

What information is used by coaches when making decisions during a match?

Hayden Croft

Performance Analyst

Senior Lecturer - Otago Polytechnic & AUT (student)

How did I arrive here?



The problem...

- Mayer-Schönberger and Cukier (2013) “Explosion” of data since the 2000’s due to new technologies
- Hughes and Franks (2008) - Most coaches reviewed statistics to reinforce their opinions
- Nash and Collins (2006) Coaches tend to relate performance to familiar situations
- The saturation of information allows them, like all humans, to use it to support their beliefs (Mercier., H, & Sperber., D. 2011).
- Conformational bias (McNerney, S., 2011).

Understanding coaches

- Study 1, What information is used by coaches when making decisions during a match?
 - William and Kendall (2007) identified a “gap” or lack of understanding between sports scientists and elite coaches.
 - Nash and Collins (2006) explain tacit knowledge as instinctive or intuitive influencing decision making.
 - Zetou,, Amprasi, Michalopoulou, and Aggelousis (2011) successfully captured and categorised the behaviours of volleyball coaches.
 - Tactical instruction (17.4%), general instructions (15.9%), technical instruction (12.4%) and encouragement, motivation, other comments etc.
 - Bloom et al., (1999) and Horton, Baker and Deakin (2005) support this.
 - However there is a lack specific detail about tactical instruction

Grounded Theory

- **Grounded theory**
 - The theory underpinning content analysis
- **Content analysis**
 - A technique
 - For building a model
 - The model can be used to assess another population
 - Can be a continuum between inductive and deductive approaches
- **Inductive content analysis**
 - is used to create model
- **Deductive content analysis**
 - is used to test the model

Data collection

- **Participants**

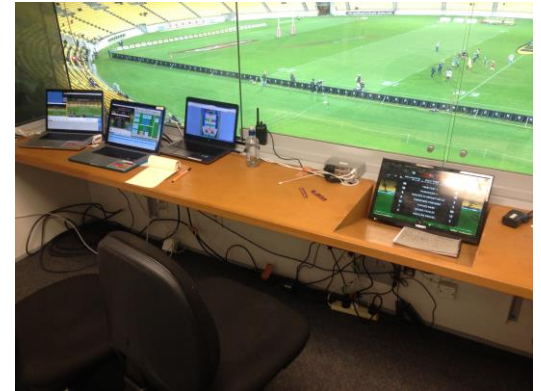
- Six Mitre 10 Cup coaches
- Six ANZ Premiership coaches

- **Equipment**

- Digitech™ digital voice recorders
- Tie clasp microphones

- **Procedures**

- One live match per participant
- Captured from pre-game until post-game
- Transcribed by an anonymous 3rd party
- Analysed via MAZQDA12™ software



