# Qualitative analysis of volleyball timeouts content with a 3D device

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# Introduction – Starting Point

Coaching process

Dynamic activity in a social and **changing context** (Cushion, 2014)

Multidimensional concept with explicit and **implicit parts** (Wenger, 1998)

➔ Wide concept composed by a multiple of interconnected dimensions

➔ Need to clearly specify the point of interest

# Introduction – Stairway to the aim

- Moment
(Gomez et al., 2011)
- Influence
(Prieto et al., 2016)
- Speech analysis
(Zetou et al., 2008)
**- Relevance ???**

Study of the timeouts (TO)

- Tactical modifications
- Substitutions
(Gomez et al., 2017)
- Taking a timetout

Making choices

- Interaction with players
(Ansell & Spencer, 2020)
- Non-verbal commu.
(Bum & Lee, 2016)
- Making choices

Ways to influence the performance


Central part of the Coaching Model (Côté et al., 1995)

# Introduction – Aims of the study

Treat the relevance of the information content selected from the observation of the coach during the game and given to the players during the timeout

1) Identify the observations of the coaches during the game
2) Identify the importance of those observations for the coaches
3) Comparing those observations with the information content given during the timeout

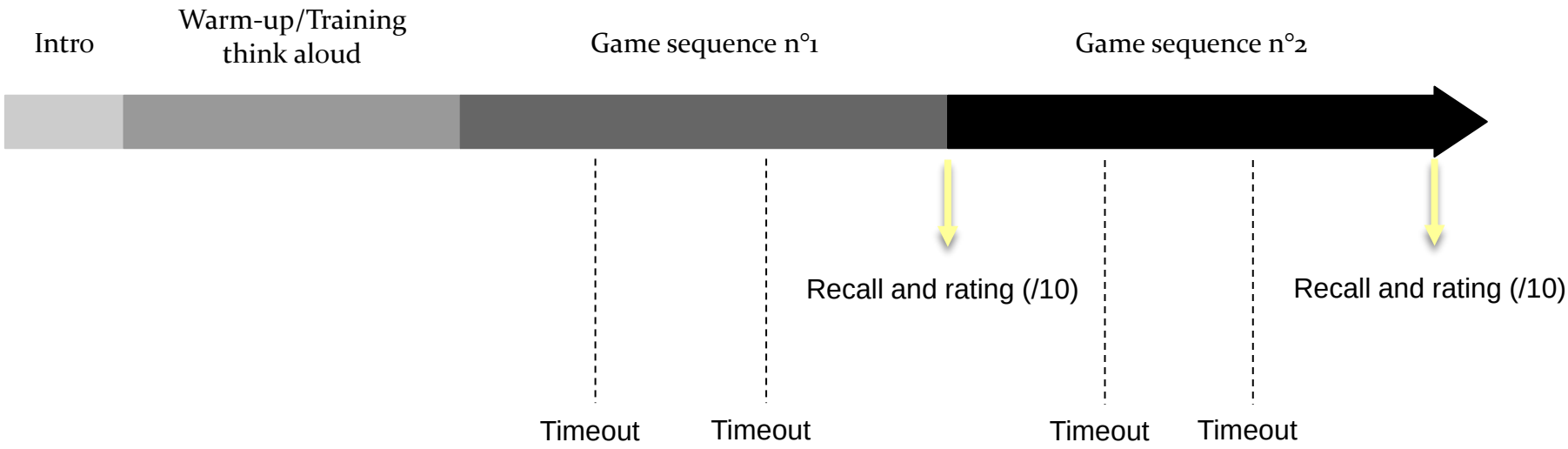
Determine if the 3D can be an interesting tool to analyse an implicit part of the coach work that has never been studied thus far

# Methods – Creation of the environment

- Two simulation games : Women and Men
- Same conditions than an official championship game
- 360° camera video (Nikon KeyMission 360) located at the place of the coach
- Computer editing :
  - One warm-up sequence
  - 2 games sequences (+- 15')
  - Two regular timeouts by sequence (30")

# Methods – Meeting with coaches

- Sample : 17 coaches with heterogenous characteristics



# Methods – Data treatment

- Multidimensional analysis :
  - Observations (think aloud + rating /10)
  - Information content during the timeout
  - Coaches characteristics
- Dependant variable
  - Relevance of the information content of the timeout
- Independant variables
  - Coaches' characteristics (expert vs non-expert)
  - Timeouts characteristics (negative vs positive situation)
- Statistical analysis
  - Mann-Whitney test for independant populations

