

Gaining perceptions of intelligence in order to understand how knowledge exists in the post-16 sport curriculum

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Abstract

This study focused on discovering how intelligence was conceptualised by Further Education (FE) sport and access students in order to offer suggestions of what this means for how knowledge is perceived in the post-16 sports curriculum. A small scale qualitative methodology was used where a questionnaire was created to collect data and answer the two research questions devised. Non-probability quota sampling was used to represent characteristics (strata) of the greater population. Results indicated that the professions based on highly academic and theoretical aspects were viewed as more intelligent with the greatest differential of perceived intellect evident in the profession of a doctor and football player. The study offers a concerned outlook as where that leaves the post-16 sports curriculum when intelligence is not perceived in the same way in that environment. Consequentially questions arise for the role of post-16 sport as a subject in its own right especially following recent policy changes that only heighten the importance of subjects such as English and maths in the sector. Future research should look at what intelligence is in these practical environments and focus on assessing the current curriculum to make sure that sport is viewed as more than 'good for teamwork, good for health', as although this is true it just highlights that the learning of knowledge is secondary in this subject and highlights the misconceptions of perceived practical performance subjects.

Keywords: Sport, education, intelligence, learning, knowledge and understanding

Introduction

This study aims to gather the perceptions of intelligence of Further Education (FE) students and discuss how knowledge in the post-16 sport curriculum is viewed and understood. Light (2014) has suggested that the perception of knowledge and learning in the western world is based on a dualistic understanding which separates the mind and the body, often leading to an elevation of mind over body. This elevation of mind over body is a worry for physical educators (PE) due to the primacy and importance of the body in the area but often PE and sport is separated from intelligence and developing knowledge due to this apparent separation from cognitive processes (Quennerstedt, 2013; Nyberg & Larsson, 2014). This research will investigate further by assessing how intelligence is perceived by further education (FE) students and discuss the possible implications to the post-16 sports curriculum.

The starting point for this research is to provide a commentary of issues and considerations on the subject of human intelligence, a subject which has evolved considerably and 'perhaps nowhere else in psychology does so much research and theory attempt to define the concept under investigation' (Gross, 2001, p-589). From early philosophers to modern day neuroscience intelligence has a plethora of opinions.

Knowledge can be simplified to the understanding of facts or information within a subject whereas intelligence is the application of that knowledge in differing environments (Fletcher & Hattie, 2011). Intelligence is generally considered to be linked with cognitive processes. A more detailed commentary is given below but as a starting point it is important to state that it is not the purpose of this study to create one absolute definition and/or theory of intelligence but understanding how it is perceived by others in a given domain.

Plato believed it was the love of learning and truth; St. Augustine proposed that superior intelligence may lead people to question their faith and belief in God (Mackintosh, 2011). At the turn of the 20th

century Alfred Binet was the first to create a valid test for intelligence that was used widely throughout the world and is still influential today. Galton (1869) was the pioneer for claiming that intelligence is largely genetic which opposed the views of Charles Darwin, who would later applaud Galton for his findings and state a change in his own beliefs (Mackintosh, 2011). Psychologists such as Pavlov (1849-1936) and Watson (1878-1958) placed more emphasis on conditioned response and stimulus response from a psychological perspective, proposing the view that the environment is the most crucial determinant of human behaviour. More recently in the debate Herrnstein and Murray (1994) published the controversial 'Bell Curve' in which they claim to use factual evidence to highlight intelligence levels governed through IQ scores and make claims regarding socio economic status (SES) and race in relation to intelligence. Criticisms were directed towards Herrnstein and Murray and questions can be raised on dubious issues including: those with more opportunities simply being better at tests, IQ tests only measuring a small spectrum of intelligence, the effects of the environment and the misuse of statistics (Flynn, 1987; Gardener, 2006; Daley & Onwuebuze, 2011).

Progressing with the 'nature vs nurture' debate Smith (2002) gives examples from the early 1990s where researchers found that children are born with innate knowledge about principles of grammar (e.g. Pinter, 1994) physics (Spelke, 1994) and mathematics (Wynn, 1992). Further support for innate and genetic variation is offered by Mandelman and Grigorenko (2011) who give examples of twin and adoption studies that do offer support to and suggest that 'genetic variance becomes increasingly important in explaining individual differences in verbal and nonverbal intellectual abilities' (p-89). However, Blakemore and Frith (2005) refer to several studies which indicate the importance of the environment on intelligence and numerous studies have shown that the brain is plastic and adaptable (Goswami, 2004, 2006; Geake, 2009).