The process

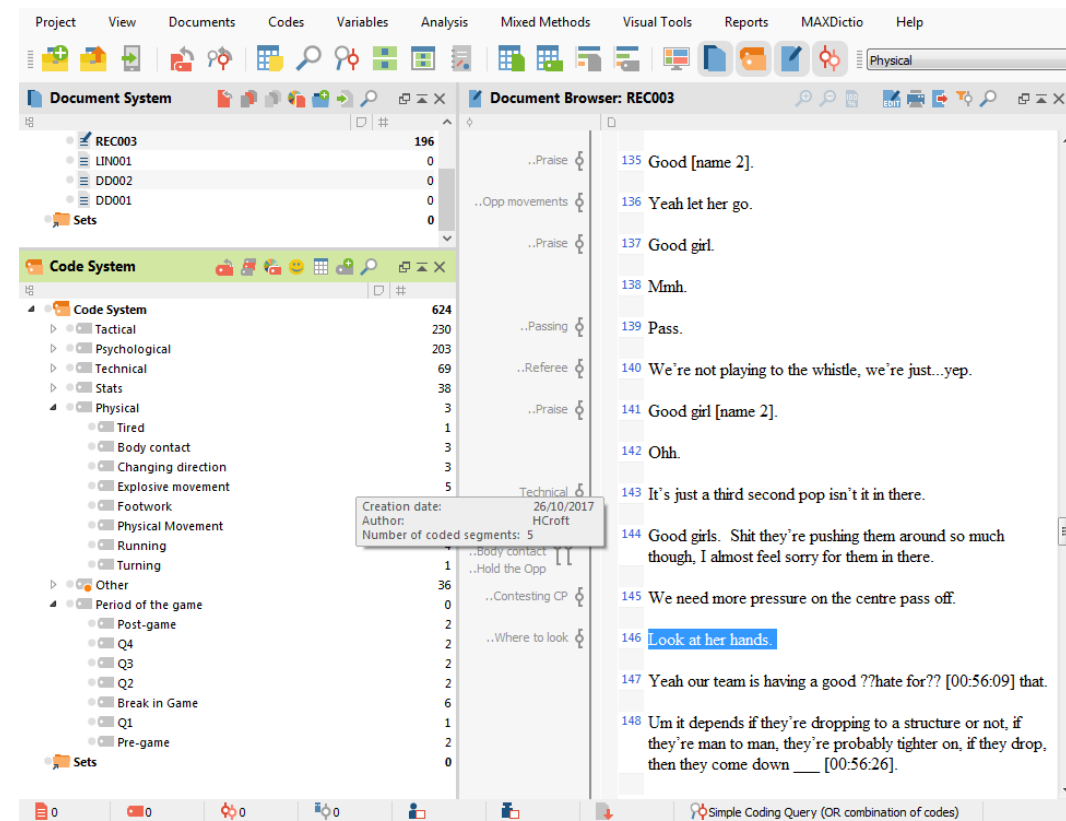
- Raw data - the interview/recording
 1. Read all of the data first – soak the text up and develop trends/themes
 2. Line numbers and begin
 3. Identify meaningful data
 4. Chopping data up into different conversations
 - When the topic changes
 5. Pull out the things (conversations) that relate to your question
 6. Add a label to each of these conversations
 - These are the lower order themes
 - At this stage a trustworthiness critical friend is used.
- *Trustworthiness - Other people critically analyze the data (participants or 3rd party) (Qualitative)*
- *Reliability and Validity – someone else counts and checks (Quantitative)*

Analysis of raw data

- The model - netball...

- MAXQDA analysis software

- Raw data divided up into themes
 - Once all data was divided it was then grouped



Building a model

- Table 1. Example of model created within the “Tactical” dimension.

General Dimensions	1st order themes	2nd order themes	Raw data themes
Tactical	Communication		
	Feeding	Centre pass order	
		Feeding into circle	
		Feed length	"Yeah. Zero long feeds. They're all just going to circle edge."
	Positioning	Body contact	
		Body positioning	"Take the front ___"
		Court position	
		Hold the opp	
	Space	Screening	
		Look for space	
		Create space	"Take the front, take the front. Hold her. Open it up _____"
	Actions	Limited space	
		Informing on opposition actions	
		Opp actions	
	Movement	Predicting opp actions	
		Timing of movement	
		Attack opp	
		Connection with team	
		Contesting CP	
		Where to move	"Think when she's high sometimes you can enter around the back and just keep running that baseline."
		Team movement	
		Opp movements	
		Movement in circle	
		Move with opp	
	Changing direction		
	Pass	Intercept attempts	
	Confuse Opp		
	Niggle		
Game plan	Attack		
	Centre pass		
	Strategic balance		
	Repeat action		
Where to look	Mixing up strategy		

Results

- **Tactical**

“Um when you’re in the circle, if someone’s going hard around the front, the back person needs to go for the intercept with the balls coming high, do you know what I mean so if front person goes hard, the back person has to go for the intercept.”

- **Psychological**

“____ don’t be a sucker.”

- **Technical**

“Um first phase, you’re timing that really well over the line. So just keep going.”

