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ACCESS TO HIGHER EDUCATION COURSES FOR ADMISSION INTO UK UNIVERSITIES: INEQUALITY IN SCIENCE EDUCATION IN WALES

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Abstract:-

This paper was designed to study inequality in studying science education in Wales through the Access to higher education pathway. The paper was mapped out to look at how the admission process into the university through Access has been unjustly treated. The paper uses a standard literature review to study relevant literatures as it relates to the study. The paper also used a desk research technique to discuss the inequalities in terms of class, gender and race. The findings suggested that the glass ceiling of unjust practices has not yet been broken, but merely raised with inequality in science education becoming a major challenge to accessing Higher Education Courses.

Keywords: - *Access Course, Admission Inequality, Science Education, University, Wales*

INTRODUCTION

'The chief distinctions in the intellectual powers of the two sexes is shown by man's attaining to a higher eminence, in whatever he takes up, than can woman…if men are capable of a decided preeminence over women in any subjects, the average mental power in man must be above that of woman' (Darwin, 1896:564 cited in Walkerdine, 1989:1)

The above statement was expressed in the late 19th century but Darwin (1896)'s view continues to resonate with the prevailing discourse of gender inequality that still transcends our world, our society and our education today. Although, gender equality has come a long way since then, for example with women gaining the right to vote with the suffragette movement in the late 19th and 20th century, arguably women should have achieved gender parity in science education within our current generation.

More recently, only 40 years ago, John Callaghan, then Prime Minister stated that a curriculum must be developed to enable 'talented young people into science and engineering subjects'. With this speech he went on to question 'why is it that such a high proportion of girls abandon science before leaving school' (Walkerdine, 1989). This began the 'Great Debate' of science education for girls in 1976.

The under-representation of women within the field of science and the concentration of women in less prestigious and less rewarding scientific occupations is well documented (Byrne, 1993; Harding, 1998; Phipps, 2008; Schiebinger, 2008; GEA, 2013). This journal will pursue the relevance of gender in the purist of higher education. Although there have been ameliorative strategies; it must be noted that the initiatives such as the short viral produced by the European Commission to attract more women to a career in science entitled 'It's a Girl thing', have been evaluated as disgraceful failures (O'Connor, 2012). The viral displayed skinny models wearing designer sunglasses, making provocative gestures with short skirts intercut with overflowing images of test tubes, blusher and nail polish. In the title the letter 'I' in science had been replaced with the image of pink lipstick. Such publicly frivolous and callous representations of women in this day and age reiterate that the construction of science is infused with ideas of gender (GEA, 2013). The video was condemned as being both 'sexist' and 'demeaning' (Collins, 2012).

Victoria Herridge, a palaeontologist at the Natural History Museum, when interviewed by The Telegraph on her views about the video spoke out and stated that she found the video:

'offensive on two levels, not just the lack of proper representation of what it means to be a scientist but also the single, generic message that it seems to put across…It is almost beyond parody…all the things we worry about with gender stereotyping and body image these days. You could not make it up' (Collins, 2012).

This example highlights that key policy makers and governmental institutions can and do get it wrong, as it is apparent that they do not know how to tackle underrepresentation of women yet alone women from minority groups in science. This gap in knowledge is one reason why further research into gender and sciences education is necessary.

In this present day initiatives and qualifications designed to help bridge the gap for students, particularly adults that left school without the usual qualifications needed to meet the entry requirements for university science admission, have been created. Such a qualification is the Access to Higher Education (HE) Diploma. This opportunity is provided irrespective of under achievement academically, disruption due to personal circumstance or social disadvantages (Jones, 2006; OCN, 2007; QAA, 2012). There are currently over 1000 different courses, which lead to the Access to HE Diploma; that are running in the majority of further education colleges in England and Wales.

This method of academic progression has been established since the 1970s and it was set up to widen participation and progression into HIM. It was designed, developed and recognized by UK universities (QAA, 2012). The courses aim to increase and improve student confidence, and provide them with the necessary equipment to be able to study at HE level. It incorporates study skills lessons and different techniques, which teach the students how to approach study and how to be successful students. However, it should be noted that not all higher education institutions recognize the Access course.

Although, the Access course strives to intrinsic knowledge into their students by generally focusing on the subjects that students intend to study at university, a great divide between 'traditional' and 'non-traditional' routes has been created. 'Traditional' routes such as A-levels are viewed as being far more academic than the 'non-traditional' routes with vocational foundations. This was acknowledged by Wolf (2002) who noted that students following the 'traditional' route were far more likely to be offered university places, compared with those pursuing the 'non-traditional' vocational routes, such as Access courses.

Historical Overview of Gendered Education

It has been historically documented through biographical studies such as Weiler and Middleton (1999); Rousmaniere (2003) and Van-Drenth (2008) that gender is not a stable definition but it is a dynamic definition as it is affected and dissected by class, religion, ethnicity and other societal groupings. Watts (2013:2) continued to add to this view by suggesting that gender must be 'understood within context and location'. Historically, 'in western civilization, despite the Enlightenment's philosophical and scientific arguments that environment and education developed people, not inherited characteristics, long-held gendered presumptions still reserved for men the education considered to be the best of its day' (Lohmann and Mayer, 2013 cited in Watts, 2013:3).

