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PHOTO ESSAY

BOOK REVIEW

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Treatment Programs for Perpetrators of Domestic Violence: European and International Approaches

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For far too long, domestic violence against women was regarded as only a female issue, and men were merely considered to be offenders to be blamed. The aim of this work, therefore, is to present a review of major treatment programs for perpetrators of domestic violence, with the purpose of understanding

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the perspective of these programs as well as some possible strategies for intervention. To identify the best existing practices, this work investigated at the program level areas such as: mission, personnel, target groups, first contact procedures, treatment methodologies and procedures, length of the program, program contents, special objectives, restrictions, evaluation, and follow-up. Finally, the achievements and strengths of the various programs were assessed.

Keywords: gender violence, male perpetrators, treatment program procedures and methodologies, best practices

Introduction

Violence against women traditionally has been framed as an issue for women and children (European Union Agency for Fundamental Rights 2014; WHO, 2013, 2014;). In some ways, men have been excluded from the conversation, the reason being that men often are perpetrators of that violence. Trying to fix women is not the solution; rather we need to involve men in reconceptualising manhood. The vast majority of men are not violent, and the average man suffers from this stereotype. Therefore, gender violence has to be considered as a male issue, even concerning those who don't engage in violent behavior, in order to prevent all men from perpetuating social patterns connected to the patriarchal culture that underpins violence against women. Accordingly, the European Parliament "reiterates the need to work with both victims and aggressors, with a view to enhancing awareness in the latter and helping to change stereotypes and socially determined beliefs which help perpetuate the conditions that generate this type of violence and acceptance of it" (European Parliament's resolution of 5 April 2011).

Male Violence Theoretical Framework

A variety of viewpoints have been proposed as ways to understand, explain, and guide interventions regarding male violence against women. Among the broadest and most widely used is the ecological perspective. The World report on violence and health (2002) uses an ecological model to understand the multifaceted nature of violence, both in perpetrators as well as in victims. The factors that influence violent behavior are divided into four levels: individual, relationship, community, and societal. The first level identifies biological and personal history factors that influence how individuals behave. The second level refers to relationships such as those with family, friends, intimate partners and peers, and explores how these relationships may increase the risk of being a victim or a perpetrator of violence. The third level explores the community contexts such as schools, workplaces, and neighbourhoods. The fourth level looks at the broad societal factors that help create a climate in which violence might be encouraged. These factors can include the availability of weapons, and the culture of male dominance over women and children. Assuming an ecological perspective, the purpose of the present research is to promote actions that cut across the different levels in order to prevent violence, for example, by creating healthy family environments or spreading information that addresses gender inequality issues in schools (WHO, 2002; 2010). Among these, one of the most widely used for understanding gender violence is the nested ecological framework theory, which considers different factors at various levels (Dutton, 2006), and is described later in this paper.

Feminist and sociological perspectives also shed light on the problem of male violence

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against women. In addition, it is important to note different forms of violence against women exist, and these theories and frameworks must be understood for effective interventions to be implemented. Ali & Naylor (2013) completed a literature review of different perspectives that explain the causes of male violence against women. The feminist perspective holds that violence is perpetuated by men as an attempt to maintain control over women. Theories which explain the phenomenon are varied, including the cycle of violence, learned helplessness, the battered woman syndrome, patriarchy (Walker, 2006) and the power and control wheel (Dutton, 2006). The Sociological perspective focuses on the social context in which people live, and the influence of factors such as societal norms, gender stereotypes, and attitudes towards violence. Social learning theory, resource theory, exchange theory, conflict theory, and stress theory are included in this approach.

Johnson (1995) theorized the existence of two specifically different forms of couple violence: 1) patriarchal terrorism, which descends from a feminist perspective, and 2) common couple violence, which descends from a family violence perspective. While patriarchal terrorism is a product of patriarchal traditions, where men feel entitled to control women through the use of violence, subordination, and isolation; in common couple violence, conflicts arise from couple dynamics, and rarely lead to serious forms of violence. As the author said "The term patriarchal terrorism has the advantage of keeping the focus on the perpetrator and of keeping our attention on the systematic, intentional nature of this form of violence" (Johnson, 1995, p. 284). From this statement we can see how attention is drawn to and focuses on male actions.

These two types of intimate partner violence may be further delineated as 1) coercive controlling violence, 2) situational couple violence, 3) violent resistance, and 4) separation-instigated violence (Kelly & Johnson, 2008). The definitions of coercive controlling violence and situational couple violence replace the patriarchal terrorism and the common couple violence. The term violent resistance is used when the victim reacts violently to the partner, and separation-instigated violence is used to describe violence that occurs in the relationship at the time of separation. In this latter case, separation-instigated violence can take the form of physical harm against the woman and self- harm and suicidality as a form of emotional control (Helm, Baker Morales Diaz, Del Toro,& Colòn-Castillo, 2013; Baker, Helm, Bifulco & Chung-Do, 2014).

Ecological Perspective on the Roots of Violence

The causes of male violence against women may be distinguished in terms of three levels. The first focuses on the individual level, specifically individual psychology, the second focuses family and other relationships, such as socialisation and learning within the family, and the last focuses on the wider socio-cultural aspects related to power (Hearn, 1999).

At the individual level, perpetrators may minimize the severity of assault or deny the violence (Heckert & Gondolf, 2000). Especially during the aftercare period, perpetrators often deny personal responsibility, blame the victim, and use self-defense strategies to explain their behavior (Lila et al., 2008). One of the justifications used by violent men is that they were defending themselves; moreover, men blame their partner for being jealous, unstable, or having anger control issues, while they present a positive image of themselves due to the will to engage in socially desirability (Henning et. al 2005).

Causes of violence also may be related to individual psychopathology, anger, and substance use, including alcohol. One assumption is that batterers suffer from mental health problems, from abusive personality, and/or anxiety (Kivisto, 2014). Another hypothesis is that the perpetrator may experience higher levels of anger (Norlander & Eckhardt, 2005) which generally is

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considered a risk factor for violent behavior (Capaldi et al. 2012). Furthermore, a number of literature reviews suggest that intimate partner violence is associated with alcohol abuse (Foran & O'Leary, 2008; Klostermann & Fals, Stewart 2006). At the family level of the nested ecological framework, attachment theory has been used to explain intimate partner violence (Dutton & White 2012; Ogilvie et al 2014). According to this theory, the influence of family is the cause of violence, which may be linked intergenerationally via role scripts transmitted from parents to children (Pollak, 2004). Furthermore, cultural and social factors must be considered. For example, masculinity and the influence of a patriarchal society on men often are seen as causes of violence; thus are fundamental topics to explore and to redefine as a way to encourage equality among men and women (Bourdieu, 1998; Flood, 2002).

The Present Study: The Involvement of Men

In recent years, the issue of gender-based violence perpetuated by men against women increasingly has involved men in the search for solutions, both actively through information, education, and promotion of culture a non-violence and equal rights, and in terms of treatment programs for the offenders. This paper focuses on the latter – programs for male offenders. The first program for the treatment of perpetrators was initiated in the 1970s (Brown & Hampson, 2009). Today, initiatives have been devised to encourage the participation of men in the fight against gender violence and in the promotion of non-violence policies include the following main programs, e.g. Men Engage - Boys and Men for Gender Equality, He for She, and The white Ribbon campaign. On the other hand, work with perpetrators is still a new sector in some countries (e.g. Italy, country of origin for first two authors), and generally is oriented toward following international examples and treatment guidelines which have adopted a feminist approach (Bozzoli, Merelli & Ruggerini, 2013).

The main body of this text will explore initiatives across the globe, with a specific focus on Europe. Each of these campaigns and movements positively engage both mature and younger men and boys in challenging language, behaviors, and harmful ideas of manhood that lead to violence against women. The aim is to encourage and inspire fathers, men, and community leaders to embrace the idea of being a positive and strong role model for the young men and boys around them, valuing women as equal, and teaching how to have healthy and equal relationships.

Whilst various projects and different procedures have been developed by many centers and organizations, there still remains a lack of knowledge concerning programmatic vision, goals, and effectiveness. Therefore the specific aim of this article is to analyse the major programs for perpetrators to better understand the specific procedures. We started by identifying the existing practices and their dissemination, with the aim of investigating, for each program, the following areas: mission, methodologies, target groups, length of the program, procedures, evaluation, and follow-up or aftercare.

Methodology

The research has been conducted by accessing information via websites through the following search engines: Google Scholar, Science Direct, and Sirelib. Data were collected over the six-month period from January to June 2014. The search was limited to English and Italian only. Search terms were related to male violence against women. The only documents taken into consideration were those that gave information concerning treatment programs for perpetrators (Brown & Hampson,

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2009; Kraus & Logar, 2007; Gondolf, 2007; Westmarland, Kelly & Chalder-Mills, 2010; Wheeler, 2005. Blogs and discussion groups on the topic (i.e. www.heforshe.org; http://menengage.org/). Blogs and discussion groups were excluded, as these were not formally recognized treatment interventions. Therefore, amongst a vast quantity of programs identified in the initial search, 12 were included for the analysis (7 in English and 5 in Italian), as outlined in Table 1. A content analysis of each interventions' website was conducted (Krippendorff, 2004; Miles & Huberman, 1994) for the purpose of identifying and analyzing: 1) mission, 2) target, 3) personnel, 4) contact procedures, 5) treatment approaches, 6) treatment procedures, 7) length of program, 8) intervention strategies and program contents, 9) training and special activities, 10) restrictions, 11) treatment evaluation, and 12) follow-up or aftercare.

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Table 1. List of Treatment Programs for Perpetrators

PROJECT NAME	ACRONYM	LOCATION	LANGUAGE OF WEBSITE	WEBSITE
Alternative To Violence	ATV	Norway	English	www.atv-stiftelsen.no/engelsk Råkil*MUVI:* http://www.comune.bologna.it/iperbole/muvi/images/pdf/atv.ppt.
Domestic Abuse Intervention Project	Project D.A.I.P./ DULUTH MODEL	USA	English	http://www.theduluthmodel.org/
Männer Beratung	MÄB	Austria	English	http://www.maenner.at/
Men & Women working together to end Domestic Violence	Respect	England	English	www.respect.uk.net
Men ending Domestic Abuse	MEND	Ireland	English	http://www.mend.ie/
MOVE		Ireland	English	www.moveireland.ie
Centro uomini maltrattanti	CAM	(Firenze,Ferrara, Cremona, Sardinia) Italy	Italian	http://www.ccrm.org.uk/index.php?option=com_content&view=article&id=176&Itemid=239 http://www.centrouominimaltrattanti.org/
Consulenza per uomini	Time out	(Bolzano, Rovereto) Italy	Italian	http://www.caritas.bz.it/de/information/index/1-0.html http://www.ilfattoquotidiano.it/2012/08/04/bolzano-training-anti-violenza-nel-consultorio-per-soli-uomini/316856/
Liberiamoci Dalla Violenza	LDV	(Modena) Italy	Italian	http://www.ausl.mo.it/
Lo sportello telefonico per l'ascolto del di sagio maschile		(Torino) Italy	Italian	http://www.cerchiodegliuomini.org/
Uomini non più violenti		(Bergamo, Milano, Magenta, Lodi, Varese) Italy	Italian	http://www.nonpiuviolenti.it/; http://www.forumlousalome.eu/

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Results

Results are organized as follows. First, each program is described in terms of its history, structures, and organization. Then the content analysis is presented. It should be noted that descriptions were limited to what was available on the websites, and in some cases the available information was quite brief.

History, Structures and Organization of each Program

1) Alternative To Violence (ATV) is a Norwegian NGO with funding from municipalities, from the government, and other organisations. ATV started in 1987 as the first treatment centre for male batterers in Europe.

2) D.A.I.P. - Domestic Abuse Intervention Project Duluth Model was established at the beginning of the 1980s in the city of Duluth, Minnesota (USA). Staff members worked to identify the most common male abusive behaviors and created the power and control wheel, which has become ubiquitous in dating violence and domestic violence interventions services (Dutton, 2006). The program is described as an ever-evolving way of thinking about how a community works together to end domestic violence. The program benefits from an interagency approach which includes the probation system, and which has the authority to suspend the sentence during the trial period in the group.

3) In Austria, Männer Beratung (MÄB) is a program that has been operating since 1999. The organisations responsible for the program are the Intervention Centre Against Violence in the Family (IST) and the Men's Counselling Service Vienna, which provide counselling after perpetrators are evicted from their home; Both organisations are non-profit associations whose work in the prevention of violence is funded annually by the Federal Ministry of the Interior.

4) Men & Women Working Together to End Domestic Violence (Respect) is the UK membership organisation that works with domestic violence perpetrators, male victims, and young people. To be validated as a Respect association, it is necessary to follow the minimum standards proposed by the organisation. These standards are: to increase the safety of victims, to assess and manage risk, to be part of a co-ordinated community response to domestic violence, to provide services which recognise and respond to the needs of diverse communities, to promote respectful relationships, to work accountably, to support social change and to offer a competent response.

5) MEND (men ending domestic abuse) is an Irish organisation that began in 2003, and is run by SEDVIP (The South East Domestic Violence Intervention Programme) and by the Men's Development Network (a developmental and consultative organisation that works on four levels; locally, regionally, nationally, and internationally).

6) Also based in Ireland, MOVE is funded by Cosc, (the National Office for the Prevention of Domestic, Sexual and Gender-based Violence), and by the Department of Justice, Equality and Law Reform.

7) NTV - No To Violence was founded in Australia at the end of the 1990s as the result of the integration of two different organizations at an operational level: the network supported by the Victorian government for male family violence prevention (V-NET) and the Men's Referral Service (MRS). For 20 years it has been the central point of contact for men in Victoria who were making their first moves towards taking responsibility for their violent and abusive behavior.

8) Centro Uomini Maltrattanti - CAM [Center for men who abuse] is an NGO (Non Governmental Organization) launched in 2009 as an experimental project, and is promoted by the Artemisia NGO [Centre fighting violence against women] and the local health unit. The center also is present in other regions of Italy, including Ferrara, Cremona, North Sardegna.

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9) Consulenza per Uomini [Counselling for men] began in 2000 in Italy and is located at the local Catholic service (Caritas). The project is run in collaboration with the regional antiviolence services and is sustained by the regional district.
10) Liberiamoci Dalla Violenza - LDV [Free ourselves from violence] was launched in 2011. Previously, personnel working in the Associazione Casa delle donne per non subire violenza of Bologna, Italy (Women service association) received training from the Norwegian Center ATV, thanks to the Daphne EU project. The center is now located at the local health unit and it works in collaboration with legal services.
11) Lo sportello telefonico per l'ascolto del disagio maschile [Helpline for male discomfort] was launched by the association Il cerchio degli uomini. This Italian association was created in 1998 by a group of men who wanted to share experiences, feelings, and emotions on topics related to the issue of masculinity.
12) Uomini non più violenti [Not more violent men] is an Italian project of the cultural association Lou Salomé which was established in 2012, managed by the social cooperative "Il Varco" and funded by an NGO. The project is also present in Milano, Magenta, Lodi, and Varese.

Content Analysis
Mission. The main goals of the twelve centers included the following eight points, the first six of which are individually and relational/familial. These centers aim to 1) stop all forms of gender violence; 2) ensure safety, protection, empowerment and well-being of women and children who are victims of domestic violence; 3) encourage men to take full responsibility for their own actions and make them understand that violent behavior is a choice; 4) increase the capacity of men to understand the impact of their violence on their (ex) partners and children, both in the long and short term; 5) encourage men to have safe contacts with their children and to challenge the traditional role of fatherhood and masculinity; and 6) help men realize that gender-based violence is unacceptable, since it undermines the safety, health, and human rights of the women and children who experience it.

At the cultural and societal level of the ecological framework, these centers aim to 7) make men aware that violent behavior has a context rooted in patriarchal attitudes and social structures; and to encourage them to adopt non-violent, positive, respectful, and egalitarian ways of being in a relationship; and 8) promote a change in the communities and the society by challenging gender role stereotypes, supporting and empowering women and children, raising social and community awareness of the issue of gender-based violence, and promoting a coordinated community response by increasing the involvement of local and community agencies.

Target. The examined programs accept men who voluntarily apply, as well as men referred by outside sources. Referral sources include the judicial circuit and other legal entities such as police, adult and juvenile courts, social services agencies; or by the partner or ex-partner. Men referred through the legal system may have been arrested for domestic violence or charged with felonious assault. Some of the programs also work with male victims of violence.

Personnel. In treatment services regarding domestic violence, a distinction often is made between staff members working with men and those working with women, as described in more detail below. Treatment programs for perpetrators often provide collaborations with personnel working in women's services, to have a full comprehension of the violence case and to better ensure

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women's safety. In the majority of the programs examined, groups for men are run by at least two facilitators, a man and a woman, unless there are exceptional circumstances. Facilitators generally have professional experience in running groups or in working in the field of domestic violence; they may be required to attend specific training programs to work with perpetrators and women. Staff members may be psychologists, psychotherapists, psychiatrists, educators, social workers, sociologists, counsellors, researchers, professors, lawyers and volunteers.