- **Physical**

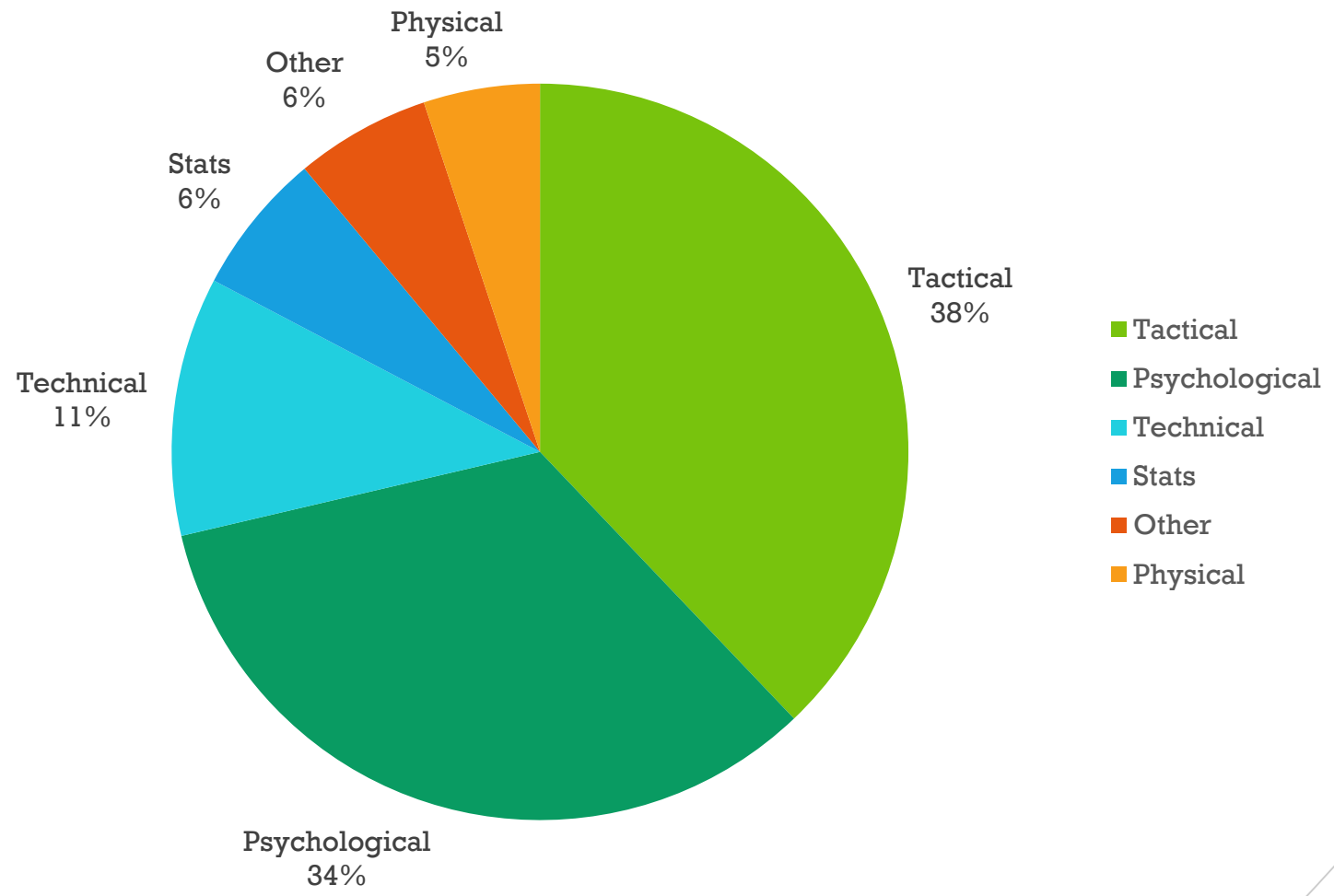
“Come on, let’s go. Yeah there’s no chase. Lost the gas. Wee injection of speed.”

- **Other**

“Oh she’s got her whistle out tonight.”