Classical tests and theories of intelligence such as the Stanford-Binet IQ test (1916) and Spearman's (1927) G factor are now also being challenged. Howard Gardner, Robert Sternberg and Daniel Goleman all proposed theories in the 1980s and 90s that have been successful in broadening horizons on intelligence. Howard Gardner proposed the theory of Multiple Intelligence (MI) firstly in 1983 but has revisited and developed it more recently (1993, 2006). Gardner, who offers a notion of many intelligences, including kinaesthetic bodily intelligence, questions the view that all intelligence can be measured in IQ or SAT (Scholastic Aptitude Test) tests stating that those who have higher levels of linguistic and maths skills will show a higher intellect level as tested by those tests (Gardner, 1993). Gardner also draws our attention to early, uneducated views on intelligence that considered the potential links between brain size and intelligence, and prominent eyes with excellent memory (Gardner, 1993, p. 12).

Sternberg's Triarchic Theory of Intelligence (1985) offers a multi-dimensional view of intelligence. Like Gardner, Sternberg viewed intelligence as broader than one general factor (G) but differed from Gardner in his views on intelligence. Sternberg, using the same principles of his triarchic model has progressed to successful intelligence where he expresses that individuals can optimise strengths and reduce their weaknesses (Reis & Renzulli, 2011).

A relatively new phenomenon is the theory of emotional intelligence (EI). EI really came to public fruition in the mid-1990s when Daniel Goleman released the book Emotional Intelligence (1995) which built on the earlier work of Mayer and Salovey (1990). Mayer & Salovey (1997) define EI as: '...the ability to perceive and express emotion in thought, understand and reason with emotion, and regulate emotion in the self and others' (cited in Mayer et al 2011, p. 53).

Nobel Prize winner and economist Daniel Kahneman recently exposed the myths surrounding the view that rational thinking was superior to emotional thinking. The supremacy of the rational-reasoning human mind has been further questioned by cognitive research and neuro-science presenting; this new evidence also focuses on the role of the body in shaping and influencing cognitive processing (Gallagher, 2005; Lakoff and Johnson, 1999; Sheets-Johnstone, 2009).

The preceding discussion highlights how the intelligence debate has had a convoluted history, consisting of a myriad of conflicting opinions and theories offered. Long-standing views and a separation of the mind and the body could potentially impact on a curriculum that incorporates corporeal aspects of

learning. It is clear that developments, opinions and philosophies have moved forward and continue to progress but does this feed down to be understood by all? For example, neuroscience, which is not without criticism when influencing education (Spence, Hickman, & Palmer, 2013) has shown the left/right brain understanding of learning to be misleading and factually incorrect (Goswami, 2006; Geake, 2009). However, what impact does this have and actually do the wider population subscribe to these dated, erroneous ideas or are more sophisticated up to date approaches becoming better understood. This study has a focus to explore this and investigate if students' perceptions of intelligence are dated and unsophisticated and what the possible implications of this may be.

For the purpose of this study intelligence is being used here as a 'term' or 'idea' linked closely with knowledge and the real interest is the perceptions of intelligence across a range of professional domains. It is not an expectation for the participants in this study to help define intelligence or create a new theory but simply to give an insight into how this term is perceived. The theories discussed help to place in context students' perceptions of intelligence. The inferences will then be discussed with classical intellectual professions which could be assumed to put a high emphasis on the mind in comparison with other professions that put a high emphasis on the body.

Following the above commentary this paper aims to answer the following questions:

- 1) Do FE sport and access students perceive certain professions as more reliant on intelligence than other professions?
- 2) What is the potential impact of these perceptions on post-16 sports provision?

Methodology

The ontological approach for the study was constructionism. This philosophical understanding of the world is that 'social actors' are the most important aspects of reality and the world is constructed and reconstructed by these actors continuously. In this way, the world does not exist independent of human interaction but is created and constructed because of this. Bryman (2012) states that constructionism, although increasingly used to reflect knowledge of the social world (epistemology) is an ontological view of people, with social actors constructing social phenomena and their meanings and constantly revising these meanings through social interaction.

Anti-positivism was the epistemology for the study because it allowed scope for understanding human choice and individual standings (Cohen, Manion and Morrison, 2011). This was expressed by each participant expressing their own views of intelligence making the study an inductive process based on a qualitative methodology. The interpretivism paradigm accompanies the ontological and epistemological approach because it allows an understanding of the subjective world in relation to human experience (Cohen, Manion and Morrison, 2011). For this study that meant that the actual perceptions, viewpoints, beliefs and emotions of the participants on the subject of intelligence were gathered to give new insights, and knowledge was understood to be created by each participant in the study.

The study used quota sampling and involved the researcher striving to represent characteristics (strata) of the greater population (Cohen, Manion and Morrison, 2011). In relation to this study on intelligence a questionnaire was administered to:

- Group 1- A level one group consisting of thirteen learners
- Group 2- A level two group consisting of ten learners
- Group 3- A level three group consisting of seventeen learners
- Group 4- An access group consisting of twelve learners

The only strata used was the academic level that learners were studying at, this led to the following learner numbers used for the study:

Total population- $13+10+17+12=52$

Group 1 = 25% of total population=13 learners; Group 2 = 19% of total population=10 learners; Group 3 = 33% of total population =17 learners and Group 4 = 23% of total population =12 learners.