Personnel working with men. Working with perpetrators consists of telephone counselling, individual meetings, and running group work. Group and individual meetings frequently are observed by other staff members so that they can develop their working skills, understand and analyse if there is the need for changing some parts of the training and, monitor staff fidelity to ensure minimum standards and achievement of the program's objectives. In many cases, members of staff are asked to reflect on their personal experience of domestic violence, both as a perpetrator and as a victim. In England, all staff and volunteers must be cleared by Criminal Records Bureau or Disclosure Scotland before starting to work in any capacity within the organisation. Some programs hire former perpetrators if they are aware of their motivation and of the positive and/or negative influence that their experience could have on the job, and if they can provide a complete and honest report about the path they have taken. Also, to be considered eligible to work in the program, perpetrators have to prove that they have not used violent and controlling behavior for a period of at least five years. All staff receive clinical supervision by an expert facilitator.
Staff are required to possess various skills, including theoretical and clinical, legal, and organizational. On a theoretical level, staff are required to be familiar with the social and cultural aspects of gender violence and with its nature and dynamics, with the short and long term effects on victims, and to be aware of manipulation, threatening, abusive behavior, and control strategies used by perpetrators. It is also required that the personnel are aware of the impact of domestic violence on children and on parenting, and to have a basic knowledge of substance abuse and domestic violence. On a legal level, it is required that staff are aware of children's needs, to be familiar with the laws for their protection, and to know the laws concerning domestic violence along with the options available to the women, including arrangements for safety. With respect to the organizational level, it is a fundamental requirement that personnel are informed of the program's working model, the minimum standards, and procedures about information sharing and safety. Staff members also must be able to conduct risk assessment and management as a way to determine whether a man is suitable for the program. It is also important for staff to be aware of the purpose and the operations of multi-agency management processes, to have had significant work experience within the sector of women's services as counsellor-facilitator and to be able to conduct group work and manage the dynamics associated therein.

Personnel working with women. Usually, personnel working with women are women themselves. Personnel should be able to conduct a group intervention and manage its dynamics. Clinical supervision is an important component for supporting staff working with women. Clinical supervision may comprise tasks such as focusing on how personal issues can interfere with work, to explore the relations between co-workers, to critically analyse the interactions with the client, to explore group dynamics, and to ensure personal responsibility for fulfilling the terms of minimum standards.

As was the case with personnel working with men, staff who work with women are required to possess various skills, including theoretical and clinical, legal, and organizational. With respect to personnel working with women, these staff use theoretically and clinically sound ap-

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proaches to protect privacy and safety. For example, staff must be capable of making proactive contact with men (ex partners) and to collect further details about the history of violence. Even though the contact with women is a fundamental part of the process, it is equally important to first secure their safety, well-being, and empowerment. For this reason, staff must find ways to contact women whilst keeping them safe, and must not seek further contact if the woman does not wish this to happen. In terms of legal concerns, personnel must have complete knowledge of legal and financial assistance for women and children, and of the policies of refuges or women's shelters. Staff also, have a duty to provide women with information and realistic expectations about the nature of the program, including its impact and limitations. At the organizational level, members of staff are required to be aware of the organisation´s working model, to be able to assess and manage risks, and to communicate with other professionals in order to manage risks in a multiagency context.

Contact Procedures

First contact may be sought by men who voluntarily apply to the program or call for instant help; men mandated by the court or referred by legal entities (police, courts, juvenile court, social services), and men referred by women's services. Women, children, adolescents, and staff working in the field seeking guidance or information also may contact the program.

Treatment programs for perpetrators offer the possibility of making the first contact through the website, –e-mail, telephone, and by mail. In some cases, a helpline is provided for instant support, telephone counselling, and information. Some programs also have an answering machine accessible 24 hours a day. Usually, first contact with the man is made by a male operator, while contact with women is made by a female member of staff. Initial contact is always made by a therapist or staff trained for this specific purpose.

First contact with partners or ex-partners may be done by e-mail, telephone, or in person, as long as these methods ensure the safety of the women and children, and complies with the conditions of information confidentiality. Contact with women can occur for several reasons. To assess the case, contact with women may occur within a week since the man's first contact with the program or at the moment that the man is considered suitable, with the purpose of acquiring an integrated version of the story, and particularly to assess the possibility of risks to the woman and/or her children, and help her to manage these risks. Contact with the (ex) partner may be for the purpose of informing her of her (ex) partner's participation in the program. Keeping in mind that the protection of the women is fundamental, contact can occur to provide them with details about the program, and to alert them to how their (ex) partners could abuse the concepts and tools learned during treatment by giving them the wrong information. Moreover, this contact may serve to provide them with data about the program and if they wish, to monitor the man's attendance. Furthermore, a fundamental task is to provide them with realistic expectations about the likelihood of seeing any behavioral changes in their partner. This contact also may furnish support, and give the (ex)partner information about services associated with the rights of the woman and her children. Finally, another reason to contact the (ex)partner is directly related to promoting safety; namely to alert the woman when the partner's behavior or words lead the facilitator to believe that her and/or the children's safety may be at risk, when the (ex) partner is not considered suitable for the program, when her (ex)partner completes the program, when the (ex)partner leaves the program and when the (ex)partner violates or is suspended from the program.

Once the extent of the risk has been evaluated, participation in the program is contingent

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upon the man signing a contract agreeing to take responsibility for his own behavior and admitting that it is a problem. If the agreement is broken, the participant has to leave the group. The contract focuses on the following topics. The client must accept that the staff will contact the victims (women and children) of his violence; and in case of breach of law or unsafe conditions for him or for his partner and/or children, the operator will report the man´s personal information to the appropriate bodies. Each treatment group defines what kind of behavior agreement is acceptable. Some programs give men an informative booklet about the program and information about limited confidentiality. In some cases, the man has to agree that sessions may be recorded and observed by other staff or researchers. If a man doesn't respect group requirements, the staff may suggest that he leaves and finds other services. When the man is considered suitable, a staff will contact the women and children as part of the man's initial evaluation, or before he participates at the first group session. If the women and children would like to remain informed, they are contacted every two or three sessions each month, and when the man leaves the program.

Treatment Approaches

These twelve programs essentially are based on three types of approaches. First, the feminist approach is based on the analysis of the patriarchal culture and its effects on family and society, the factors underlying violence against women, unequal power relations between men and women; strict compliance with gender stereotypes; and violent cultures in general. Its main goals are the promotion and dissemination of non-violent/discriminatory social standards, and equal relationships between women and men. Next, the cognitive-behavioral approach encourages the individual to understand the dysfunctional and functional aspects of violent behavior. It combines specific techniques to respond to anger and violence by means of deconstruction and reconstruction of the behavior and identification of strategies to disrupt the violent acts (e.g.: recognition of anticipatory signals; self-conviction; timeout). Finally, the psycho-educational approach focuses on the assumption of responsibility for the abusive behavior. It includes exercises aimed at managing negative emotions and developing strategies to prevent future violence, setting up new behavioral patterns, reflecting on parenting styles and ways to improve them, developing empathic skills, and changing beliefs and values about masculinity.

Evaluation of Eligibility Criteria. After the first contact, programs launch a procedure to understand if the man is suitable for their treatment program. This evaluation may take place over the course of one to six sessions, two on average, and may consist of interviews and administering assessments such as the Behavior Checklist. The following are the areas investigated. Personal history explores the man's history of violent and controlling behavior both in current and past relationships, and the eventual fatherhood experience. The social factors sphere examines factors such as the man´s legal situation (current or past trial, charge, or conviction), work status, possession of weapons, presence of substance abuse, presence of mental illness, and disability. Finally, motivation is important to analyse the man´s comprehension and acknowledgment of his violent behavior, his assumption of responsibility, his will to change, and his eventual commitment to participating in group sessions.

Treatment Procedures

These twelve programs used several treatment formats, including group, couples and family, and individual approaches. While most of the programs do not accept men if there is no or little expectation of risk reduction, there may be circumstances taken into consideration. In some cases,

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such as substance abuse, language and/or learning difficulties, or mental illness, men may ask for advice/referral to an additional support service.

Group treatments generally are carried out by two facilitators one of whom is a woman, and the other a man. The male-female dyad serves as an example of a non-violent relationship between men and women. Group treatment is usually chosen because listening to other men's stories may encourage reflection and comprehension, whilst also providing an opportunity to socialize and challenge gender stereotypes. Working in a group session may be an opportunity to experiment with relationships between men, focusing on personal change rather than competition. Furthermore, the group format may help men feel understood and supported rather than feel alone. Groups often comprising 8 to 10 men, up to a maximum of 12 to15; they may be closed or open to new participants.

A few programs use couple or family therapy, but only when specific conditions are met. The woman must feel secure, the man must complete his program, the man must not inflict physical violence or use significant levels of controlling behaviour, and a substantial period of time must have passed in which the man has not used violence. Otherwise, couple therapy is considered inappropriate because it can put the man and the woman on an inauthentic or false level of equality, and inadvertently may make the woman feel she is responsible for the situation. Individual treatment is not always a standard procedure. Some programs offer individual treatment together with group therapy, if a particular need arises, or in extraordinary circumstances (if the participant is unable to attend group sessions). Individual therapy may focus on areas such as individual issues, analysis of subtle forms of violence, acknowledgement of feelings of helplessness underlying the violence, or the dynamics of the relationship. One of the program described provides a tutoring activity -i.e. if needed, a male volunteer is available on the telephone and If needed also for individual session, especially during the weekend. This service is provided in order to give further support to the men who live in social isolation and are in an emergency situation.

Length of the Programs. The evaluation of a client's eligibility may take place over the course of one to five sessions (Assessment). Individual meetings may last between six and ten months, and have a length of 24 to 75 hours. The duration will vary according to the client´s specific needs. Group sessions take place at least once per one to two weeks, up to a maximum of three times a week. Interventions may be spread over at least 20 weeks, and for up to one to 1.5 years. Generally, meetings are 2.0-2.5 hours in length. In some cases, when the group is open, it remains available for men who have completed the program if they need further support in crisis situations or if they just wish to continue to maintain contact with the service or with other men.

Intervention Strategies and Program Topics. Intervention strategies range from group activities consisting of group discussions, to working in pairs, as well as using video and audio material, and other creative processes such as drawing, psychodrama, role-play, and journaling. The major topics addressed during group sessions primarily concern ending physical abuse, intimidation, and controlling behaviour, as well as realizing the extent of the violence inflicted.

Group discussions promote taking responsibility for one's own behavior, and may focus on the analysis of manipulation, abusive tactics, denial, and minimization. Discussions are directed toward countering denial and victim blaming mechanisms. Group work also focuses on cultural and social construction and meaning of gender violence and gender stereotypes. One of the steps men have to take is to reflect on what is socially constructed, to understand power influences on

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individuals, families, communities and cultures. Furthermore it's important to analyse gender stereotypes and its effects, and to develop respect for different cultures, religions and sexual orientation; major aim is working towards an equal and respectful model of relationships, and identifying and promoting non-violent alternative ways of relating.

On an individual level, the aim is to work on self-awareness, assertiveness, anxiety, jealousy, fatherhood, and children's needs. At the individual level, men are encouraged to broaden their identity and sense of self. The work is also focused on anger, irrational beliefs, and analyzing events that can cause anger (e.g. prior events, beliefs, emotional consequences, and conflicted emotions). The purpose is to draw attention to the emotions that cause the violent behavior, to recognise the physical signs preceding the outbreak of violence, and to develop comprehension and empathy for the people they have victimized in order to become aware of and adopt self-control skills and strategies.

Training and Special Activities. In addition to direct services to men enrolled as clients, these twelve programs also facilitated training for staff members, support services, community outreach and awareness, and policy and systems interventions. In terms of staff training, the two main foci were providers who work with perpetrators, as well as telehealth providers (i.e. telephone counselling, helplines). Support services for perpetrators ranged from referral helplines, to crisis intervention for men (e.g. divorce, job loss), and to programs for sexual abusers. Support for victims ranged from referral and support helplines, to assistance for disabled victims of violence, to projects that support families during the man's treatment process, to safety planning for women and families. Other support services were not specific to perpetrator only or victim only, such as mutual help groups, and hosting a virtual online space for fathers and sons in which they can feel safe to talk.

Outreach and awareness activities were both self-serve/passive and in interactive. On the self-serve end, many programs had developed websites to help men understand and reflect upon gender and violence issues; issued electronic and paper newsletters in which news, analysis and research on treatment programs were contained; published books and self-help books about experiences of change described by other men, consideration of the experience of fatherhood, and a minimum standards and guidelines textbook. At the more interactive end, seminars, conferences, and workshops for staff, researchers, and people interested in the field had been organized; and community meetings and prevention activities had been sponsored to increase awareness in the schools and communities.

Finally, at a policy level, some programs focused on elaborating accreditation standards and influencing national policies that can bring the issue to the fore. In addition, from a wider social perspective, some programs had developed collaborations with women's services and legal agencies to set up anti-violence networks in order to promote knowledge, research, and cooperation between researchers, agencies, and policy makers.

Restrictions and Exclusion Criteria. Not all men are accepted by treatment programs; every program has its eligibility criteria, but in general a man is not admitted when he doesn't recognise he has a problem; doesn't commit to participating in the program; or doesn't agree to program requirements such as limited confidentiality, abiding by the law, giving away weapons, or being evaluated. Once enrolled, clients may be suspended from a program for similar reasons. Some programs do not accept men charged for domestic violence unless the participation is not manda-

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tory and/or the trial has ended, the reason being that the treatment cannot be considered as a substitute for the penalty. Unless there are particular circumstances, only adults may be admitted. In some cases, men with speech difficulties or mental illness are not accepted. Men with substance abuse problems may be accepted on the condition that they stop using the substances for the duration of the treatment period.

Treatment Assessment. Treatment assessments generally include intake assessments, progress assessments, and case closure assessments. These assessment may require the collection of both qualitative and quantitative data, including a structured interview. In addition to the client, intake information and feedback are obtained from various stakeholders, such as women, children, facilitators, police, court reports, social services, services for women, and the juvenile court. A structured interview may cover demographic data, family status, drug or alcohol addiction, mental illness, employment status, criminal charges, and data from the victims/partners.
In terms of progress assessments, one technique is to ask (checklist survey and interview) women and children about the man's behavior before, during, and six months after his participation in the group sessions. Men are requested to complete a self-report form in which they reflect about the eventual change in their behavior every six sessions (in some cases weekly self-reports). In some cases, after the individual assessment has been made with men and with women, some programs conduct a conjoint interview with both partners.

Although some programs have developed their own assessments, standardized tools also are available. Among quantitative tools used in some European programs, the SARA assessment is now gaining wider recognition within services and police forces. SARA effectiveness studies are generating some very positive results (Baldry & Winkel, 2008). Success usually is considered to have been achieved when the man stops using physical violence, when he stops exhibiting controlling behaviors toward his (ex) partners and/or children, and when he apologizes to those upon whom he may have inflicted harm.

Follow-Up and After Care. Before the man leaves the group, staff members work with him in order to develop an exit plan, make him reflect on what he has achieved, identify the challenges he could face and how he can handle them. In some programs, the group stays "open" even at the end of treatment in case a man wishes to continue participating, or there is a specific follow-up group which meets once a month. Finally, contact with participants may occur after they exit the program to take part in an interview to assess the follow-up. Support for the partner is also a part of the follow-up procedures.

Discussion

In summary, this paper provided an overview of twelve treatment programs designed to help perpetrators of domestic violence. Through the analysis of each program's history, structure, and organization, fundamental program characteristics have been identified. Having used the ecological framework, it is possible to examine the potential impact of these programs beyond the benefits accrued by the individual perpetrator and his family.

From a wider perspective, these programs' missions are aimed at a social and community level, with the purpose of promoting a change in the communities and to promote a coordinated community system. In order to bring the issue to the fore and to spread a culture of non-violence and equality, it is fundamental to awaken citizens through community meetings, and to work at an

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information and prevention level with young people in schools. Collaboration with agencies is therefore indispensable. To promote safety and non-violence, it is important to initiate multi-agency networks that have the common purpose of fighting against gender violence.

As an example, Gondolf (2002) has remarked about program effectiveness in that some perpetrator programs contribute to the reduction of reassault, but this is only possible when the treatment is related to a coordinated community response. It would be extremely important to collaborate with women´s services, since female victims of gender violence often are fearful of reporting, to the justice system, for example. Furthermore, evaluation of the strongest predictor of reassault may be obtained more accurately from the women's perceptions (Gondolf, 2004).

One of the greatest weaknesses regarding treatment for perpetrators is the lack of resources, both financial and human. While the two may be related, there is a risk that the opening and founding of programs perpetrators may could deprive women´s services of their already limited resources (Chiurazzi, 2016).

Conclusion

Using a Freirian view on social justice and human rights (1970), the job of the oppressed is to engage the oppressor in the awareness of their actions. Freire referred to this as conscientizao. Thus, men become aware of the male role as oppressor and are empowered to tackle this issue. While the majority of men are not direct perpetrators of violence against women, by virtue of being male they inadvertently suffer from a male-as-perpetrator stereotype. Beyond perpetrators, the broader citizenry of men may engage themselves to eliminate this stereotype, thereby fighting the related issue of violence against women. By making their voice heard on these issues, they may be able to speak out against other forms of patriarchy.