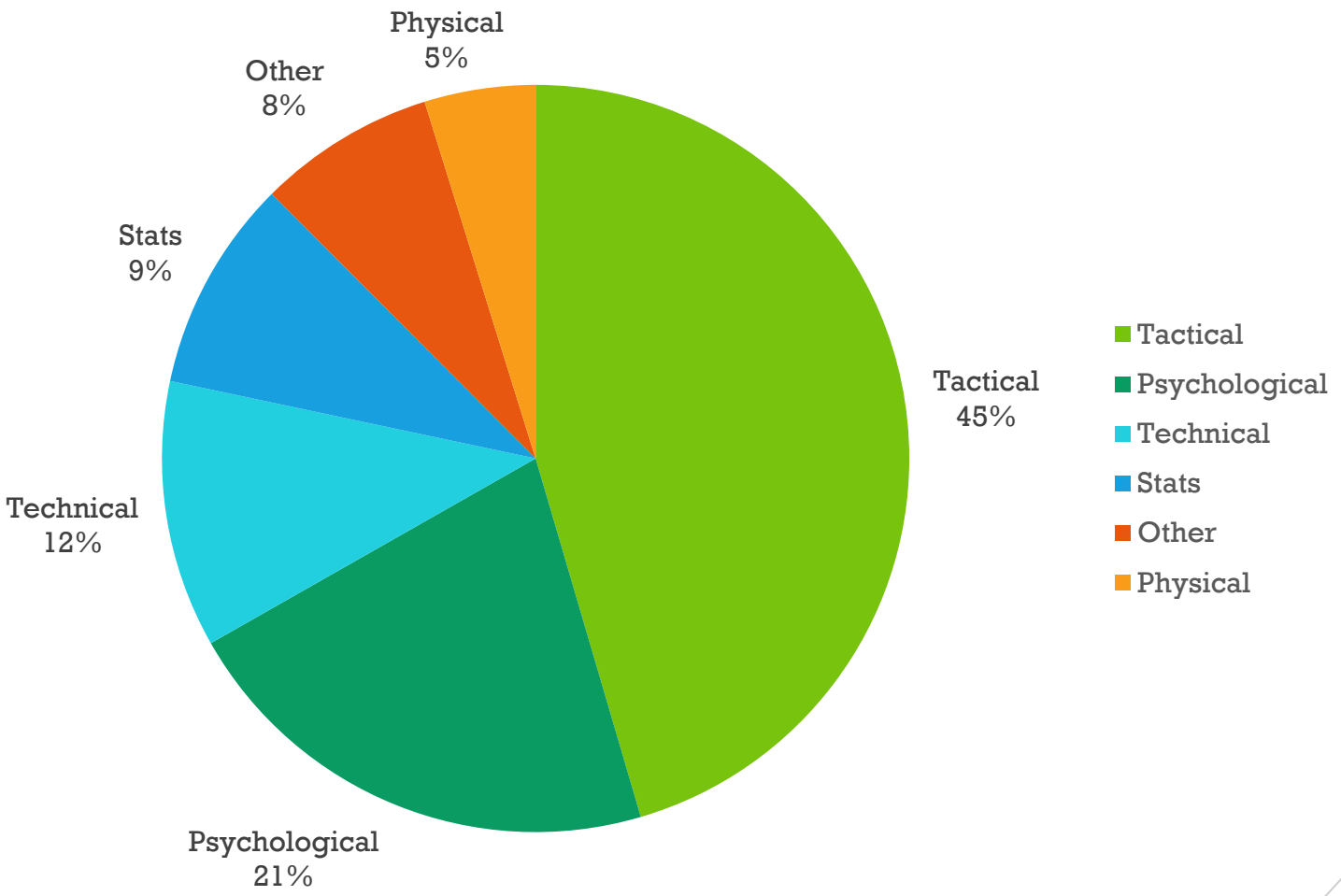
■ **426** raw data comments recorded per coach.

Results



■ **Figure 1.** Frequency of comments made, by topic.