However, in Britain, Rational Dissenters instigated the educational philosophy and psychology that encouraged women to receive an education on the basis that it would enable them to be rational and liberal moral agents (Watts, 2010). This does not preclude the pressured roles of women as mothers and teachers of offspring in their complementary role to men. This traditional ideology of the perceived maternal role of a woman is usually supported by religious belief, which appears to support women's goals to formal education. This is seen in the commonality across all religions as they transmit the moral values for girls to be compassionate, obedient, observant, hard working, studious and content. Conversely, this could be suggested to simultaneously facilitate, yet, limit women into roles that prepare them for marriage, motherhood, and work as domestic servants (Rafferty and Parkes, 2007). This supports the concept of 'caring power', which was derived by the historian and philosopher Foucault (1976) that was later analyzed by Van-Drenth and De-Hann (1999). 'Caring power' discusses how being a leading woman in an authoritative role such as those within education and social care can also inhibit their areas of operation (Van-Drenth and De-Hann, 1999).

Rogers (2005) described the duality of the increasing level of education on women and the resultant long-standing fear of the bluestocking, intellectual and overly educated women. The fear stems from the notion that such women, which have chosen the unconventional route will result in being 'strident, dry and barren old maids and certainly would not be able to conduct the rational tolerant discourse assumed of well-educated male citizens' (Rogers, 2005 cited in Watts 2013:4). Such inferences of 'masculinity', in co-ordination with the perceived societal needs of men, the Church, industry, public administration and so on have in no doubt all moulded educational systems (Brice, 2001). These perceptions result in women being treated differently, leaving them open to be discriminated against based on the presumption of their inferior intellect and their hindered future due to their child rearing and homemaking which can be viewed to limit employment (Mayer, 2011). Even so, history reveals that the government, on the national or regional level, even for males, did not supply the majority of education. Within Europe, formal education was supplied directly by the churches and universities, with the state becoming more involved in order to appease the multitude and meet industrial and military needs (Miller, 1998), in a way that replicates productive and principled nationals (Watts, 2013). Specifically, in Wales, formal education within the primary system was established by the religious provision (Watts, 2013), and similarly the state increased its influence. This was implemented through grants, regulations and inspections until local administration began in 1902 through Local Education Authorities (LEAs).

Secondary education had largely been saved for men; this resulted in governmental commissions and legislation developing elitist 'public' schools and endowed grammar schools, partially controlled by the government. However, after 1902, the ever- increasing debate from female educational protesters and liberal male supporters, warranted educational endowments to be widened to girls by providing fee-paying secondary schools for them (Lacey & Smith, 2001; Maclure, 1969). This amalgam of religious, political, vocational and moral discourse to convince governments of the necessity for female education supports the need to review national contents surrounding ethnicity, class and gender. Particularly, the flexibility of the 'ceilings' between the ways girls and women negotiate gender identities (Watts, 2013). In a study by Obilanade (2013), she focused predominantly on the Welsh climate using qualitative approach. With the majority of participants in this study stating that they felt limited to university choices in Wales, the author concluded that it is important to review the higher education landscape in Wales. With the development of the modern higher education institutions beginning in the early twentieth centuries that became popularly known for their ideology of democracy and inclusiveness. Arguable, it can be stated in comparison to other parts of the UK up until the middle of the twentieth century the colleges of the University of Wales and the other higher education institutions were perceived to be rather accommodating towards women, the lower middle-class and working-class backgrounds (Rees and Istance, 1997 cited in Taylor et al., 2013). These historical debates are important in reminding us of where such provisions began; and the ways in which they are reflected in current educational policy.

Science and Access Provision

In the current socio-economic climate, careers in science are of great importance as they have the potential to reduce gender and racial gaps in relation to financial income and ultimately occupational prestige (Perry et al., 2012). It must also be stated that professional demand for individuals who are scientifically literate is increasing (Parker and Gerber, 2000). This statement was confirmed by Wolf's (2011:107) report, which reiterated that 'employers would value more young people with a strong grounding in science'. Although, psychological assessments in the twentieth-century provided indisputable evidence that there were no intellectual differences between the sexes (Hunt, 1991); this in combination with girl's examination success had little or no effect on the gendered curriculum that is still imposed on girls today (Goodman, and Jacobs, 2008). This is furthered within the dispute around how far girls should be permitted to experience a diverse range of subjects. The preference for 'domestic science' as opposed to physical science to be taught to girls, have been disputed.

Nevertheless, on the issue of gender and race, Stake and Nickens (2005 cited in Perry et al. (2012:725) argued that 'the pool of qualified young women and people of colour who pursue graduate education in science and enter related fields remains very small'. This under representation is systematically made evident on the progression of these women into higher education, universities and therefore employment. Therefore, this paper debates the limitation of Access to Higher Education Diploma pathway may place upon minority group; it is hoped that such analysis will help to determine its benefits and viability for Blacks as Minority Ethnics (BAME). Firstly, it is important to set out the mechanics of Access provision specifically in Wales, which is explored in the following sections.