This topic has begun to be addressed in many countries, as suggested in the analysis presented here. In order to fully deal with the issue, it is critical to involve men in a field that has so long been the domain of women. In order to do this, it is important to spread a non-violent culture of equality, a new concept of masculinity and manhood, and to continue working on treatment programs for perpetrators in order to increase their efficacy. A specific research goal concerns the need to increase evaluation studies on the effectiveness of different treatment programs, whilst a further specific need concerns the evaluation of assessment tools, such as risk management scales and questionnaires.

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British Male students continue to fall behind in secondary education

Gijsbert Stoet

It is common knowledge that boys fall behind in school performance, and UK policy makers have addressed this issue in the past decade. In fact, they seem committed to narrowing gender gaps of any kind. This paper asks whether actual progress has been made in reducing the degree to which boys fall behind, and also whether gender differences in subject preference have changed in the period 2001 to 2013. Using an analysis of British secondary-education exam data and a comparison with data from the Programme for International Student Assessment (PISA), it is concluded that no progress has been made: Boys attained fewer top grades in nearly all school subjects. Further, boys and girls continue to choose elective school subjects along traditional interest lines. The problem of boys falling behind is obscured by the finding that grades of all children have risen considerably in this period.

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However, a comparison of Mathematics and English exam grades with PISA data suggests that this rise is due to grade inflation, not real improvement. The paper closes with recommendations for solutions.

Keywords: education, psychology, gender gap, interests, policy

This paper investigates the degree to which boys fall behind in secondary education, using data from England, Wales, and Northern Ireland. The paper also discusses the necessity and challenges of changing the current situation. In this paper, both performance and participation are reported. Performance is here defined in terms of the quality of grades school children attain. Participation is defined as enrolling for elective optional courses (such as Psychology or French). Throughout the paper, the terms "boys" and "girls" will be used as a short for male and female adolescent students in the age groups from (around) 14 to 18 years old.

Educational performance gaps between boys and girls have been known for a long time. For example, already in the 17th century, the English philosopher Locke (1693) wrote that girls outperform boys when it comes to language skills. Still today, studies show that girls have better developed language skills (for a review, see Halpern, 2012), while boys typically perform equally well or better in Science, Technology, Engineering and Mathematics (STEM) subjects, and these gaps are far more extreme at the tails of the performance distributions (Stoet & Geary, 2013).

Understanding these performance gaps is necessary for addressing socio-political questions, such as whether the public and policy makers should be concerned and plan to change the current situation, and whether the educational gender differences can explain why there are unequal numbers of men and women in nearly all areas of employment. Indeed, not only the British government (Department For Education and Skills, 2007, Condie, McPhee, Forde, Kean, & Head, 2006), but all nations of the European Union have developed a long term vision and strategies to narrow these gaps (European Commission, 2011). One of the questions that researchers need to answer is whether today's school systems have been effective in ensuring that equal numbers of boys and girls leave school with similar knowledge and skill levels in all subject areas. This paper will show that this is not the case.

Further, this paper addresses a related issue, namely whether an overall increase in school performance should make us less concerned about existing gender gaps. Indeed, it is sometimes argued that when the school system improves, *both* genders benefit, and both genders improve their performance; the argument is that even when there continues to be a gender gap, at least all children improve (Department For Education and Skills, 2007, p.77); arguably, the latter situation is not ideal, but better when there remains a gap without any improvement. However, the current paper will argue that while schools in England, Wales, and Northern Ireland have seen considerable grade increases over more than a decade, but that these are likely due to grade inflation and not true improvement. That makes the current existing gender gaps potentially even more serious than people might think.

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Background of studies on gender gaps in education

There is now a large body of literature about gender gaps in school attitudes and performance, and there are very different methodological approaches to understanding these gaps (e.g., focus on individual students or countries, quantitative vs. qualitative studies, psychological vs. educational focus, focus on boy's vs. girls' underachievement); it is impossible to give a full account of these different perspectives here. There are, however, some frequently cited frameworks that are important because of their influence.

Discussions about gender performance and participation gaps have changed considerably over time due to a change in the understanding of the gaps. In the late 1970s, the underperformance and underrepresentation of girls in STEM subjects received much attention (Benbow & Stanley, 1980, 1982a, 1982b, 1983), while boys' general underperformance across subjects and different stages of their educational pathways became a very active research topic in the late 1990s (Weaver-Hightower, 2003). We now know that male students not only fall behind in schools (e.g. Gorard, Rees, & Salisbury, 1999, 2001, Lai, 2010, Jürges & Schneider, 2011, Warrington, Younger, & McLellan, 2003, Burns & Bracey, 2001, Younger & Warrington, 2004) but also in higher education (e.g., Jacob, 2002, Machin & McNally, 2005, Buchmann & DiPrete, 2006, Conger & Long, 2010, Taylor, 2005, Ratcliffe, 2013, Ewert, 2012). This paper provides an up to date assessment of the situation in secondary education in England, Wales, and Northern Ireland (these parts of the United Kingdom use a similar exam system and collate their exam data together; Scotland uses its own, slightly different system). The overall performance and gender gaps in the U.K. are similar to observations in other countries in Western Europe (Stoet & Geary, 2013).

Over the years, different theoretical approaches to gender gaps in education have been established, although there is still no consensus in the field of education or psychology about these theories, and neither is there a consensus about which interventions could possibly narrow these gaps.

One of the best known frameworks for explaining gender gaps is the gender-similarities and gender-stratification framework (Hyde, 2005, Hyde, Lindberg, Linn, Ellis, & Williams, 2008, Else-Quest, Hyde, & Linn, 2010). This model states that there are negligibly small differences between men and women in the majority of psychological variables, including cognitive abilities; the hypothesis is that existing educational differences will disappear when men and women will have equal opportunities in social, economic, political and educational domains. Because of the assumption that the educational gender differences are caused by non-cognitive factors, interventions aimed at changing self belief, anxiety, and so on as well as eliminating sex discrimination will be able to resolve the gender gaps (Hyde, Fennema, & Lamon, 1990). The current paper will show that even though the U.K. has a relatively high level of gender equality, the gender gaps remained stable over more than 10 years.

Theoretical models that assume that gender gaps in performance and participation are *entirely* due to societal and environmental factors are not without criticism. This because some aspects of these gender gaps seem to be universal, that is, they are found all around the world (Stoet & Geary, 2013). For example, without accepting some role of biological factors, it is difficult to explain why there is no country in the world where boys have better reading comprehension skills than girls, as

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shown in the large international PISA surveys (Stoet & Geary, 2013). It is also difficult to explain why the countries with some of most restrictive attitudes to women's rights do not show a mathematics gender gap while many more progressive countries do (Fryer & Levitt, 2010, Stoet & Geary, 2015).

Further, it has been found that sex differences in vocational interests are consistently found around the world: on average, men are more interested in working with things, and women more interested in working with people (Lippa, 1998, Su, Rounds, & Armstrong, 2009, Lippa, Preston, & Penner, 2014, this is known as the "people-things dimension"). The universality of this phenomenon has been taken as an indication of possible biological factors involved in this. Indeed, there is considerable support for the influence of biological factors to explain sex differences in psychological variables (Geary, 2010). According to these latter studies, some of the largest sex differences are not so much found in cognitive abilities, but in interests. The explanation is that interests might have played a role in evolutionary gender-specific adaptations to activities such as hunting or child care. Groups of people who survived by successfully dividing labor might thus have passed on genes that are underlying psychological processes that support gender specific interests and thought processes. If the biologically inspired models of gender gaps in education are correct, we would expect that in particular the choices for eligible subjects in secondary education is relatively stable, despite continuously increasing efforts of "gender mainstreaming" in developed countries such as the United Kingdom and most other European countries. The current paper shows that indeed gender specific choices for subjects are relatively stable.

Secondary education in England, Wales, and Northern Ireland

This paper will report the performance in British secondary education for the period 2001-2013. Note that the data of Scotland (which constitutes less than 10% of the British population) are not included, because it has a different educational system and does not contribute data to the central databases of the "Joint Council for Qualifications" used here.

Broadly speaking, secondary education in England, Wales, and Northern Ireland has two different main stages, namely the General Certificate of Secondary Education (GCSE) and the Advanced level of the General Certificate of Education (A-Level). GCSE courses are part of compulsory education. This system is "comprehensive", that is, students of all levels of ability can participate and prepare for the same set of exams set by national exam boards under the oversight of the national government.

Typically, students start the GCSE programme at the age of 14 and sit exams at the age of 16. The A-Levels are a non-compulsory part of secondary education that follows the GCSEs, typically for students from 16 to 18 years old. Because A-Level exam scores in a number of subjects are typically required as a qualification to enter higher education, they are considered of great importance for career development, and a large proportion of the population participates (the government target for participation was set to at least 50% in 2002, BBC, 2002).

Students are awarded grades ranging from the highest A* ("A-star") to the lowest G or F (for details see Methods). Relevant is that around 50% of children get an A*, A, B, or C in the GCSEs. In order to get access to some of the top-tier universities, students might need to have three A grades in the A-

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Levels.

The grading of students' exam scripts follows strictly regulated procedures. There are five different organizations that implement the curriculum guidelines of the Department for Education; they produce teaching material and exams. These organizations work closely together under the umbrella of the "Joint Council for Qualifications", and also publish one data set of exam results (as used in this study). Each year, more than 25 million scripts are marked by around 60,000 examiners and there are persons who check the consistency of grading standards. The details of the exam data and grades are further explained in the Methods section.

Programme for International Students Assessment

The data for the GCSE exam scores are of great interest for comparison with the data of the Programme for International Student Assessment (PISA). PISA is the largest international survey of student performance with a focus on the question whether students at the end of their compulsory secondary education can apply their knowledge and skills in the areas of reading, mathematics, and science to real life problems of modern economies (example problems can be viewed here: http://pisa-sq.acer.edu.au/). It surveys student performance from 15 to 16 year olds around the world, including a representative sample of children in England, Wales, and Northern Ireland (for comparison: the majority of students sitting GCSE exams are 16 years old). Further, because English and Mathematics are compulsory in GCSEs, the GCSE exam scores in these two subjects are highly representative of the population of 16 year olds, and we can safely assume that scores in GCSE exams and PISA of the matching years are therefore representing the same population.

PISA scores are expressed on a scale which has an average of 500 PISA points for students in countries in the Organisation for Economic Cooperation and Development (OECD), and a standard deviation of 100 points. Because PISA is carried out every three years, changes over time can be analyzed. Further, for both reading and mathematics, six different proficiency levels have been defined, with level 6 the highest (see detailed descriptions of these levels in the Supplementary Online Matrial, SOM). This paper matches the grades used in the GCSEs to these proficiency levels.

Methods

This study uses exam data publisehd by the Joint Council for Qualifications (JCQ) and performance data of 15-year olds published by the Programme for International Student Assessment.

Exam data

The exam results data used in this study were retrieved from the website of the JCQ, which collates exam results from all school children in England, Wales, and Northern Ireland. These results were downloaded as PDF files from the JCQ web site, and the data were then copied and pasted into text files and subsequently read-in using the statistical software R (R Development Core Team, 2014).

For each year from 2001 to 2013, the proportion of male to female students sitting GCSEs (full

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course) and A-Levels (i.e., gender-specific participation) as well as their grade marks were analyzed. The number of students enrolling in English, a compulsory subject, gives the best estimate of total students participating in each year. The number enrolled in the subject GCSE English between 2001 and 2013 was on average 697,826 students (ranging from 649,553 to 732,293). In the A-levels, English is the most chosen subject, with an average of 85,113 per year (ranging from 72,196 to 91,815).

For GCSEs, grade marks range from A* (highest) to G (lowest), and for A-Levels grade marks range from A to F (and since 2010, A* has been added). Because the A* grade was not available for all years included in this study, the A and A* grades have been collated for analysis (to make the findings easier to interpret). For some analyses, A* and A grades are considered separately.

The number of study subjects varied slightly from year to year, with some subjects discontinued (e.g., A-Level Home Economics was available until 2006) and others introduced (e.g., Statistics in 2004 GCSEs). Please note that GCSE and A-Level subject names are capitalized here. Also note that when listing performance and participation differences in exam data between boys and girls no inferential statistics are given intentionally. This because the reported numbers are not samples of a larger population, but *are* averages of the total population of all examined school children.

PISA data

The U.K. data from the Programme for International Student Assessment (PISA) are freely available from the website of the Organisation for Economic Cooperation and Development (http://www.oecd.org/pisa/). For this analysis, the datasets from 2003, 2006, 2009, and 2012 were used. PISA distinguishes between two subsets in the U.K. data, namely those from Scotland on the one hand, and those from England, Wales, and Northern Ireland (combined) on the other hand; in the current paper, only the latter data were used (because GCSEs and A-Levels are only used in England, Wales and Northern Ireland, while Scotland uses a different system). For all analyses of PISA data, the recommended statistical procedures were used as described in the extensive PISA documentation (OECD, 2003b).

Participants in the PISA survey are between 15 years and 3 months and 16 years and 2 months old. The average number of participants in the English, Welsh, and Northern Irish data sets was 9,196 (ranging from 6,812 to 10,708). Details about the PISA sampling procedures can be read elsewhere, but it should be pointed out that great effort is put into these data to be highly representative of the sampling population (OECD, 2003a).

The sampling of the very first PISA survey of the year 2000 have been judged problematic due sampling problems, and therefore, it is debatable whether the decrease in U.K. PISA scores from 2000 to 2003 reflects reality (Jerrim, 2013). What is relevant to the current study is whether there might actually have been an increase in PISA scores (as is shown in final exam data). While a decrease in U.K. scores might not have actually happened, there is no doubt that no increase in PISA scores has been observed in U.K. (OECD, 2013). In any case, the PISA data of 2000 are not included in the current study.

Results

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In the following, the data of the GCSEs and A-Levels will be reported separately, starting with the former. These sections will be followed by a comparison between GCSE and PISA data. In all these analyses, the focus lies on the differences between boys and girls.

GCSEs (ages 14-16)

The percentages of boys and girls attaining an A grade (i.e., A or A*) *across* all subjects were analyzed first (Fig. 1). The overall performance level averaged over all study subjects shows three salient phenomena: First, the percentage of school children (boys and girls alike) attaining an A grade has increased considerably over the years to a maximum in 2011, and has gone down slightly since then. Second, girls consistently attained considerably more A grades than boys (between 5.3 and 7.2 percentage points difference). Third, the overall gap between boys and girls has grown from a 5.3 percentage points gap in 2001 to a 7.2 percentage points gap in 2013 (further below, this increase will be compared to changes in PISA over that period).

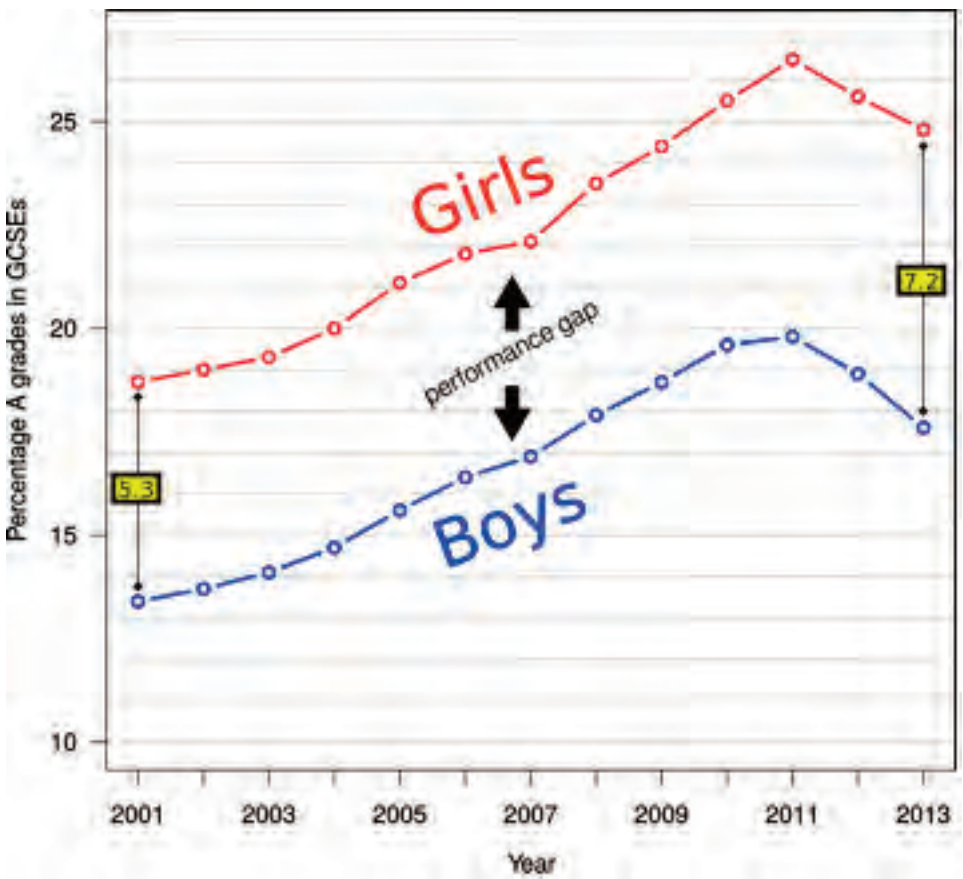

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Figure 1: Gender performance gap in GCSEs over the period 2001-2013. Girls consistently attained more A (A* or A) grades (across subjects) than boys. This gap has grown over the years from 5.3 in 2001 to 7.2 percentage points in 2013.