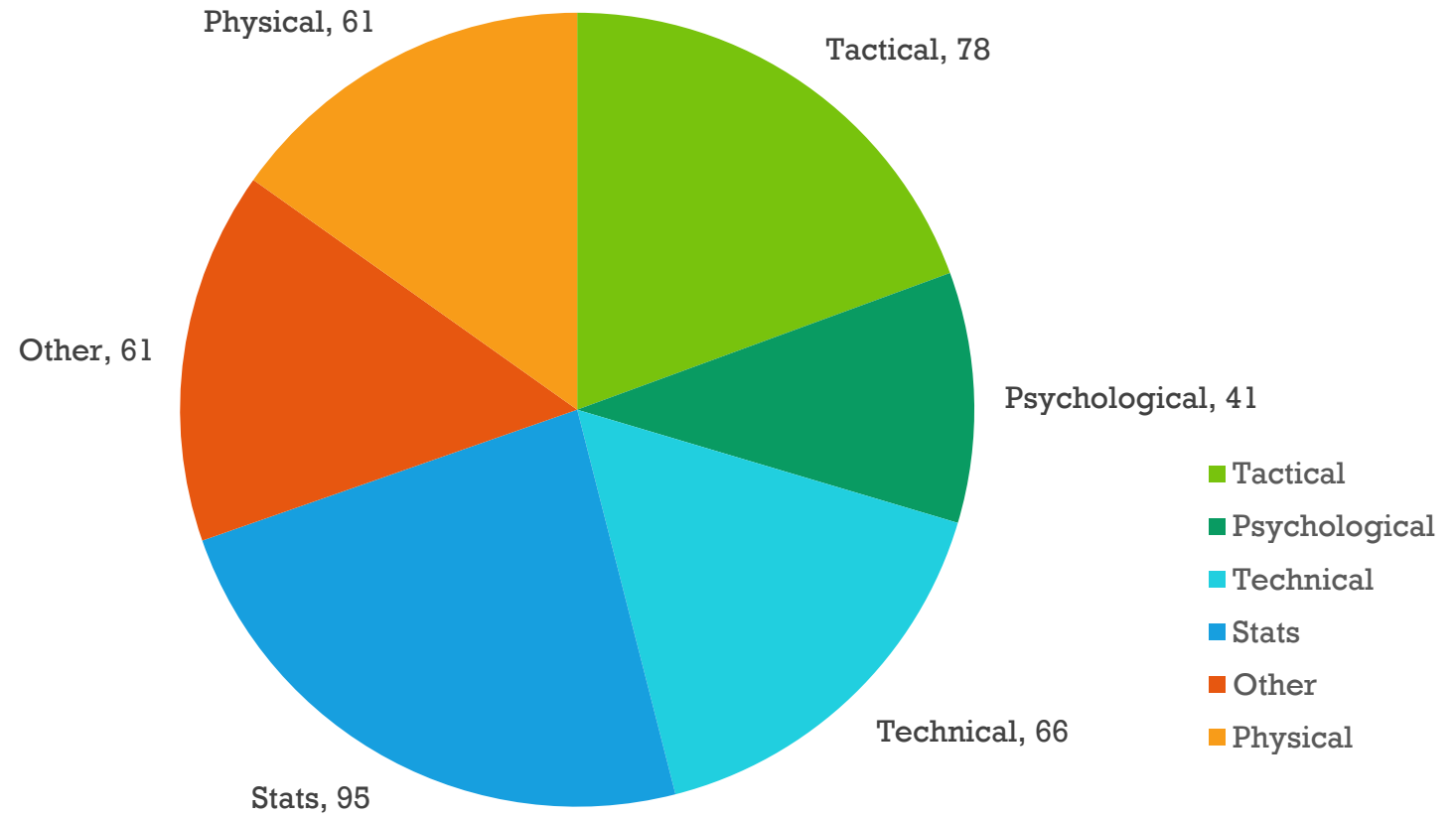
Results



■ Figure 2. Total length of comments made in characters, by topic.

Results

95 characters: “Sixteen, eighteen. Turnover to score dropped to fifty and centre pass to score to sixty-five.”



■ Figure 2. Length of each comment characters, by topic.

Rugby
coaches...

Eddie Jones defends foul-mouthed outburst over England's lifeless display

- Head coach caught on TV swearing during 'grindathon' against Argentina
- 'I don't see any reason why I shouldn't be frustrated,' said Jones



i Head coach Eddie Jones was caught on camera venting his frustration at England's lifeless showing against Argentina in the autumn International at Twickenham. Photograph: Andrew Boyers/Action Images via Reuters

[Eddie Jones](#) has defended his foul-mouthed outburst during England's win over Argentina after he was caught by TV cameras venting his fury at his side's laborious showing.

- Source: <https://www.theguardian.com>

Rugby coaches...

“F**kin’ go that, oh yeah it’s a try.

Just for [name J], be careful with that early engage at the back, he’s gotta wait for the set call, he’s timing it all wrong...at scrum time.

Geez’s guys, f**kin’ tackling.

F**k ___ [00:08:04]. Do so much right and then we just f**k it up like that.

Hold on [Name K].

Nice Ruggie. Oh he f**kin’ lost that. Lost it.