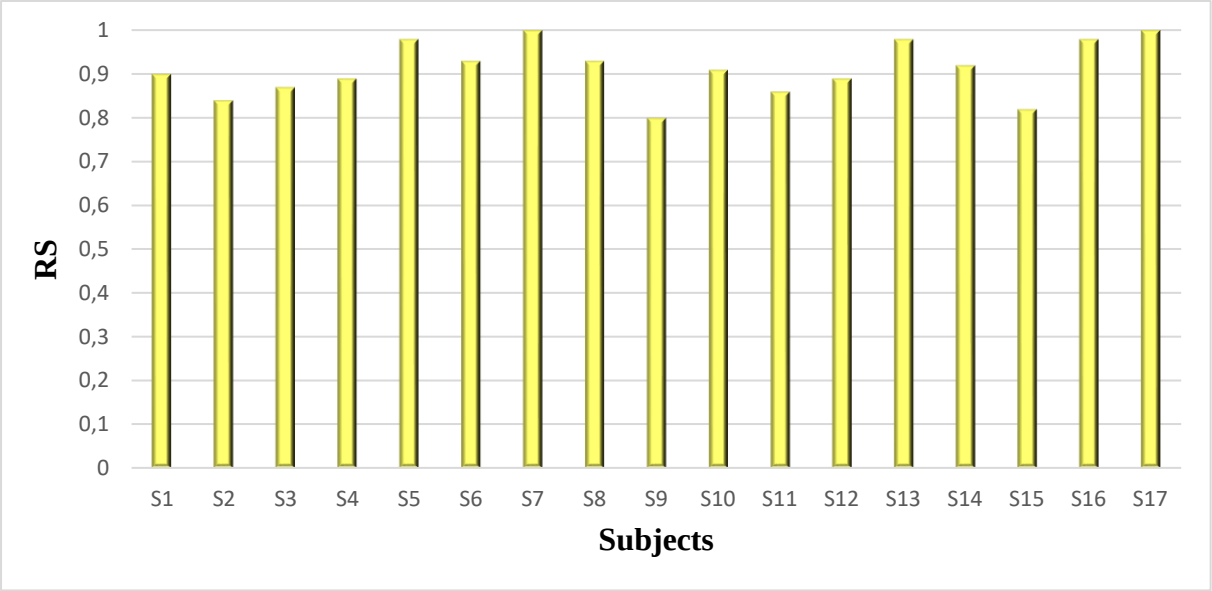
# Results – Descriptive data

| | TO content units | | Operating ratio | |
|---|---|---|---|---|
| | Men game (9 coaches) | Women game (8 coaches) | Men game (9 coaches) | Women game (8 coaches) |
| Mean (SD) | 3.06 (1.04) | 3.75 (1.27) | / | / |
| Median (P25 – P75) | / / | / / | 0.18 (0.12 – 0.31) | 0.20 (0.12 – 0.33) |
| Upper | 5 | 7 | 0.75 | 0.57 |
| Lower | 0 | 2 | 0 | 0.05 |

➔ Need of a great relevance of the information transmitted for the coach to be effective

# Results – Relevance

- « Relevance score » : Comparison between observations ratings and information given during the timeouts




➔ Only two coaches get a « Relevance score » of 1, which means that 15 coaches transmit at least one non-crucial information during the timeout

# Results – Relevance (2)

- Mann-Whitney test does not reveal significative difference between expert and non-expert coaches
- P-value tends to a significant difference between positive and negative context (p=0,0954) → Coaches semm to do better choices in negative situations

# Discussion – Operating ratio

- The protocol allows us to have an idea of the proportion of the observation of the game that can be transmitted during the timeout

→ Weak operating ratio

→ Interest of the study and of the device in the practitioner education

# Discussion - Relevance

- Small number of coaches with a maximal « Relevance score »

→ Interest to train that part of the coaching work

→ Interest to use the 3D device in the coaching education

# Discussion – Relevance (2)

- « Relevance score » is not dependant of the expertise

→ Opposition with the literature (Hertwig et al., 2004 ; Weber & Johnson, 2009)

→ Because of the difference between study and usual context ?