Because the gender performance gap varies from subject to subject, performance for academic subjects will now be reported separately, starting with the compulsory subjects English and Mathematics (Fig. 2). Consistently, the percentage of girls attaining an A grade in English was higher; on average, 19.0% of girls attained an A grade compared to 11.1% of boys, that is a 7.9 percentage points gap in favor of girls. In contrast, the difference between the percentages of boys and girls awarded an A grade in Mathematics was minimal; on average, 13.7% of girls and 13.8% of boys attained an A grade. Thus, while there is a clear advantage for girls in English, boys and girls performed equally well in Mathematics.

The two most closely related subjects to the compulsory topics English and Mathematics, English Literature and Additional Mathematics, are of interest as well (Fig. 2). English literature is a popular subject, although its popularity has declined over the past decade. In 2001, 81% of the students enrolling in English choose English literature as well, and that has gradually gone down to 65% in 2013. The gender performance gap in English Literature (8.9 percentage points in favor of girls) was slightly higher than in English (7.9 percentage points). Further, the topic *Additional Mathematics* was introduced in 2004 and, unlike English Literature, relatively unpopular, with total student numbers ranging from 3,205 (2004) to 18,765 (in 2009); that is, at its maximum enrollment only 2.5% of the students that were enrolled in Mathematics choose this topic. In 2012, the number of students had dropped by nearly 10,000 students in only one year (and in 2013, it was similarly low with 3,478 students). The variation in the "Additional Mathematics" gender gap from year to year has been considerable. In 2004, while girls lead with 5.4 percentage points, boys lead in 2011 with 6.1 percentage points. Possibly, this variation is partially due to the small number of students enrolling in the topic. Thus, it is concluded that the student performance in these related subjects is similar to that of the compulsory counterparts. At the very least, this shows that the gender differences between language and mathematical skills are not just shown in "compulsory topics", but also in the voluntarily chosen topics.

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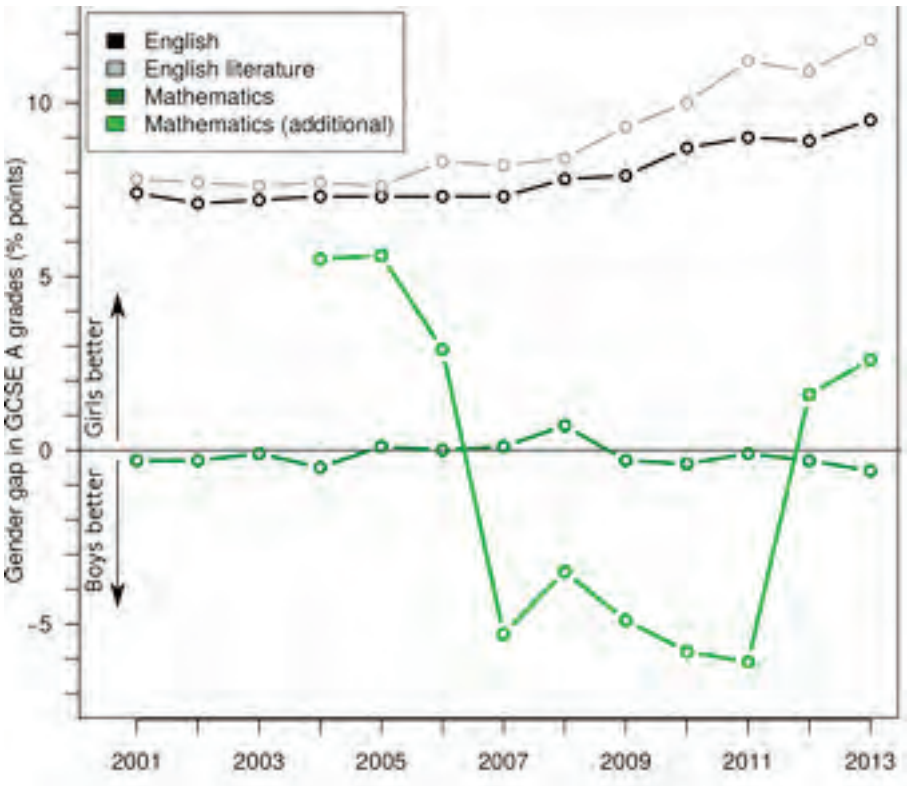

Figure 2: Sex differences in GCSE Mathematics and English performance over the period 2001-2013. Values represent the difference between percentage of girls that attained an A grade minus the percentage of boys that attained an A grade. Positive values indicate that girls did better than boys.

There are a few subjects in which boys did not fall behind (for a complete list of the gender performance gaps by subject, from high to low, see SOM Appendix A). As for Mathematics, in Physics the same percentage of boys and girls attained A grades (in some years girls attained more A grades and in some years more boys, with an average advantage for boys of 0.5 percentage points). Boys' advantage was most notable in Manufacturing, introduced in 2011, but because so few students choose this (174 boys and 9 girls in 2012; 219 boys and 17 girls in 2013), this finding does not carry much weight. Somewhat surprisingly, the topic Engineering, also introduced in 2011 and more popular than Manufacturing (2685 boys and 212 girls in 2012), showed exactly the opposite picture as Manufacturing: Girls attained 23.2 percentage points more A grades in 2011, and 29.2 percentage points more in 2012, but this advantage dropped to 4.4 points in 2013. Thus, even though boys fall behind in most subjects, they play even in non-organic STEM subjects.

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A-Levels (ages 16-18)

Similar to GCSEs, across subjects the percentage of male students attaining A grades was lower than that of females, although the gap was smaller than in GCSEs. Across subjects and years, the gap was 2.0 percentage points (compared to 5.8 in GCSEs, Fig. 3, SOM Appendix B). Further, unlike in GCSEs, the gender performance gap in A-Levels has not been growing. In fact, the performance gap in A grades was largest in 2003 (2.9 percentage points) and lowest in both 2001 and 2013 (0.8 percentage points). That said, changes in the gap itself were not large in either GCSEs or A-Levels. The only considerable *general* change over time was the increase in grades (similar to GCSEs). Across subjects, the percentage of students with an A grade went from 18.6% in 2001 to a peak of 27% in 2010, and has dropped a little bit since then (to 26.3% in 2013).

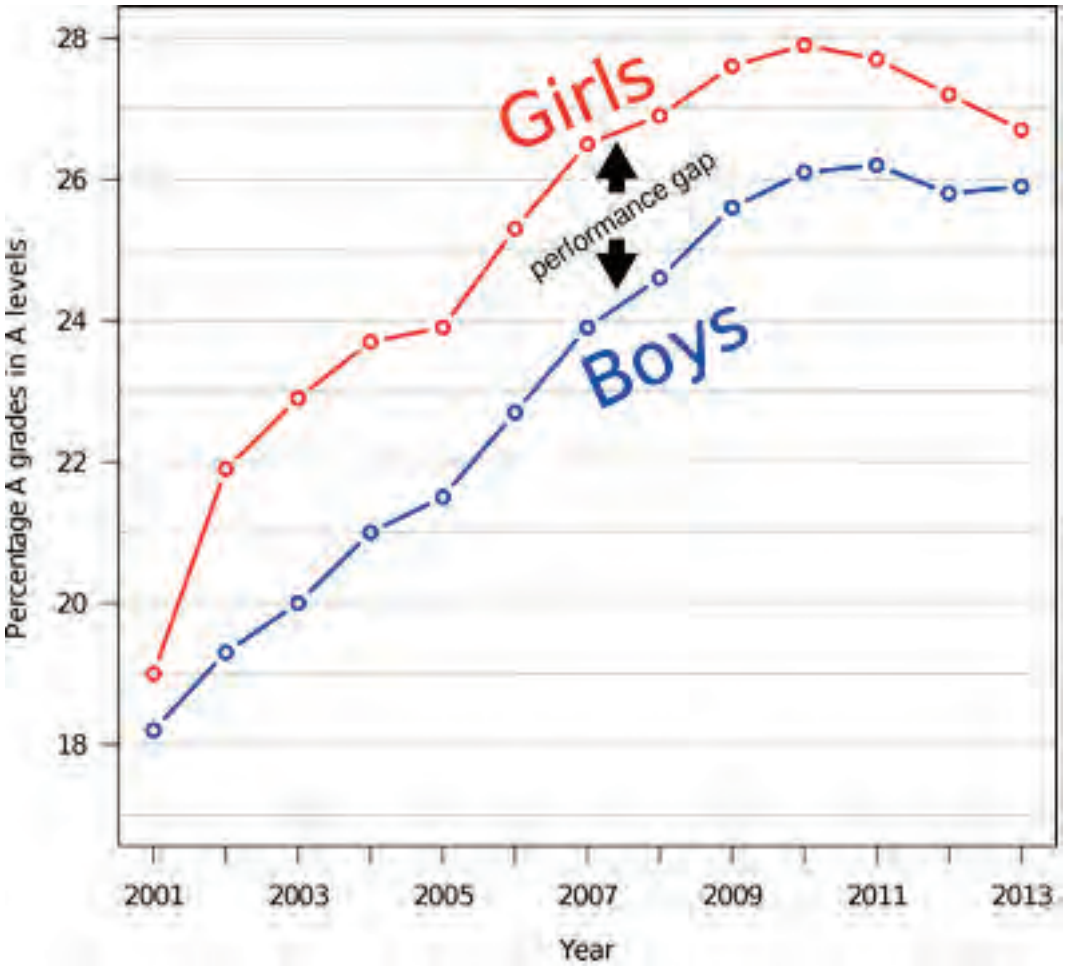

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Figure 3: Performance gap in A-Levels across all subjects in the period 2001-2013. As in GCSEs (Fig. 1), girls consistently attained more A (A* or A) grades than boys.1

A second difference between A-Levels and GCSEs is that in A-Levels boys and girls did not score equally in Mathematics; instead, girls outperformed boys in Mathematics, and also in other STEM fields (Figure 4). In Mathematics, the average difference over the years has been 2.4 percentage points in favor of girls, with a peak in 2006 (4.5 percentage points) but with less than 1 percentage points difference in last three years. For Physics, the advantage of girls over boys is considerably larger than in Mathematics. While there was no gender gap in the GCSEs, girls lead in attaining A grades with 6.1 percentage points.

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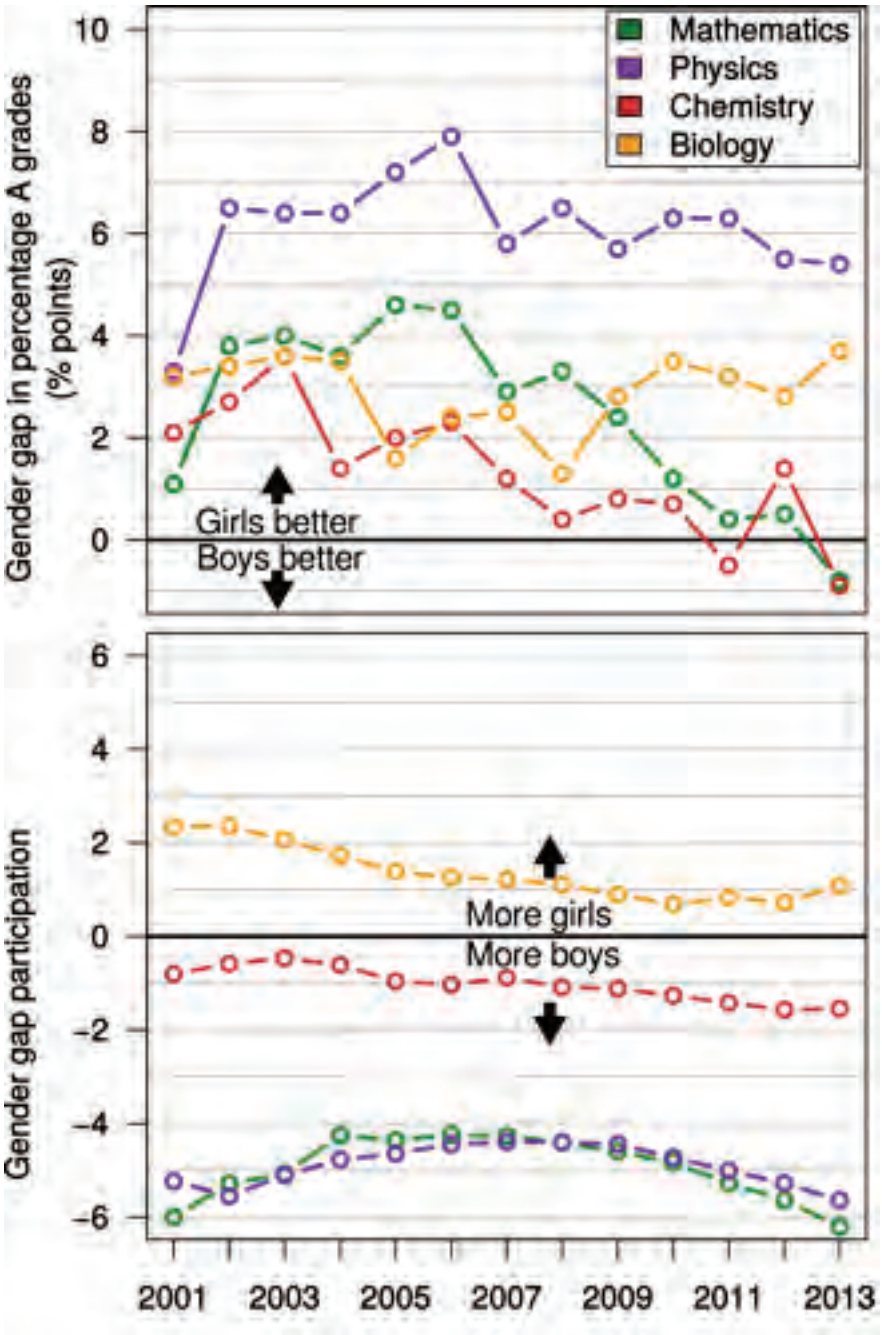

Figure 4: Performance gap in A levels in STEM subjects from 2001 to 2013. Top: The gender gap in attainment of A grades. Bottom: Differences in percentages of boys and girls choosing subjects.

The enrollment data show that girls remained underrepresented in STEM fields (Figure 4, Bottom). Girls were underrepresented in Physics, Chemistry, Mathematics, but overrepresented in Bi-

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ology. The change over the years in these fields has not been large, though. If anything, the sex difference seems to grow, except for Biology. This is particularly the case for Computing (not in Figure 4 because the variation between years is so large compared to that in other years), with more than 14x more boys than girls in 2013. What is unusual about Computing is how strong the percentage of participating girls has dropped, from its maximum of 26% in 2003 to a minimum of 7% in 2013.

In the social science subjects (Figure 5) the enrolment has not changed much over the years. Boys were underrepresented in Psychology and Sociology, yet overrepresented in Economics and Political Studies. Irrespective of over or underrepresentation, girls attained more A grades in these subjects.

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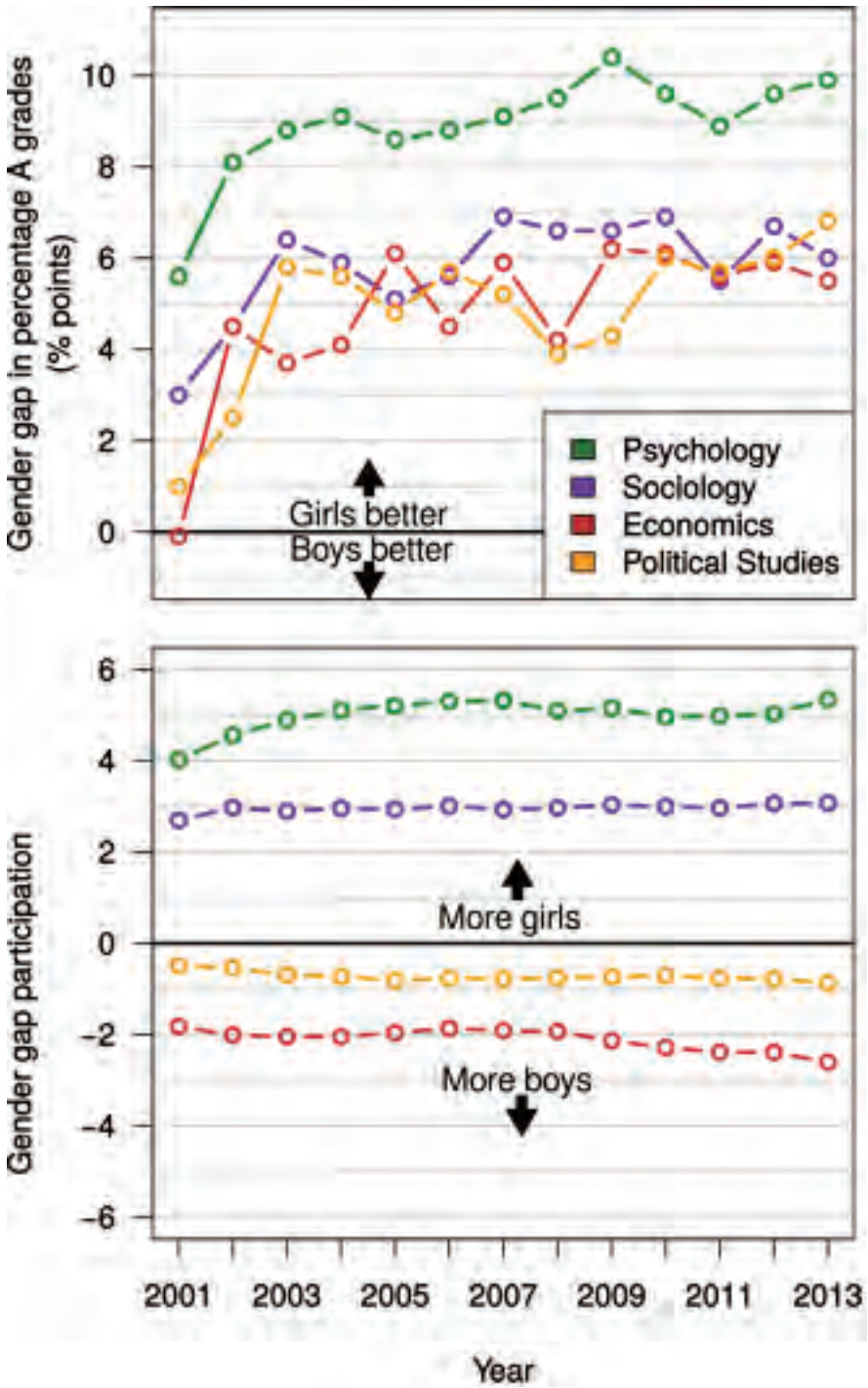

Figure 5: Performance gap in A-Levels in social science subjects from 2001-2013. Top: The gender gap in attainment of A grades. Bottom: Sex differences in percentages of boys and girls choosing subjects.