Class, Gender and Race Inequality in Science Education in Wales

It goes without saying that within science education, there has been a debate about what kind of science was to be taught to different students. The distinctions are, of course, class, gender, and race specific that are utilized to support the argument that some students are simply suited to menial rather than intellectual careers (Walkerdine, 1989). However, under the provision of the previous Labour government a 'Fair Access to the Professions' panel was set up to give advice on the way to open professional careers 'to as wide a pool of talent as possible' (Cabinet Office, 2009:5). Due to the election of the current coalition government in May 2010, it was initially unclear whether the same emphasis would be placed upon widening participation to higher education; in response to this, the Coalition Government has made clear its commitment to improve the quality of vocational education by conducting an independent review lead by Alison Wolf (Wolf, 2011). The review considered how to improve vocational education for 14-19 year olds and thereby promote successful progression into higher education, training routes and consequently into the labour market (UCAS, 2010).

The Wolf report was analyzed by The Guardian (2011), who claimed that the report emphasized 'the awkward truth that some qualifications pay dividends for the colleges that dish them out, but not the people who take them'. It went on to suggest that the 'scandal' of vocational science courses promoting a 'passport' into academic study, was simply not 'true' (The Guardian, 2011). It is apparent that with the increase in tuition fees reflected by the decrease in home-students applications by 12 per cent in 2011 and another 6.4 per cent in 2012 (The Guardian, 2012), has the potential to diminish access to the science professions resulting in educational inequalities becoming an even more pressing agenda in the future (Dillon, 2011:6). In fact, 'more than twice as many young people from lower socio-economic groups undertake vocational qualifications as young people with parents already in professional occupations' (Cabinet Office, 2009:22). Bernard et al. (2010:2) elaborated upon how Black minority ethnic students tend to disproportionately be predisposed to socio-economic disadvantages. This results in them having to balance and juggle their commitments such as childcare and employment. This combination of factors tend to significantly impair their ability to succeed, as they now become more likely to not achieve a pass grade and are predisposed to deferring their grades. Additionally, they tend to also have higher than the average 25 per cent withdrawal rates when compared to their white counterparts (GSCC, 2008, 2009; QAA, 2010).

It is no surprise that the under representation of women in science, particularly women of colour, continues to persist. This original observation was noted over three decades ago by Beechey (1986 cited in Taylor, 1993), who evidenced that women from minority ethnic groups were most often found in the lowest level jobs within the female dominated areas of employment. Although, the number of women in science is growing, men however, continue to significantly outnumber women, particularly, in the hierarchical level of the labour market, where men have been noted more frequently in the upper-level positions (Taylor, 1993; Hill, Corbett and Rose, 2010). This well documented phenomena, portrays a picture where women in science are concentrated in roles that are less prestigious and less rewarded when compared to their male counterparts (GEA, 2013).

Evidence of gender inequality is also represented in Watermeyer's study (2012:4), which states that 'the public portrayal of scientists is represented by a singular demographic, white and male where non-white and female communities are left unconsidered and marginalized'. Scientists are generally portrayed in this dominant archetypical male persona (Phipps, 2008). This has been challenged by interventions such as the UK Resource Centre for women. This Centre was created to provide advice for policy construction relating to the under-representation of women in science, engineering, technology and the built environment (UK Resource Centre for Women, 2011). However, these issues of under-representation continue in science as they result in narrowing entry routes to professions and decreased social mobility... '...the glass ceiling has been raised, but not yet broken. Despite increasing numbers of people from black minority ethnic backgrounds in professional jobs, many professions are still unrepresentative of the modern society they serve. And most alarmingly of all there is strong evidence...that the UK's professions have become more, not less, socially exclusive over time' (Cabinet Office, 2009:6).

Over time, with wider expansion and greater demand on higher education in Wales has resulted in a change in the nature of the sector. In Taylor et al.'s (2013) study on the progress and outcomes of non-traditional students in higher education in Wales, it was argued that the middle-classes still maintain their advantage over students from working class background. This was represented by the fact that although there is an increase in participation rates from students with working-class backgrounds, this is being matched by the increased participation of those from a middle-class background. This pattern is not isolated but in fact at a lesser inequalities within Wales, but it is also found across England and Scotland (Rees and Taylor, 2006; Tight, 2012). Such inequalities have intensified the spotlight on policies aimed at increasing participation amongst individuals from less socio-economically developed backgrounds in Wales, especially when considering that in a wider UK context where students fund themselves by paying high tuition fees to support the enlarged university provision (Taylor et al., 2013). Parliamentary devolution since 1999 provided the opportunity for the changes that resulted in a specific 'widening participation' strategy specifically for Wales. A distinguishing factor is the fact that the Welsh Government has committed to paying the extra costs to students arising from the removal of fee caps and the consequent national tripling of tuition fees from £3000 to an excess of £9000 (Gallacher and Raffe, 2012).

Conclusion

This study hopes to appreciate the lives, every day obstacles that these women face as they pursue higher education. It also hopes to inform and challenge current policies by reviewing any changes that could be made to support this under represented group and widen entry into HE and to the science professions for women of Black and Asian minority ethnic groups.

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