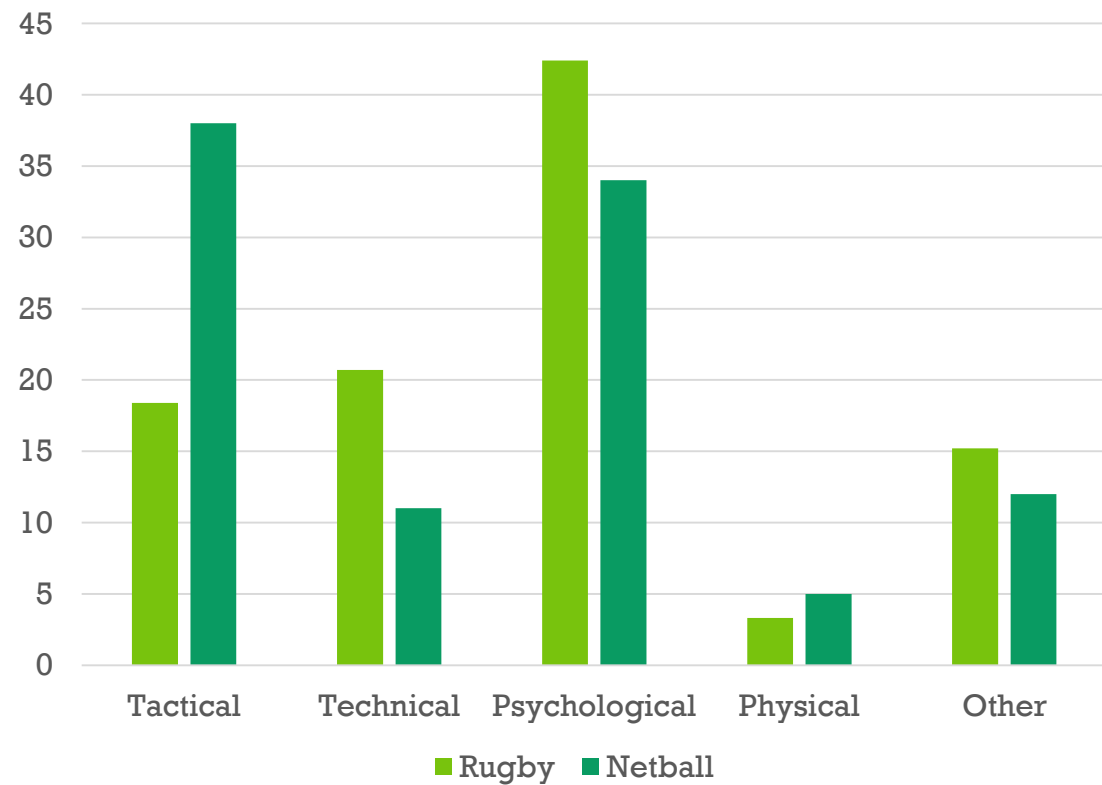
God that f**kin’ s**ts me, f**k he ran straight out. He ran straight out yeh, straight into them and then didn’t follow up with any leg drive whatsoever.

I think we’ve been stitched up by these c**ts in the f**kin’...

F**k.

Nice [Jacket](#), give it give it give it. Goh that wasn’t the f**kin’ kick”

Comparison between sports...



■ Figure 4. Early comparison of general dimensions between sports

References

- Attias, R. (2014). Big Data: The Next Revolution of Sport. *Huffington Post Sport*. Retrieved from: http://www.huffingtonpost.com/richard-attias/big-data-the-next-revolut_b_5800342.html
- Bloom, G., Crumpton, R., & Anderson, J. (1999). A systematic observation study of the teaching behaviours of an expert basketball coach. *The Sport Psychologist, 13*, 157-170.
- Hughes, M., & Bartlett, R. (2008). What is performance analysis? In: M, Hughes., & I, M, Franks. (Eds.). *The essentials of performance analysis: An introduction* (pp. 8-20). London: Routledge.
- Nash, C., & Collins, D. (2006). Tacit knowledge in expert coaching: science or art? *Quest, 58*, 465-477.
- Neuendorf, K. A. (2002). *The content analysis guidebook*. Thousand Oaks, CA: Sage. Retrieved from: <http://academic.csuohio.edu/kneuendorf/SkalskiVitae/SkalskiNeuendorfCajigas17.pdf>
- Zetou, E., Amprasi, E., Michalopoulou, M. & Aggelousis, N. (2011). Volleyball coaches behavior assessment through systematic observation. *Journal of Human Sport & Exercise, 6*(4):585-593.