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Given boys' general underperformance in English and known difficulties with reading skills, it is of special interest that boys were at an advantage are modern foreign languages (French, German, and Spanish, SOM Appendix B). That said, boys were strongly underrepresented in these courses (with around one in three students male).

Altogether, girls attained higher grades in the A-Levels, including in the STEM subjects in which there was no gap during the GCSEs. It is important to note that this does not necessarily mean a change performance of the same children, but that this might reflect that far fewer students participate in the (voluntary) A-Levels than in the (compulsory) GCSEs.

Comparison to PISA

The first analysis addresses whether the increased performance in U.K. exam scores in Mathematics and English matched the PISA scores. The overall sex difference in Mathematics and English in the U.K. has been reported elsewhere (Stoet & Geary, 2013), and we know that U.K. girls have, on average, consistently better reading skills, while boys perform consistently better than girls in Mathematics. For the current paper, the distribution of the students in England, Wales, and Northern Ireland for Mathematics and English is similar to that of other OECD countries. That is, in Mathematics, the performance gap is smaller at the low end of attainment, whereas in Reading, the performance gap is smaller at the high end of attainment (Figure 6). This finding has direct implications for interventions aiming to reduce the gap (see Discussion).

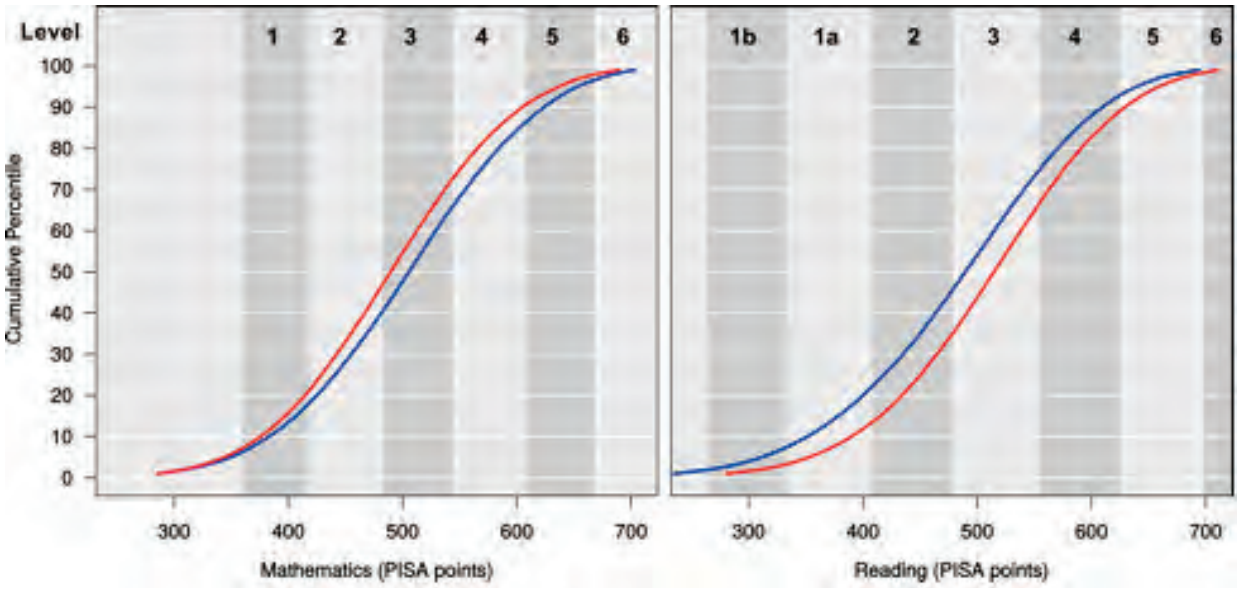

Figure 6: The distribution of Mathematics (left) and Reading (right) PISA scores of boys (blue line) and girls (red line), averaged over the PISA assessments of 2003 to 2012. Note that the difference between Mathematics scores for boys and girls is larger at the higher end, whereas the opposite pattern is found for Reading scores. PISA scores can be categorized into different levels of proficiency (see SOM).

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The next analysis addresses the relation between the GCSE grade increase and PISA scores. For both 2003 and 2012, the cumulative percentages of children attaining a certain PISA score was simply matched to the percentages of GCSE candidates attaining a certain grade (Figure 7). This is best explained with an example. We know that in 2003, 97% of students attained a GCSE score lower than an A* (because 3% of students attained an A*). Similarly, in 2003, 50% of children attained a score lower than a C. We can match these grades to PISA scores. If we know that 97% of children attained a score lower than an A*, we can match this to the 97% of children who had a PISA score of 678 or lower. Thus, the children that attained an A* in GCSE most likely had a PISA score over 678 points, which is within the highest Mathematics proficiency level (see SOM Appendix C). However, in 2012, we know that 94% of children attained lower than an A*, which corresponds to a PISA score of 641 PISA points, which lies in proficiency level 5. Thus, one can conclude that in 2003, only school children who had the highest proficiency level in mathematics could attain an A* grade in the GCSEs, whereas this has dropped to the second highest level in 2012 (this drop is indicated with the red lines along the x-axis in Figure 7). Interestingly, the A and C grades also dropped one PISA proficiency level (for A it dropped from level 5 to level 4, and for grade C it dropped from level 3 to level 2). Grade B just stayed on the border of the fourth proficiency level.

The same matching method was applied to PISA Reading and GCSE English data (Figure 7, right panel). Of interest is that few children reached the highest level 6, and that an A* grade corresponded to the second highest level (5). Although the drop in matching PISA scores is smaller than for Mathematics, it is the case that the a proficiency level 3 was necessary for a C grade in 2003, whereas this could be reached with a proficiency level of only 2 in 2012. Similarly, the necessary skills necessary for grade D also dropped one proficiency level.

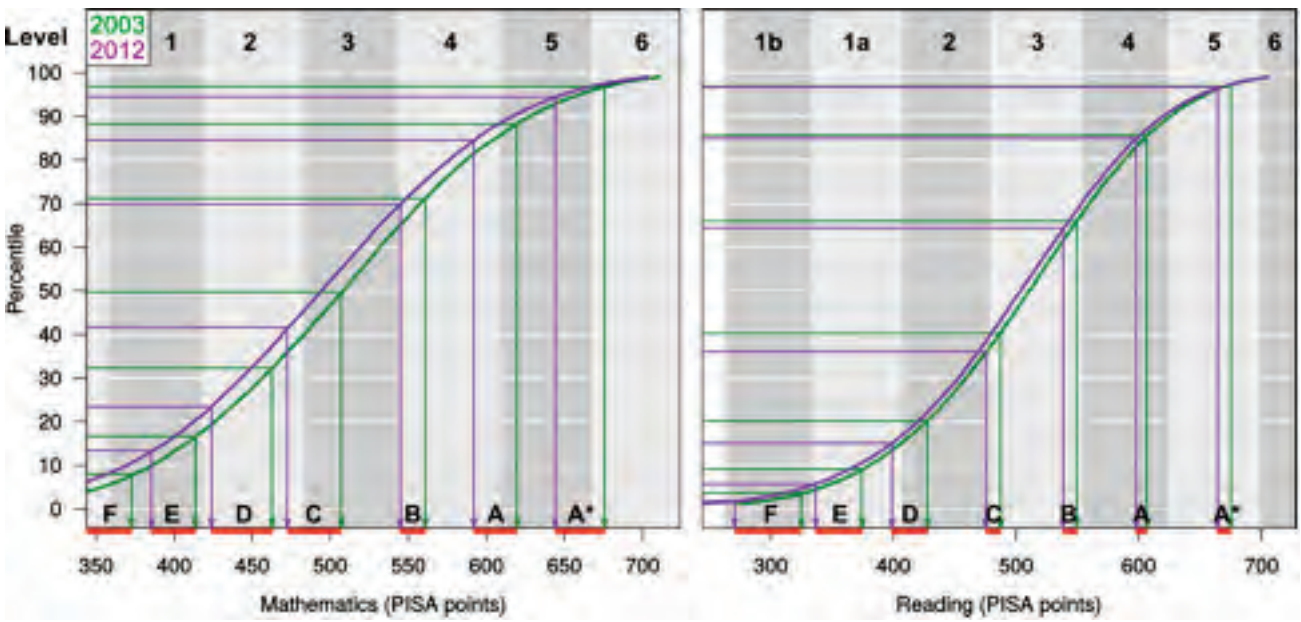

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Figure 7: The relation between PISA scores and GCSE grades. The distribution of scores (with boys and girls taken together) for the years 2003 (green curve) and 2012 (purple curve) for Mathematics (left panel) and Reading (right panel). The cumulative percentages of children attaining a GCSE grade are mapped on the cumulative percentages of PISA scores (y-axes), and the corresponding grades in PISA scores are shown on the x-axes. The thick red lines on the x-axes indicate the downward shift from 2003 to 2012.

General Discussion

This study found considerable sex differences in exam performance and subject choice in secondary education in England, Wales, and Northern Ireland: Boys fall behind in performance in most subjects, and boys and girls choose subjects along traditional interest lines. Further, the observed grade increase over the first decade in Mathematics and English did not match the stability of performance observed in PISA surveys for England, Wales, and Northern Ireland. This means that the British school system is ineffective in narrowing the gender gaps. Further, the finding that PISA scores showed no increase in performance suggests that the failure to narrow gender gaps has not been softened by on overall increase of both girls and boys (instead, here it is argued that the increase was due to grade inflation).

This discussion will start with a more detailed summary of the most important findings of this study, problems facing research into this issue, and implications in the longer run.

Detailed summary of findings

In regard to sex differences, the percentage of boys attaining an A grade was lower than that of girls in nearly all GCSE subjects. This pattern of boys falling behind across subjects matches the findings of the PISA, in which boys generally underperform compared to girls (Stoet & Geary, 2015). In GCSEs, the major exception to this pattern was found for the STEM subjects Mathematics and Physics, in which boys and girls performed similarly. Despite this latter positive note, boys' attained fewer A grades in a number of technology-related subjects, in particular in the popular Design and Technology. As in the GCSEs, boys attained fewer A grades in most A-Level subjects. The main difference from the pattern in GCSEs was that boys attained fewer A grades in the STEM subjects Mathematics and Physics as well.

The gender performance gap is only one dimension of sex differences in education. At least as important is the sex difference in student numbers enrolling for optional subjects (i.e., participation gap); from a socio-political point of view, this is relevant because if girls are outnumbered in STEM subjects at school, they will certainly also be outnumbered in employment. Therefore, an important finding of this study is that both in GCSEs and A-Levels, girls continue to be underrepresented in STEM subjects, whereas boys were particularly underrepresented in social sciences, languages, and art-related subjects. This phenomenon is relatively stable over time, except for girls' under-representation in Computing, a relatively novel subject most important for the development of modern

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technology, which has changed much: the percentage of girls in this subject has dropped from a high of 26% in 2003 to currently 7%.

Further, an interesting observation was that girls outperformed boys in topics in which they were underrepresented (e.g., Physics). This phenomenon was not so common for boys. For example, boys were not only underrepresented in Psychology, they also underperformed in this subject. On the other hand, the phenomenon was actually observed for boys in the modern languages, in which there were fewer but highly performing boys. There are different possible interpretations of this phenomenon, and the different interpretations have different policy implications; therefore, it is important to consider these. First of, one could possibly interprete this as girls generally be better in physics, and therefore that if only more girls would choose physics, girls would be highly competitive in the STEM employment market. A second interpretation is that only high-achieving girls are willing to choose physics, and if this would be the case, one would predict if more girls could be encouraged to choose physics, this larger group would include lower attainers, thus lowering the gender gap in exam scores. The latter interpretation could also imply that girls, in general, have lower self-confidence about their own STEM performance, and that they are only willing to choose it if they know they are high achieving. A similar interpretation is possible for boys in the modern languages, in which boys are in the minority but score higher than girls. Importantly, though, it is not true for Psychology, in which boys are not only in the minority, but they are also underperforming. The latter observation about boys in Psychology seems to clash with the self-confidence interpretation. It is possible that self-confidence is not the causal factor, but that some types of assessments work better for boys than for girls (e.g., writing essay questions is a common method of assessing Psychology). At this point, the best way forward to resolve this outstanding question is further analysis in both cognitive and non-cognitive factors, such as self-confidence in gender stereotyped subjects. Also, we need to consider if specific assessment types are more easily dealt with by boys than by girls. For example, it is possible that psychology assessments require non-psychology specific essay-writing skills that boys find more difficult than girls.

Finally, the PISA scores in Mathematics and English were compared to the GCSE scores. The conclusion is that in 2012 lower skill levels were required to attain the same grades as in 2003. In particular in Mathematics, the drop in required skill levels dropped whole proficiency levels. For example, in order to attain the highest exam grade in 2003 GCSE (an A*) for Mathematics, students had to have the highest PISA proficiency level (level 6, see Appendix for description); in 2012 students could attain an A* grade while being in proficiency level 5. In other words, if we trust the reliability and validity of the extremely well tested and validated PISA surveys, it has over the years become easier to attain a top grade. Indeed, this matches the opinion of mathematicians and policy makers (Kounine, Marks, & Truss, 2008).

Have gender gaps narrowed?

One of the main questions is whether gender gaps have been or can be narrowed. This paper has clearly shown that the performance gap across subjects has not been narrowed (if anything, it has grown), and the participation gap stayed the same. This is both true for the general underperformance of boys and the gaps in participation along traditional lines. Nevertheless, some people might argue that at least in terms of girls' performance in Mathematics, girls now do perform similarly to

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boys in the U.K., a finding that matches findings from other countries (Hyde et al., 2008, Voyer & Voyer, 2014).

The finding that girls do now equally well in mathematics as boys is not evidence that boys and girls have become more similar to one another, though. Instead, one can argue that at least in school exams, boys have fallen so far behind that even in the subjects in which they were often stronger they now just manage to break even. This is a problematic finding for two reasons. First of all, it means that the educational system has failed to deal with the problem of boys' general underachievement, an issue that has been actively researched for more than 20 years, and which the U.K. government (including Scotland) has aimed to deal with (Younger & Warrington, 2004, Department For Education and Skills, 2007, Condie et al., 2006). Second, it means that when the overall performance of boys would rise, the first subjects in which girls would fall behind in would be STEM subjects such as Mathematics and Physics. This because, relatively speaking, boys do better in STEM subjects than in languages, whereas for girls it is the opposite way around (observed around the world, Stoet & Geary, 2015). In other words, if the average score of boys would be raised, boys will likely outperform girls in Mathematics and Physics. In summary, the apparent elimination of the mathematics gender gap seems to be nothing more than a side effect of boys' overall lower educational performance, and not a genuinly positive development of equipping boys and girls with the same skills.

Finally, the finding that the gender gaps were somewhat smaller in the A-levels is likely due to a selection mechanism: The A-levels are optional, and the poorest performing students will most likely not participate in the A-levels. Many more boys than girls performed poorly in the compulsory GCSEs, and as a consequence more boys than girls will not even start with the A-levels. Therefore, the underperformance of boys in the GCSEs seems to be a limiting factor for boys' educational and career opportunities.

Can psychological attitudes really be changed?