This was used so that results would show perceptions of intelligence across differing academic levels of study.

The format of the questionnaire was aesthetically clear and ordered questions in a vertical format to allow participants to clearly identify their answer. Also the vertical format helped with the coding as it appeared on the questionnaire (Bryman, 2012). A Likert scale questionnaire was used so the topics important to the research could be kept to. Also with using closed questions and a Likert scale the answers gathered were easy to process and allowed quantifiable comparison to be made.

The questionnaire had to be appropriate for all the groups in the study and following the pilot small adaptations to the format were made. Firstly, pictures were used of the different professions to allow greater associations to be made, especially for level one and level two learners who struggled with some of the terminology on the pilot questionnaire. This was an important change as it was vital that the results gathered were a true representation of each participant's opinions and views, thus improving validity. Secondly the pictures used were neutralised so that what participants were grading was the profession and not the actual person in the picture. An illustration of this was not to use a picture of a high profile football player due to the fact that this may have led people to judge the individual, for example David Beckham or Wayne Rooney rather than the profession, reducing the validity of the results gathered.

The final change was an option of 'No Answer' on every question which was implemented to minimise the chance of participants giving an answer to a question they have not fully understood. With the same questionnaire used for level one, two, three and access learners this was important in maximising validity and gaining the most accurate perceptions possible.

The study was a small-scale non-probability study so the findings only apply to the cohort used and inferences with other educational establishments cannot be made solely on the results, however prescriptions for future study can be made.

Only one method of data collection was used within this study which was the questionnaire but future studies should look to triangulate results by carrying out focus groups and interviews to increase the validity of the results gathered.

Ethics

The participants used in this study had no relationship with the researcher which helped to reduced bias and researcher influence. It also meant that participants did not take part because they felt they had to. Confidentiality was also kept and an offer of termination was given two months after the results had been gathered.

Results and Discussion

The aim of this study was to discover the perceptions of intelligence from FE learners and consider the possible impact on the post-16 sport curriculum. The results obtained suggests that Gardner's (1993) MI theory is not prevalent. The responses to the questionnaire highlight that the following professions; doctor, university lecturer and writer were rated as the most intelligent of the options within the questionnaire. 51 out of 52 responses in the doctor category were really intelligent (RI) or intelligent (I). To highlight this further 45 responses were RI and 6 were I. 50 out of 52 responses were positive regarding the intelligence of a university lecturer with 26 RI responses and 24 I responses. A writer was the next profession to score highly on the intelligence responses. 17 RI and 23 I responses giving a total of 40 out of 52 responses perceiving the profession as intelligent or above. Compare this to a football player where only 12 out of 52 responses were intelligent or above, RI 2 and I 10; and finally a dancer with RI 3 and I 12 responses giving a total of 15 out of 52 responses as intelligent or above.

What is clear are the higher ratings for intelligence for the doctor profession in comparison to that of a football player. The collated results also highlights the profession of a footballer received the most below average intelligence (BA) responses, 14 and the profession of a dancer the most responses of least intelligence (LI) 3.

These perceptions would indicate that intelligence is primarily associated with professions that would be classified as traditional academic careers where English, maths and science subjects appear to hold more credibility. In this way the term academic is synonymous with subjects and careers that focus heavily on cognition and only highlights further the separation of corporeal learning from intelligence. It could be argued that intelligence as a social construct constantly reaffirms this link between intelligence and academic studies; recent governmental changes to educational policy only highlight this further. Robinson (2008) states how in public education there is clearly a view of academic and non-academic learners, smart people and non-smart people. This would support the views of Claxton and Lucas (2009) and Light (2011) who suggest that these subjects hold more prestige in the curriculum and sport and physical activity can be somewhat of an afterthought. This is certainly a concern for the post -16 sports curriculum and one that requires addressing. One issue that this brings is the continuation and development of less traditional academic programmes with a potential reduced uptake of such programmes in the future. The ideas of Gardner's MI theory (1993, 2006) would seem to hold little value in the eyes of the students in this study and intelligence is conceptualised as a narrow entity. This is somewhat surprising but does confirm the separation of being able to acquire and apply knowledge gained through physical means in a given environment which is a basic agreement of what intelligence is.

