPTUAL ORGANISATION OF BEHAVIOUR

- * EXPERIENCE OF BEHAVIOUR IS DISCRETE, STRUCTURED
- * WE PARSE THE STREAM OF STIMULUS INFORMATION
- * OBSERVATION PROCEEDS BY INTERMITTENT DISCRIMINATION OF CERTAIN CRITICAL POINTS OF DEFINITION IN THE ONGOING STIMULUS STREAM

3. OBSERVER ACCURACY

- * HOW DO YOU ASSESS ACCURACY?
- * RESEARCH USING ARCHERY FILM AND PE STUDENTS.
- * DIFFERENCES IN OBSERVER SKILL MAY BE REFLECTED IN DIFFERENCES IN PERCEPTUAL ORGANISATION OF OBSERVED BEHAVIOUR.

4. A THEORY OF BEHAVIOUR PERCEPTION

- * ACTION IS DEFINED BY A CHANGE IN A FEATURE OF A STIMULUS ARRAY.
- * PERCEIVER HAS GREAT DEAL OF DISCRETION IN THE FEATURE HE/SHE USES FOR PURPOSES OF PERCEPTUAL ORGANISATION
- * BEHAVIOUR PERCEPTION IS A FEATURE MONITORING PROCESS

5. IMPLICATIONS FOR OBSERVER SKILL

- * BEHAVIOUR PERCEPTION MUST IMPOSE A SHORT-TERM MEMORY LOAD ON THE OBSERVER
- * GIVEN THE LIMITED CAPACITY OF SHORT-TERM MEMORY A CRITICAL PART OF OBSERVER SKILL MAY BE FEATURE SELECTION
- * A SKILLED OBSERVER MAY BE THE ONE WHO SELECTS THE LEAST REDUNDANT SET OF CRITICAL FEATURES FOR PERCEPTUAL ORGANISATION OF THE EVENT
- * VETERAN OBSERVERS OF A GIVEN TYPE OF EVENT MAY DEVELOP A SPECIALISED SET OF PREDICTIVE FEATURES FOR USE IN OBSERVATION
- * PERCEPTION OF ACTION CHANGE IS CRITICAL AND MAY REQUIRE FILM/ VIDEO
- * SKILLED OBSERVERS MAY ADOPT MONITORING PRIORITIES

DECIPHERING NOTATIONAL ANALYSIS RESEARCH REPORTS

In addition to providing you with some additional reading I also hoped that you would look closely at the two journal articles. Both present data and arguments in a specif manner. Coming to terms with scholarly output is important. Eventually you will be encouraged to critically comment on methodology, data and discussion elements of the paper.

Perhaps we could spend some time discussing both papers?

1. Johnson & Franks (1991)

This is an exploration of inter and intra-observer reliability of a system to analyse coaching. The system uses a computer -based approach to data collection. In its discussion of reliability the paper indicates how statistical techniques raised questions about the analysis.

Note the technical discussion of reliability (1991:46) and the delineation of three potential sources of error in obtaining objective accurate data.

Subjects for study: 4 basketball coaches (1991:49).

Note the observer training procedure and the delimitation of the work.

The ultimate aim of the research is to determine a coach's effectiveness.

2. Wilkins et al (1991)

Report study of physical activity patterns of four referees and six linesmen in ice hockey. It uses a time-motion analysis to describe the duration and intensity of performance (1991:303).

In the first two pages the authors refer to linesmen (n=6), 7 who gave consent and in table 1 anthropometric data is provide for five linesmen.

Note the arrangements for "intrarater" reliability (1991:303).

Data discussed (1991:305): specifically discrepancy between low intensity work and high heart rates.

Note conclusion (1991:306).

FOR NEXT WEEK:

Please come prepared to discuss one of the following articles:

- | | | |
|----------------------------|--------|---|
| Mclean, D A | (1992) | 'Analysis of the physical demands of international rugby union', <u>Journal of Sports Sciences</u> , 10 (3) |
| Steele, J R
& Chad, K E | (1991) | 'Relationship between movement patterns performed in match play and in training by skilled netball players', <u>Journal of Human Movement Studies</u> , 20(6), 249-278. |

The requirements are:

1. Carefully read whole article.
2. Check methods.
3. Discuss conclusions.