A common assumption underlying much educational interventions as well as current policies is that changing the gender differences in psychological attitudes (such as in confidence and interest) would be a great way to narrow the gender gaps. For example, recently, the U.K. Minister of Education Elizabeth Truss argued that the PISA gender gap in mathematics is not due to competence but due to a lack of confidence in girls (Truss, 2014). Others have argued that girls suffer from anxiety (Maloney & Beilock, 2012), for example due to stereotypes (Nguyen & Ryan, 2008). And again others argue that role models might change girls' attitudes (Donald, 2011). And some argue that changing interests can change gender gaps in participation (Meece & Glienke, 2006).

The big question is, though, whether it is really possible to change these attitudes. We need to be sceptical about the proposed solutions, some of which are disputed. For example, there is reasonably good evidence that same-sex role models do not make a difference in schools (Carrington, Tymms, & Merrell, 2008, Helbig, 2012), and it has been argued that girls' mathematics performance is not negatively affected by stereotype threat (Stoet & Geary, 2012, Ganley et al., 2013). The stability of gender differences in vocational interests shows that decades of gender equality initiatives and gender-equality campaigns making women aware of the possibility of non-traditional career paths have not

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made much of a difference in actual subject choices (Lippa, 1998, Su et al., 2009, Lippa et al., 2014).

The challenge for the idea that we can change performance through changing attitudes is that this idea is strongly based on the basic assumption that attitudes are both learned and remain changeable to further experience. But it seems that this idea is far more popular in the media and among some social scientists than it is among other researchers. For example, the era that experimental psychologists assumed that children's minds were blank slates has had its heydays long ago (Pinker, 2003). Over time, researchers have developed a far more balanced view of the role of nature and nurture in development. Indeed, among psychologists it is now far more accepted than in the past that gender differences in attitudes are influenced by biological variables which cannot be changed through learning or experience. For example, vocational interests appear to be influenced by exposure to prenatal hormones (Beltz, Swanson, & Berenbaum, 2011), and similarly, gender differences in affective responses (e.g., anxiety related responses) can be linked to biological factors (Altemus, 2006). This does not at all mean that everything is fixed; instead it means that opportunities for change through education are more challenging and difficult than many have hoped or expected (the actual lack of change despite political will for change supports this argument).

Of course, one can further debate the role of nature and nurture in explaining gender differences in attitudes. For example, the fact that there are international differences in gender gaps demonstrates unequivocally that society and culture play a role in gender gaps. What matters most in the current discussion is that the possibility that these gender differences might be fairly stable needs to be taken more seriously by policy makers. Currently, there is little reason to believe that policy makers (e.g., Truss, 2014) take the possibility of relatively fixed attitudes very seriously into consideration. Yet, we risk that aims are being set that are unrealistic, and this would likely lead to an ineffective use of limited educational and financial resources.

The fact that boys and girls continue to choose subjects along traditional lines in even some of the most progressive countries suggests that gender-specific interests are indeed hard to change. It might of course be possible, but if so, nobody knows how it can be done (again, if somebody would have known, we should have seen an effect by now, but we have not). A solution to this problem is rather than trying to change children's gender specific attitudes, we might adjust teaching to the existing attitudes of children, which can have a positive effect on performance (Oakhill & Petrides, 2007, Kerger, Martin, & Brunner, 2011). A possible answer to whether attitudes can be changed or how teaching can be adjusted to existing gender differences in attitudes can only come from a closer collaboration between educational researchers and psychologists. Yet, there seems a lack of collaboration between educational researchers and psychologists, which is the topic of the next section.

Lack of interdisciplinary work

In writing this article, I became aware of the lack of crosstalk between educational researchers and psychologists when it comes to the study of sex differences. This is somewhat surprising, because these researchers share many interests, such as the causes of differences in cognitive performance and the role of attitudes, affective states, and meta-cognitive factors (such as attention). The lack of collaboration between disciplines makes it also difficult to understand and compare previous work. For example, the review of literature and strategies written by educational researchers for the Scottish

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government (Condie et al., 2006) has 84 pages, but the word "psychology" is only used once (in an unrelated way). Similarly, a report by the Department of Education (Department For Education and Skills, 2007) with more than a 100 footnotes refers to only 3 papers in psychology journals.

It is important to note that psychologists often seem to be more "accepting" of the notion that boys and girls have different interests. Such differences are often observed from a young age, and aims to socially engineer such differences away might, in part, be inspired by an unrealistic believe of educators in the malleability of the mind. Of course, this latter point might be viewed by some as a fairly strong generalization of the disciplines psychology and education (with a varied group of researchers), but at the same time, in the face of a stagnation in any change in educational gender gaps, despite a political and societal will for change, researchers should be willing to speculate and explore possible reasons why this stagnation occurs. At the very least, I hope that readers will agree with me that there is much more room for collaboration between educational researchers and psychologists.

Why do PISA and GCSEs show different results?

One of the surprising finding of this paper is that girls do not fall behind in mathematics in GCSE exams (and even outperform boys in A levels). It is surprising because PISA data show the opposite pattern for England, Wales and Northern Ireland in all five PISA surveys that have been carried out from 2000 to 2012. And this gender gap in PISA clearly influences ideas about narrowing the gender gap among the highest level policy makers (e.g., Truss, 2014).

At the very least, this mismatch of results implies that the PISA surveys measure a (slightly) different type of skill than GCSEs. It is difficult to explain why exactly girls perform (in comparison to boys) equal or better in British exams than in PISA. I propose that there are two major possible explanations that require further study. First of all, it is possible that girls do better than boys to prepare for exams because girls have more positive attitudes to school and learning, which helps them to prepare better for curriculum-specific questions (Martin, 2004, Condie et al., 2006).

Second, there is evidence that during their school career, boys try out more varied strategies to solve problems than girls (Bailey, Littlefield, & Geary, 2012). Thus, it might be that because PISA requires solutions to problems that less directly match the curriculum and which require alternative strategies, which girls are less likely to employ. Of course, one could make many different conjectures, such as the stakes being different in exams than in the PISA assessment, which has no direct effect on student's further school career. The bottom line is that at this point, we can only speculate, and it is important to find out what the cause of the difference between exam scores and PISA results is. This is not only important for the U.K.; it is well possible that similar differences between exam results and PISA occur in other countries (e.g., Voyer & Voyer, 2014, found no mathematics gaps in exams around the world), and it would be of great interest and importance to find out why this might be the case. For example, if it is the case that children are not very good in dealing with novel problems that do not exactly match the text book problems they have learned at school, there is an urgent need for change in learning strategies. After all, if anything, the aim of schools is for children not to merely succeed in exams, but to apply their skills in novel situations (which is exactly what PISA tests).

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Increase and decline of grades

One of the results reported here is the degree to which grades have increased until around 2011 and since then decreased. The U.K. Office of Qualifications and Examinations Regulations has stated that grade inflation explains at least part of the rise in GCSEs and A-Levels (Henry, 2012). Now, grade inflation is not the main point of this paper, yet it is highly relevant as a context for the discussion about gender differences. After all, if we would have observed that the gender gap in performance stays similar but that at the same time both genders improve considerably, we have a situation that is not great, but which still has a positive message for both boys and girls (Department For Education and Skills, 2007, p.77). But here it is argued that this is not the case.

Grade inflation is generally a big problem and difficult to solve, because nearly all stakeholders (students, parents, teachers, schools, politicians) in the educational system seem to benefit in the short term: Students and their parents equally desire high grades to get access to universities, and the higher the grades, the better the universities students will have access to (in terms of prestige and job prospects). Higher grades reflect well on schools who compete for fee-paying students. In the U.K., teachers benefit from higher grades in their performance evaluation, and this can play a role in their career progression. And finally, politicians will benefit from the success of their educational policies as measured by an increase in performance (note that the Department of Education has recently started to address the rise, but this should have happened much earlier).

Nonetheless, these perceived benefits are short term and are long-term disadvantages for the educational system as a whole. The biggest problem of grade inflation is that it makes it harder to differentiate between the true abilities of students. Differentiation is an important purpose of grades in the U.K. educational system (e.g., grades determine eligibility for higher education). If students cannot be differentiated based on their A-Level grades, universities will be forced to choose other methods of selection, such as university entry admission tests. In a sense, one could argue that if that were to happen, the grading system in the U.K. would have proved to be useless for university admissions, which is the most important use of A-Level grades.

It is also important to note that there are no examples of countries that have made real progress in changing gender gaps (Stoet & Geary, 2013). One of the main problems with changing the gender gaps is that a change in the mathematics gap (often negatively affecting girls) seems to be associated with a change in the reading gap in the other direction (negatively affecting boys) (Stoet & Geary, 2013). Thus, even if a country could narrow the gender gap in mathematics (good for girls), the same country will likely increase the gender gap in reading skills (bad for boys). Currently, no government has proposed a plan to tackle this issue and there is not a single government that has both no mathematics gap and no reading gap; in fact, some highly developed countries with no mathematics gap have an unusually high reading gap (such as Finland, see Stoet & Geary, 2013). Thus, even if we could make progress in subject domain, we might fall behind in another subject domain.

Implications

This study has a number of implications for policy makers in the domains of gender equality and

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education. First of all, the fact that boys continue to fall behind requires a new approach to this problem. Given that psychological researchers appear to have a different view on the issue than educational researchers and policy makers, and given that previous plans to deal with the issue have not translated into progress, it is time to foster more interdisciplinary approaches to the problem. Second, the fact that girls today do equally well in maths in British exams (this is similar in the US), might be a side effect of boys' general underperformance, rather than real progress. If it is indeed a side effect of the male underperformance, this will have negative consequences for girls. This because it would mean that when an effective intervention to help boys is found, girls will soon again fall behind in mathematics and physics. Thus, our dealing with boys' underperformance and ways of resolving this is not only relevant for boys, but also for girls and their participation in technology subjects. Third, the fact that boys and girls continue to choose subjects along traditional lines needs to be considered in discussions about aims to have more gender diversity among occupations. If individual school children choose subjects that they find most interesting and enjoyable, in whose benefit would the aims to change these choices actually be? If the only argument is that some male dominated occupations enjoy higher earnings, the national discussion should probably be about a different distribution of payment across occupations rather than about changing boys' and girls' decision to study the subjects they find most interesting.

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British Male students continue to fall behind in secondary education

Gijsbert Stoet

It is common knowledge that boys fall behind in school performance, and UK policy makers have addressed this issue in the past decade. In fact, they seem committed to narrowing gender gaps of any kind. This paper asks whether actual progress has been made in reducing the degree to which boys fall behind, and also whether gender differences in subject preference have changed in the period 2001 to 2013. Using an analysis of British secondary-education exam data and a comparison with data from the Programme for International Student Assessment (PISA), it is concluded that no progress has been made: Boys attained fewer top grades in nearly all school subjects. Further, boys and girls continue to choose elective school subjects along traditional interest lines. The problem of boys falling behind is obscured by the finding that grades of all children have risen considerably in this period.

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However, a comparison of Mathematics and English exam grades with PISA data suggests that this rise is due to grade inflation, not real improvement. The paper closes with recommendations for solutions.

Keywords: education, psychology, gender gap, interests, policy

This paper investigates the degree to which boys fall behind in secondary education, using data from England, Wales, and Northern Ireland. The paper also discusses the necessity and challenges of changing the current situation. In this paper, both performance and participation are reported. Performance is here defined in terms of the quality of grades school children attain. Participation is defined as enrolling for elective optional courses (such as Psychology or French). Throughout the paper, the terms "boys" and "girls" will be used as a short for male and female adolescent students in the age groups from (around) 14 to 18 years old.

Educational performance gaps between boys and girls have been known for a long time. For example, already in the 17th century, the English philosopher Locke (1693) wrote that girls outperform boys when it comes to language skills. Still today, studies show that girls have better developed language skills (for a review, see Halpern, 2012), while boys typically perform equally well or better in Science, Technology, Engineering and Mathematics (STEM) subjects, and these gaps are far more extreme at the tails of the performance distributions (Stoet & Geary, 2013).

Understanding these performance gaps is necessary for addressing socio-political questions, such as whether the public and policy makers should be concerned and plan to change the current situation, and whether the educational gender differences can explain why there are unequal numbers of men and women in nearly all areas of employment. Indeed, not only the British government (Department For Education and Skills, 2007, Condie, McPhee, Forde, Kean, & Head, 2006), but all nations of the European Union have developed a long term vision and strategies to narrow these gaps (European Commission, 2011). One of the questions that researchers need to answer is whether today's school systems have been effective in ensuring that equal numbers of boys and girls leave school with similar knowledge and skill levels in all subject areas. This paper will show that this is not the case.

Further, this paper addresses a related issue, namely whether an overall increase in school performance should make us less concerned about existing gender gaps. Indeed, it is sometimes argued that when the school system improves, *both* genders benefit, and both genders improve their performance; the argument is that even when there continues to be a gender gap, at least all children improve (Department For Education and Skills, 2007, p.77); arguably, the latter situation is not ideal, but better when there remains a gap without any improvement. However, the current paper will argue that while schools in England, Wales, and Northern Ireland have seen considerable grade increases over more than a decade, but that these are likely due to grade inflation and not true improvement. That makes the current existing gender gaps potentially even more serious than people might think.

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Background of studies on gender gaps in education

There is now a large body of literature about gender gaps in school attitudes and performance, and there are very different methodological approaches to understanding these gaps (e.g., focus on individual students or countries, quantitative vs. qualitative studies, psychological vs. educational focus, focus on boy's vs. girls' underachievement); it is impossible to give a full account of these different perspectives here. There are, however, some frequently cited frameworks that are important because of their influence.

Discussions about gender performance and participation gaps have changed considerably over time due to a change in the understanding of the gaps. In the late 1970s, the underperformance and underrepresentation of girls in STEM subjects received much attention (Benbow & Stanley, 1980, 1982a, 1982b, 1983), while boys' general underperformance across subjects and different stages of their educational pathways became a very active research topic in the late 1990s (Weaver-Hightower, 2003). We now know that male students not only fall behind in schools (e.g. Gorard, Rees, & Salisbury, 1999, 2001, Lai, 2010, Jürges & Schneider, 2011, Warrington, Younger, & McLellan, 2003, Burns & Bracey, 2001, Younger & Warrington, 2004) but also in higher education (e.g., Jacob, 2002, Machin & McNally, 2005, Buchmann & DiPrete, 2006, Conger & Long, 2010, Taylor, 2005, Ratcliffe, 2013, Ewert, 2012). This paper provides an up to date assessment of the situation in secondary education in England, Wales, and Northern Ireland (these parts of the United Kingdom use a similar exam system and collate their exam data together; Scotland uses its own, slightly different system). The overall performance and gender gaps in the U.K. are similar to observations in other countries in Western Europe (Stoet & Geary, 2013).

Over the years, different theoretical approaches to gender gaps in education have been established, although there is still no consensus in the field of education or psychology about these theories, and neither is there a consensus about which interventions could possibly narrow these gaps.

One of the best known frameworks for explaining gender gaps is the gender-similarities and gender-stratification framework (Hyde, 2005, Hyde, Lindberg, Linn, Ellis, & Williams, 2008, Else-Quest, Hyde, & Linn, 2010). This model states that there are negligibly small differences between men and women in the majority of psychological variables, including cognitive abilities; the hypothesis is that existing educational differences will disappear when men and women will have equal opportunities in social, economic, political and educational domains. Because of the assumption that the educational gender differences are caused by non-cognitive factors, interventions aimed at changing self belief, anxiety, and so on as well as eliminating sex discrimination will be able to resolve the gender gaps (Hyde, Fennema, & Lamon, 1990). The current paper will show that even though the U.K. has a relatively high level of gender equality, the gender gaps remained stable over more than 10 years.

Theoretical models that assume that gender gaps in performance and participation are *entirely* due to societal and environmental factors are not without criticism. This because some aspects of these gender gaps seem to be universal, that is, they are found all around the world (Stoet & Geary, 2013). For example, without accepting some role of biological factors, it is difficult to explain why there is no country in the world where boys have better reading comprehension skills than girls, as

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shown in the large international PISA surveys (Stoet & Geary, 2013). It is also difficult to explain why the countries with some of most restrictive attitudes to women's rights do not show a mathematics gender gap while many more progressive countries do (Fryer & Levitt, 2010, Stoet & Geary, 2015).

Further, it has been found that sex differences in vocational interests are consistently found around the world: on average, men are more interested in working with things, and women more interested in working with people (Lippa, 1998, Su, Rounds, & Armstrong, 2009, Lippa, Preston, & Penner, 2014, this is known as the "people-things dimension"). The universality of this phenomenon has been taken as an indication of possible biological factors involved in this. Indeed, there is considerable support for the influence of biological factors to explain sex differences in psychological variables (Geary, 2010). According to these latter studies, some of the largest sex differences are not so much found in cognitive abilities, but in interests. The explanation is that interests might have played a role in evolutionary gender-specific adaptations to activities such as hunting or child care. Groups of people who survived by successfully dividing labor might thus have passed on genes that are underlying psychological processes that support gender specific interests and thought processes. If the biologically inspired models of gender gaps in education are correct, we would expect that in particular the choices for eligible subjects in secondary education is relatively stable, despite continuously increasing efforts of "gender mainstreaming" in developed countries such as the United Kingdom and most other European countries. The current paper shows that indeed gender specific choices for subjects are relatively stable.