# Discussion – Relevance (3)

- « Relevance score » seems better under negative conditions

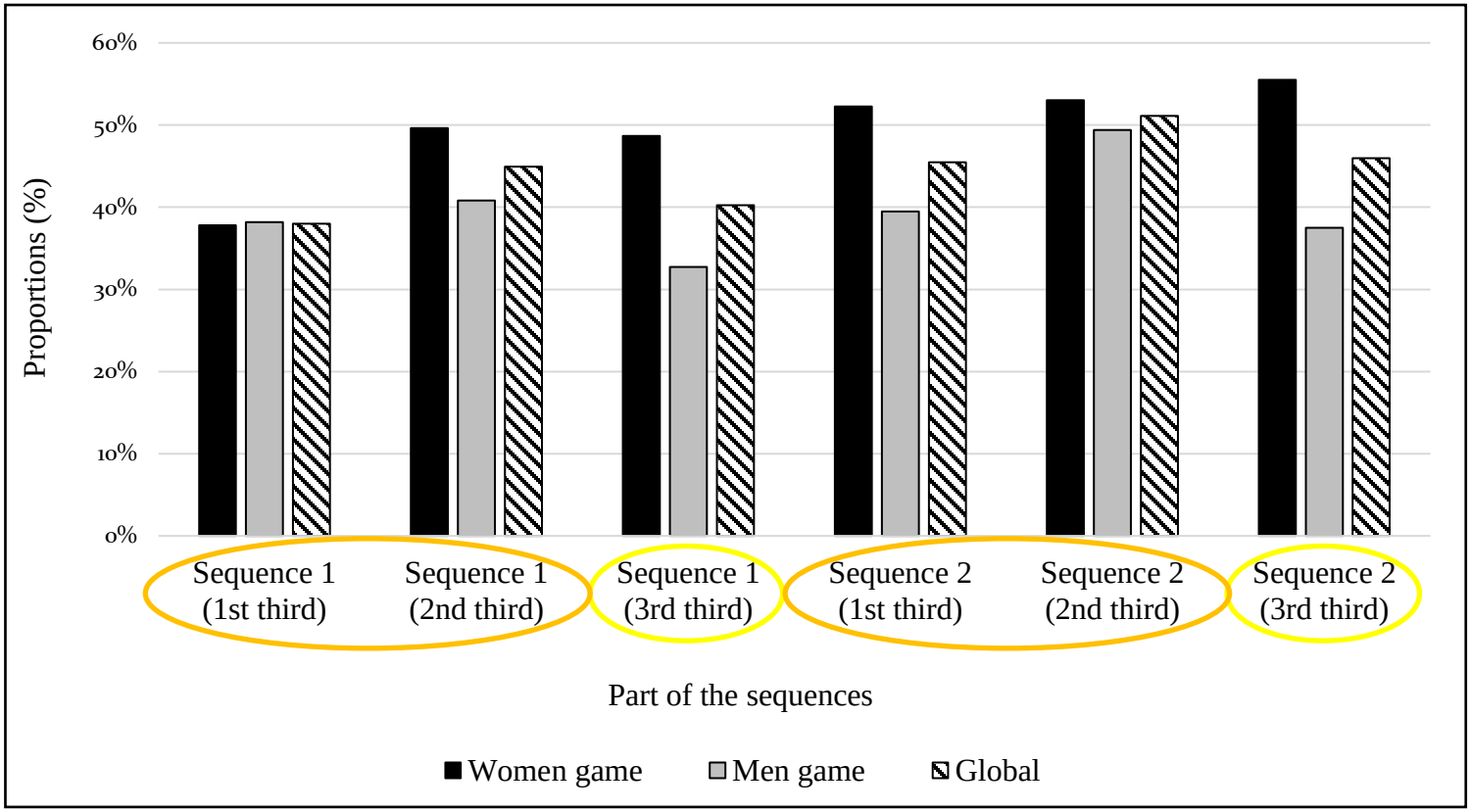
→ Bigger problems are more apparent when the team is losing ?

OR

→ Better mental implication of the losing coach ?

# Limits

- Free recall process
  - Dominance of the last observations in the recall phase ?



# Limits (2)

- Free recall process
  - Oversight of some important observations compared with the facilitated and the recognition recall (Croisile, 2009) ?

| | Importance score (/10) | |
|---|---|---|
| | Men game (9 coaches) | Women game (8 coaches) |
| Median (P25 – P75) | 8 (7 – 10) | 8 (7 – 9) |
| Upper | 10 | 10 |
| Lower | 0 | 0 |

+ The most important observations were generally announced several times during the sequence → Improvement of the information treatment, encoding and retention

# Conclusion

- The relevance of the information content given during the timeout could be improved with coaches (expert and non-expert)
- The 3D device could be an interesting tool to improve this relevance in a coaching education program
- The 3D device seems opening new perspectives for the study of the implicit parts of coaching

Thank you for your attention !

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