However the results do indicate that emotions are perceived as important in relation to intelligence which is interesting. The responses give unanimous support across all levels that there is comprehension for emotions having some links and being important to intelligence. This would agree with Goleman's (1995) theory on emotional intelligence (EI). It also suggests that although responses earlier did not support certain intelligences of Garner's MI theory the interpersonal and intrapersonal intelligences he proposes do have some relevance. This indicates that the narrow band approach of intelligence is possibly widening and that recognition in schools and colleges is being rewarded for such abilities as communication skills, working as part of team, which in every day working life is a necessity and something that logical intelligence, for example, cannot always guarantee. However, this could also have a negative effect of the ideologies and perceptions of knowledge in the sports curriculum as too often sport is seen as 'good for your health', 'good for improving confidence, and determination' and 'good for developing team work' as stated recently by Nicky Morgan when discussing government plans to increase funding into primary school sport (Department for Education, 2014). Although these statements are correct and positive by the Secretary of State for Education these again intimate that the curriculum is an afterthought in the area of sport. With this in mind it is important in the future to discuss what knowledge in the post -16 sport curriculum is and looks like.

The sport curriculum exists and this must mean that knowledge must be taught, learned and assessed. Understanding this knowledge is a key future driver for improving the delivery of post-16 sport and should be understood by all. The results here would suggest that intelligence is perceived differently and not associated with sport which supports observations that too often knowledge is secondary with more importance given to the mind as the only driver for intellectual behaviour. Results indicate intelligence is contextualised with what are perceived to be 'academic' professions and with policies placing more emphasis on English and maths in post-16 education from 2015 there is a possibility that these views will be further reinforced. A possible implication of this is a complete separation of sport from learning and education which would be detrimental to the subject and curriculum in the future.

Clearly the views of the student participants in this study emphasise a 'mind' over 'body' approach to understanding intelligent behaviour. An explanation for this would be that in western civilisation a dualistic approach to understating knowledge based on René Descartes (1641) doctrine could encourage people to view the mind and body separately in the acquisition of knowledge. Moreover, in doing this the mind appears to be elevated above the body and thus related to intelligent behaviour (Light, 2014). It is also an underpinning appreciation in society that sport is good for competition and for enrichment but in terms of curriculum is not so important. This is highlighted by new government initiatives that will reduce and stop funding for students who did not complete English and maths to above a grade 'C' whilst studying their post-16 pathway, for example sport, if they were not already achieved whilst at school (Department for Education, 2012). Although this is an important progression it does reinforce perceptions that these subjects are of more importance. The worry is that it is the curriculum, the

knowledge, what is taught, learned and assessed that seems to fall short in the post-16 sports curriculum when these views are prescribed. It is not to argue the importance of other subjects or question the intelligence of doctors, university lecturers and writers but to raise concerns of a lack of understanding surrounding knowledge in the post-16 sports curriculum when there is such an under appreciation of what knowledge is in this domain and why physical performance can be classified as showing a high level of intelligence.

Conclusion

This study was focused on discovering the views of intelligence from FE sport and access students in order to offer suggestions of what this means for how knowledge is perceived in the post-16 sports curriculum. Results indicated that the professions based on highly academic theoretical aspects which rely heavily on aspects of mental cognition were associated with higher levels of intelligence with the biggest differences evident in the profession of a doctor and football player suggesting that more intellect is required in certain professions in comparison to others. The second major aim of the study was to discuss the possible impact of the perceptions on post-16 sport provision and a cautious outlook should be taken by sport teachers in this sector. Results here indicated a polarity viewpoint in regards to intelligence and concerns are that this may be a true representation of other stakeholders towards post-16 sports provision. The implications here are at best eye opening and at worst alarming for those involved in post-16 sport and recent policy changes only heighten the importance of subjects such as English and maths. Potentially this leads to further separation from intelligence for subjects such as sport and could demean post-16 sport as a subject in its own right.

This study does not argue against certain occupations being regarded as professions that require high levels of intelligence. Nor does it pertain to make a full inference that the results suggest all sports education is perceived as having lower intelligence levels. Clearly, and conceptually true, arguments will be made straight away that in subjects such as nutrition, anatomy and physiology reliance on subjects such as science, maths and English are a given in these sub-disciplines anyway, however these arguments would only reinforce the findings discovered in this study. The point is the argument of intelligence seems to be confined to acquiring and applying knowledge in a theoretical environment – it is disassociated from corporeal environments. It would be of interest for future research to find out why this is the case.

This study presents concerns about students undertaking the post-16 sports curriculum and how they understand this subject in terms of a separation from intelligence, especially in more practical aspects of provision. Concerns are also raised on how students have little knowledge of contemporary understandings of embodied and embedded intelligence.

Future research should look at what intelligence is in these practical environments and focus on assessing the current curriculum to make sure that sport is viewed as more than ‘good for teamwork, good for health’, as although this is true it just highlights that the learning of knowledge is secondary in this subject. Also, further investigation into academic and vocational education should be carried out to disentangle some of the facts and myths surrounding intelligence and how it is socially conceptualised.

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