Secondary education in England, Wales, and Northern Ireland

This paper will report the performance in British secondary education for the period 2001-2013. Note that the data of Scotland (which constitutes less than 10% of the British population) are not included, because it has a different educational system and does not contribute data to the central databases of the "Joint Council for Qualifications" used here.

Broadly speaking, secondary education in England, Wales, and Northern Ireland has two different main stages, namely the General Certificate of Secondary Education (GCSE) and the Advanced level of the General Certificate of Education (A-Level). GCSE courses are part of compulsory education. This system is "comprehensive", that is, students of all levels of ability can participate and prepare for the same set of exams set by national exam boards under the oversight of the national government.

Typically, students start the GCSE programme at the age of 14 and sit exams at the age of 16. The A-Levels are a non-compulsory part of secondary education that follows the GCSEs, typically for students from 16 to 18 years old. Because A-Level exam scores in a number of subjects are typically required as a qualification to enter higher education, they are considered of great importance for career development, and a large proportion of the population participates (the government target for participation was set to at least 50% in 2002, BBC, 2002).

Students are awarded grades ranging from the highest A* ("A-star") to the lowest G or F (for details see Methods). Relevant is that around 50% of children get an A*, A, B, or C in the GCSEs. In order to get access to some of the top-tier universities, students might need to have three A grades in the A-

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Levels.

The grading of students' exam scripts follows strictly regulated procedures. There are five different organizations that implement the curriculum guidelines of the Department for Education; they produce teaching material and exams. These organizations work closely together under the umbrella of the "Joint Council for Qualifications", and also publish one data set of exam results (as used in this study). Each year, more than 25 million scripts are marked by around 60,000 examiners and there are persons who check the consistency of grading standards. The details of the exam data and grades are further explained in the Methods section.

Programme for International Students Assessment

The data for the GCSE exam scores are of great interest for comparison with the data of the Programme for International Student Assessment (PISA). PISA is the largest international survey of student performance with a focus on the question whether students at the end of their compulsory secondary education can apply their knowledge and skills in the areas of reading, mathematics, and science to real life problems of modern economies (example problems can be viewed here: http://pisa-sq.acer.edu.au/). It surveys student performance from 15 to 16 year olds around the world, including a representative sample of children in England, Wales, and Northern Ireland (for comparison: the majority of students sitting GCSE exams are 16 years old). Further, because English and Mathematics are compulsory in GCSEs, the GCSE exam scores in these two subjects are highly representative of the population of 16 year olds, and we can safely assume that scores in GCSE exams and PISA of the matching years are therefore representing the same population.

PISA scores are expressed on a scale which has an average of 500 PISA points for students in countries in the Organisation for Economic Cooperation and Development (OECD), and a standard deviation of 100 points. Because PISA is carried out every three years, changes over time can be analyzed. Further, for both reading and mathematics, six different proficiency levels have been defined, with level 6 the highest (see detailed descriptions of these levels in the Supplementary Online Matrial, SOM). This paper matches the grades used in the GCSEs to these proficiency levels.

Methods

This study uses exam data publisehd by the Joint Council for Qualifications (JCQ) and performance data of 15-year olds published by the Programme for International Student Assessment.

Exam data

The exam results data used in this study were retrieved from the website of the JCQ, which collates exam results from all school children in England, Wales, and Northern Ireland. These results were downloaded as PDF files from the JCQ web site, and the data were then copied and pasted into text files and subsequently read-in using the statistical software R (R Development Core Team, 2014).

For each year from 2001 to 2013, the proportion of male to female students sitting GCSEs (full

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course) and A-Levels (i.e., gender-specific participation) as well as their grade marks were analyzed. The number of students enrolling in English, a compulsory subject, gives the best estimate of total students participating in each year. The number enrolled in the subject GCSE English between 2001 and 2013 was on average 697,826 students (ranging from 649,553 to 732,293). In the A-levels, English is the most chosen subject, with an average of 85,113 per year (ranging from 72,196 to 91,815).

For GCSEs, grade marks range from A* (highest) to G (lowest), and for A-Levels grade marks range from A to F (and since 2010, A* has been added). Because the A* grade was not available for all years included in this study, the A and A* grades have been collated for analysis (to make the findings easier to interpret). For some analyses, A* and A grades are considered separately.

The number of study subjects varied slightly from year to year, with some subjects discontinued (e.g., A-Level Home Economics was available until 2006) and others introduced (e.g., Statistics in 2004 GCSEs). Please note that GCSE and A-Level subject names are capitalized here. Also note that when listing performance and participation differences in exam data between boys and girls no inferential statistics are given intentionally. This because the reported numbers are not samples of a larger population, but *are* averages of the total population of all examined school children.

PISA data

The U.K. data from the Programme for International Student Assessment (PISA) are freely available from the website of the Organisation for Economic Cooperation and Development (http://www.oecd.org/pisa/). For this analysis, the datasets from 2003, 2006, 2009, and 2012 were used. PISA distinguishes between two subsets in the U.K. data, namely those from Scotland on the one hand, and those from England, Wales, and Northern Ireland (combined) on the other hand; in the current paper, only the latter data were used (because GCSEs and A-Levels are only used in England, Wales and Northern Ireland, while Scotland uses a different system). For all analyses of PISA data, the recommended statistical procedures were used as described in the extensive PISA documentation (OECD, 2003b).

Participants in the PISA survey are between 15 years and 3 months and 16 years and 2 months old. The average number of participants in the English, Welsh, and Northern Irish data sets was 9,196 (ranging from 6,812 to 10,708). Details about the PISA sampling procedures can be read elsewhere, but it should be pointed out that great effort is put into these data to be highly representative of the sampling population (OECD, 2003a).

The sampling of the very first PISA survey of the year 2000 have been judged problematic due sampling problems, and therefore, it is debatable whether the decrease in U.K. PISA scores from 2000 to 2003 reflects reality (Jerrim, 2013). What is relevant to the current study is whether there might actually have been an increase in PISA scores (as is shown in final exam data). While a decrease in U.K. scores might not have actually happened, there is no doubt that no increase in PISA scores has been observed in U.K. (OECD, 2013). In any case, the PISA data of 2000 are not included in the current study.

Results

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In the following, the data of the GCSEs and A-Levels will be reported separately, starting with the former. These sections will be followed by a comparison between GCSE and PISA data. In all these analyses, the focus lies on the differences between boys and girls.

GCSEs (ages 14-16)

The percentages of boys and girls attaining an A grade (i.e., A or A*) *across* all subjects were analyzed first (Fig. 1). The overall performance level averaged over all study subjects shows three salient phenomena: First, the percentage of school children (boys and girls alike) attaining an A grade has increased considerably over the years to a maximum in 2011, and has gone down slightly since then. Second, girls consistently attained considerably more A grades than boys (between 5.3 and 7.2 percentage points difference). Third, the overall gap between boys and girls has grown from a 5.3 percentage points gap in 2001 to a 7.2 percentage points gap in 2013 (further below, this increase will be compared to changes in PISA over that period).

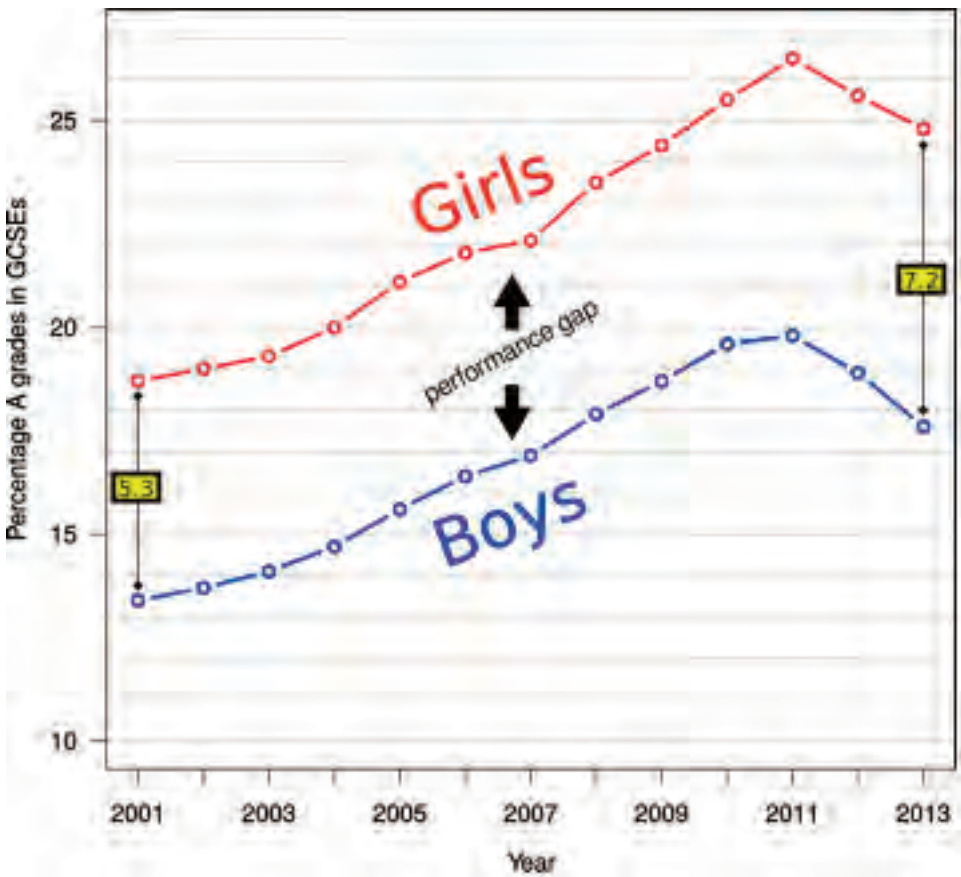

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Figure 1: Gender performance gap in GCSEs over the period 2001-2013. Girls consistently attained more A (A* or A) grades (across subjects) than boys. This gap has grown over the years from 5.3 in 2001 to 7.2 percentage points in 2013.

Because the gender performance gap varies from subject to subject, performance for academic subjects will now be reported separately, starting with the compulsory subjects English and Mathematics (Fig. 2). Consistently, the percentage of girls attaining an A grade in English was higher; on average, 19.0% of girls attained an A grade compared to 11.1% of boys, that is a 7.9 percentage points gap in favor of girls. In contrast, the difference between the percentages of boys and girls awarded an A grade in Mathematics was minimal; on average, 13.7% of girls and 13.8% of boys attained an A grade. Thus, while there is a clear advantage for girls in English, boys and girls performed equally well in Mathematics.

The two most closely related subjects to the compulsory topics English and Mathematics, English Literature and Additional Mathematics, are of interest as well (Fig. 2). English literature is a popular subject, although its popularity has declined over the past decade. In 2001, 81% of the students enrolling in English choose English literature as well, and that has gradually gone down to 65% in 2013. The gender performance gap in English Literature (8.9 percentage points in favor of girls) was slightly higher than in English (7.9 percentage points). Further, the topic *Additional Mathematics* was introduced in 2004 and, unlike English Literature, relatively unpopular, with total student numbers ranging from 3,205 (2004) to 18,765 (in 2009); that is, at its maximum enrollment only 2.5% of the students that were enrolled in Mathematics choose this topic. In 2012, the number of students had dropped by nearly 10,000 students in only one year (and in 2013, it was similarly low with 3,478 students). The variation in the "Additional Mathematics" gender gap from year to year has been considerable. In 2004, while girls lead with 5.4 percentage points, boys lead in 2011 with 6.1 percentage points. Possibly, this variation is partially due to the small number of students enrolling in the topic. Thus, it is concluded that the student performance in these related subjects is similar to that of the compulsory counterparts. At the very least, this shows that the gender differences between language and mathematical skills are not just shown in "compulsory topics", but also in the voluntarily chosen topics.

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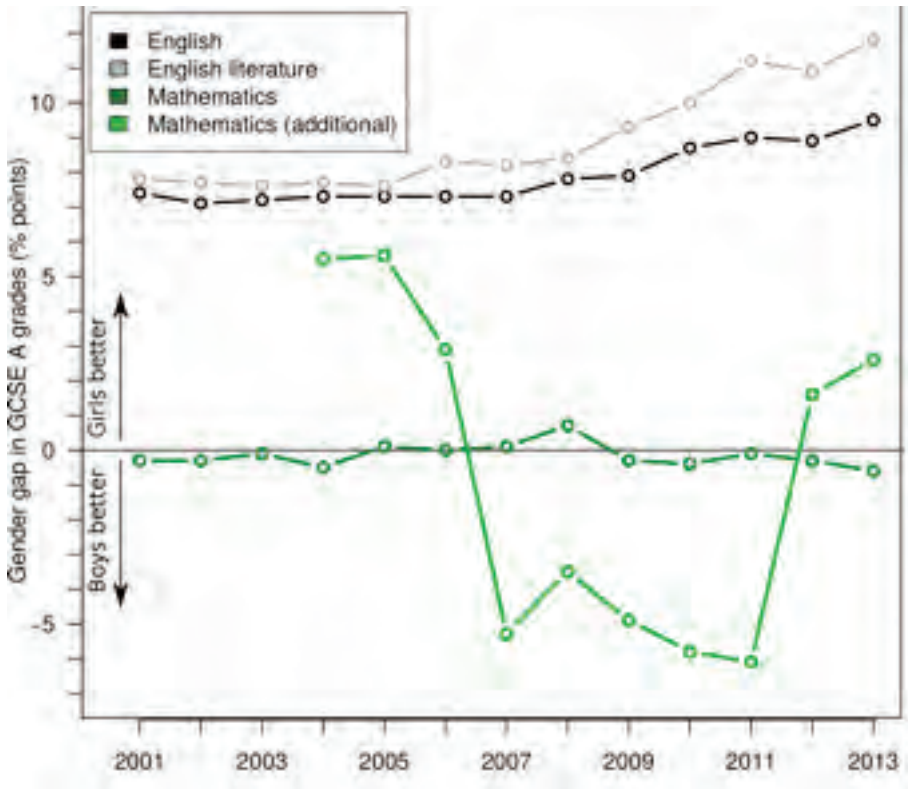

Figure 2: Sex differences in GCSE Mathematics and English performance over the period 2001-2013. Values represent the difference between percentage of girls that attained an A grade minus the percentage of boys that attained an A grade. Positive values indicate that girls did better than boys.

There are a few subjects in which boys did not fall behind (for a complete list of the gender performance gaps by subject, from high to low, see SOM Appendix A). As for Mathematics, in Physics the same percentage of boys and girls attained A grades (in some years girls attained more A grades and in some years more boys, with an average advantage for boys of 0.5 percentage points). Boys' advantage was most notable in Manufacturing, introduced in 2011, but because so few students choose this (174 boys and 9 girls in 2012; 219 boys and 17 girls in 2013), this finding does not carry much weight. Somewhat surprisingly, the topic Engineering, also introduced in 2011 and more popular than Manufacturing (2685 boys and 212 girls in 2012), showed exactly the opposite picture as Manufacturing: Girls attained 23.2 percentage points more A grades in 2011, and 29.2 percentage points more in 2012, but this advantage dropped to 4.4 points in 2013. Thus, even though boys fall behind in most subjects, they play even in non-organic STEM subjects.

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A-Levels (ages 16-18)

Similar to GCSEs, across subjects the percentage of male students attaining A grades was lower than that of females, although the gap was smaller than in GCSEs. Across subjects and years, the gap was 2.0 percentage points (compared to 5.8 in GCSEs, Fig. 3, SOM Appendix B). Further, unlike in GCSEs, the gender performance gap in A-Levels has not been growing. In fact, the performance gap in A grades was largest in 2003 (2.9 percentage points) and lowest in both 2001 and 2013 (0.8 percentage points). That said, changes in the gap itself were not large in either GCSEs or A-Levels. The only considerable *general* change over time was the increase in grades (similar to GCSEs). Across subjects, the percentage of students with an A grade went from 18.6% in 2001 to a peak of 27% in 2010, and has dropped a little bit since then (to 26.3% in 2013).

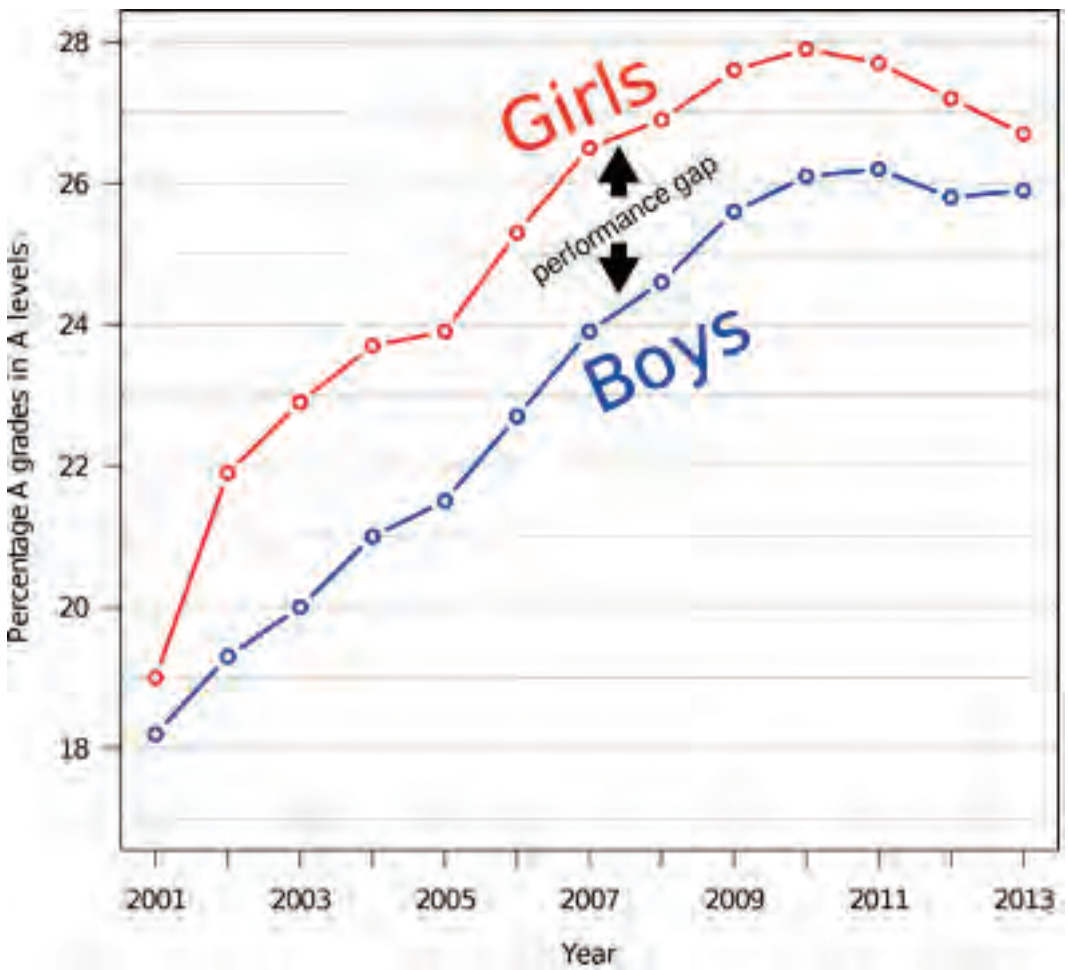

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Figure 3: Performance gap in A-Levels across all subjects in the period 2001-2013. As in GCSEs (Fig. 1), girls consistently attained more A (A* or A) grades than boys.1

A second difference between A-Levels and GCSEs is that in A-Levels boys and girls did not score equally in Mathematics; instead, girls outperformed boys in Mathematics, and also in other STEM fields (Figure 4). In Mathematics, the average difference over the years has been 2.4 percentage points in favor of girls, with a peak in 2006 (4.5 percentage points) but with less than 1 percentage points difference in last three years. For Physics, the advantage of girls over boys is considerably larger than in Mathematics. While there was no gender gap in the GCSEs, girls lead in attaining A grades with 6.1 percentage points.

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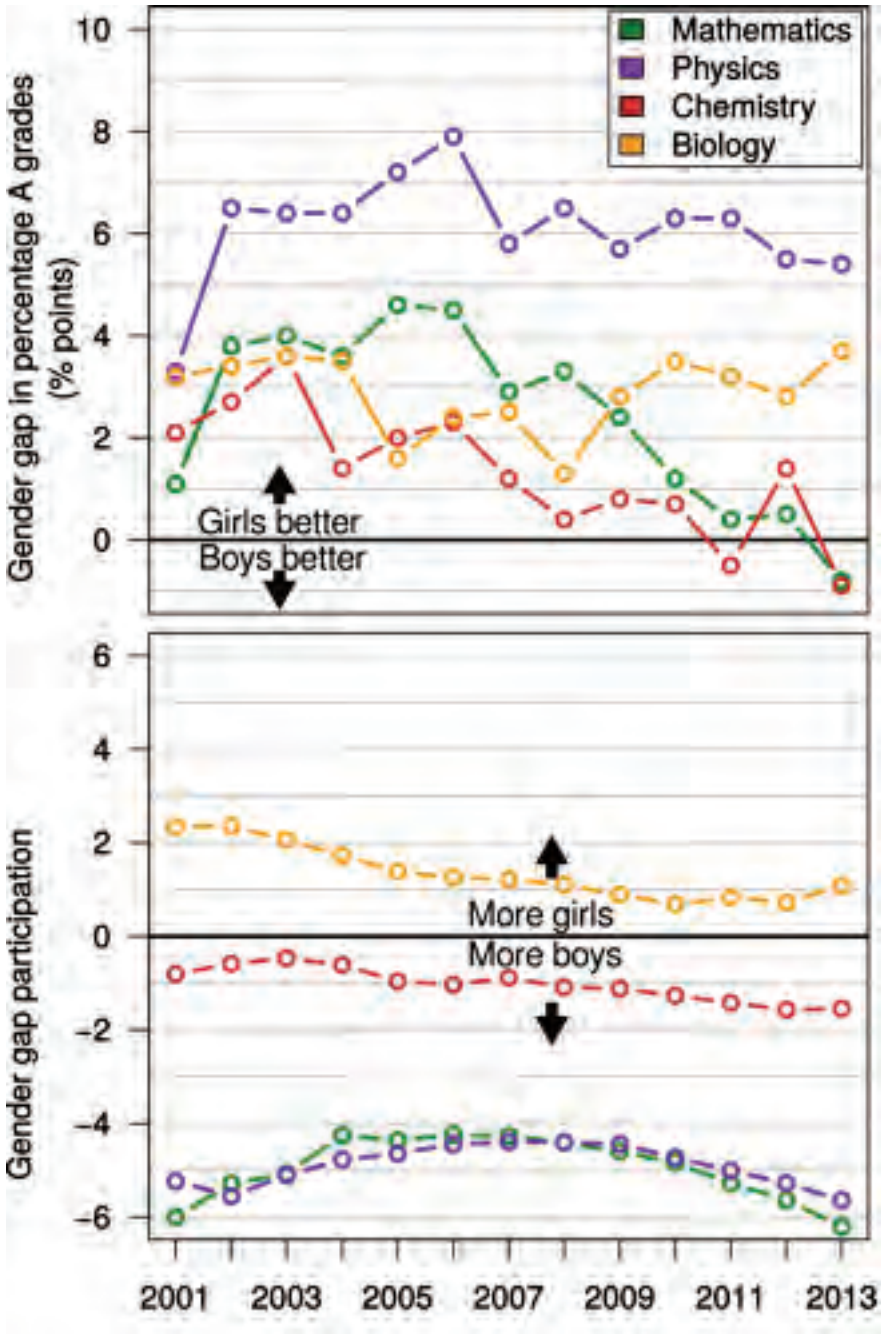

Figure 4: Performance gap in A levels in STEM subjects from 2001 to 2013. Top: The gender gap in attainment of A grades. Bottom: Differences in percentages of boys and girls choosing subjects.

The enrollment data show that girls remained underrepresented in STEM fields (Figure 4, Bottom). Girls were underrepresented in Physics, Chemistry, Mathematics, but overrepresented in Bi-

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ology. The change over the years in these fields has not been large, though. If anything, the sex difference seems to grow, except for Biology. This is particularly the case for Computing (not in Figure 4 because the variation between years is so large compared to that in other years), with more than 14x more boys than girls in 2013. What is unusual about Computing is how strong the percentage of participating girls has dropped, from its maximum of 26% in 2003 to a minimum of 7% in 2013.

In the social science subjects (Figure 5) the enrolment has not changed much over the years. Boys were underrepresented in Psychology and Sociology, yet overrepresented in Economics and Political Studies. Irrespective of over or underrepresentation, girls attained more A grades in these subjects.

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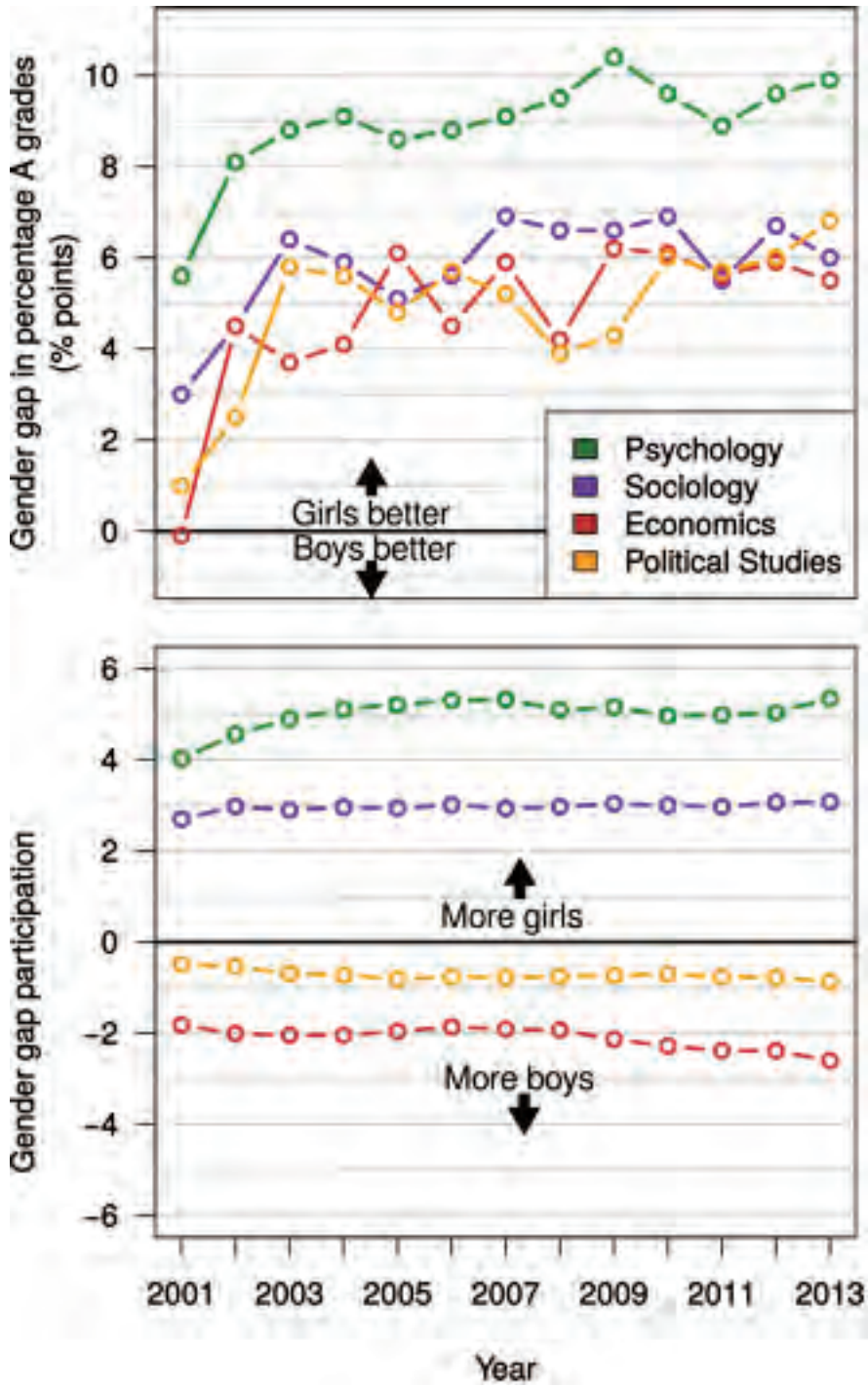

Figure 5: Performance gap in A-Levels in social science subjects from 2001-2013. Top: The gender gap in attainment of A grades. Bottom: Sex differences in percentages of boys and girls choosing subjects.

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Given boys' general underperformance in English and known difficulties with reading skills, it is of special interest that boys were at an advantage are modern foreign languages (French, German, and Spanish, SOM Appendix B). That said, boys were strongly underrepresented in these courses (with around one in three students male).

Altogether, girls attained higher grades in the A-Levels, including in the STEM subjects in which there was no gap during the GCSEs. It is important to note that this does not necessarily mean a change performance of the same children, but that this might reflect that far fewer students participate in the (voluntary) A-Levels than in the (compulsory) GCSEs.

Comparison to PISA

The first analysis addresses whether the increased performance in U.K. exam scores in Mathematics and English matched the PISA scores. The overall sex difference in Mathematics and English in the U.K. has been reported elsewhere (Stoet & Geary, 2013), and we know that U.K. girls have, on average, consistently better reading skills, while boys perform consistently better than girls in Mathematics. For the current paper, the distribution of the students in England, Wales, and Northern Ireland for Mathematics and English is similar to that of other OECD countries. That is, in Mathematics, the performance gap is smaller at the low end of attainment, whereas in Reading, the performance gap is smaller at the high end of attainment (Figure 6). This finding has direct implications for interventions aiming to reduce the gap (see Discussion).

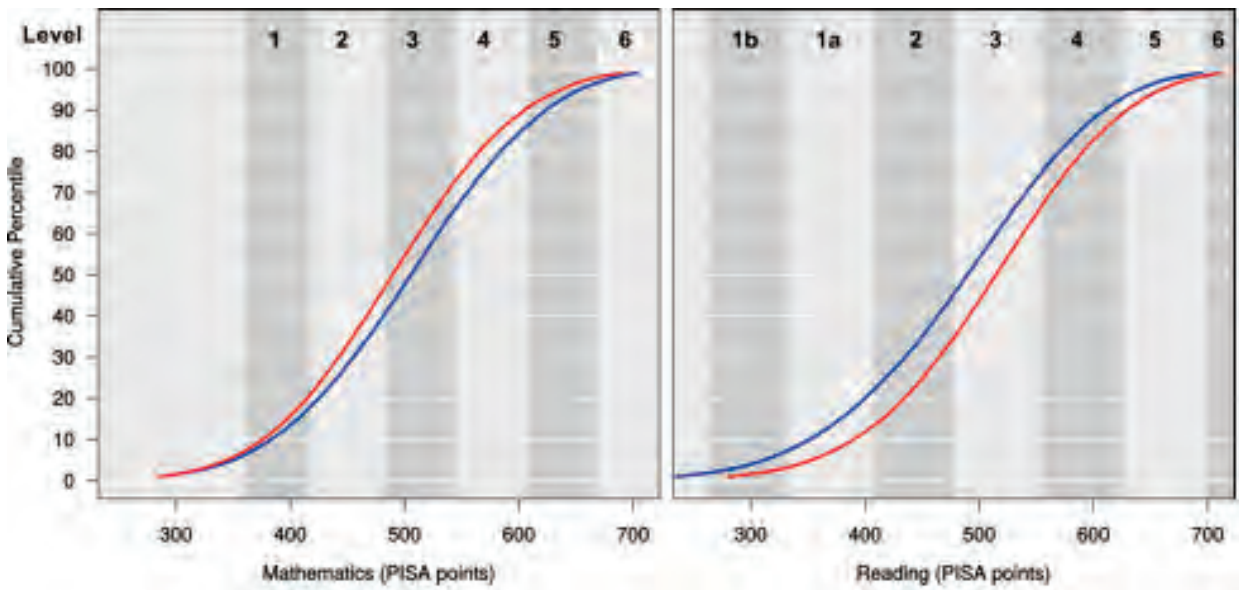

Figure 6: The distribution of Mathematics (left) and Reading (right) PISA scores of boys (blue line) and girls (red line), averaged over the PISA assessments of 2003 to 2012. Note that the difference between Mathematics scores for boys and girls is larger at the higher end, whereas the opposite pattern is found for Reading scores. PISA scores can be categorized into different levels of proficiency (see SOM).

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The next analysis addresses the relation between the GCSE grade increase and PISA scores. For both 2003 and 2012, the cumulative percentages of children attaining a certain PISA score was simply matched to the percentages of GCSE candidates attaining a certain grade (Figure 7). This is best explained with an example. We know that in 2003, 97% of students attained a GCSE score lower than an A* (because 3% of students attained an A*). Similarly, in 2003, 50% of children attained a score lower than a C. We can match these grades to PISA scores. If we know that 97% of children attained a score lower than an A*, we can match this to the 97% of children who had a PISA score of 678 or lower. Thus, the children that attained an A* in GCSE most likely had a PISA score over 678 points, which is within the highest Mathematics proficiency level (see SOM Appendix C). However, in 2012, we know that 94% of children attained lower than an A*, which corresponds to a PISA score of 641 PISA points, which lies in proficiency level 5. Thus, one can conclude that in 2003, only school children who had the highest proficiency level in mathematics could attain an A* grade in the GCSEs, whereas this has dropped to the second highest level in 2012 (this drop is indicated with the red lines along the x-axis in Figure 7). Interestingly, the A and C grades also dropped one PISA proficiency level (for A it dropped from level 5 to level 4, and for grade C it dropped from level 3 to level 2). Grade B just stayed on the border of the fourth proficiency level.

The same matching method was applied to PISA Reading and GCSE English data (Figure 7, right panel). Of interest is that few children reached the highest level 6, and that an A* grade corresponded to the second highest level (5). Although the drop in matching PISA scores is smaller than for Mathematics, it is the case that the a proficiency level 3 was necessary for a C grade in 2003, whereas this could be reached with a proficiency level of only 2 in 2012. Similarly, the necessary skills necessary for grade D also dropped one proficiency level.

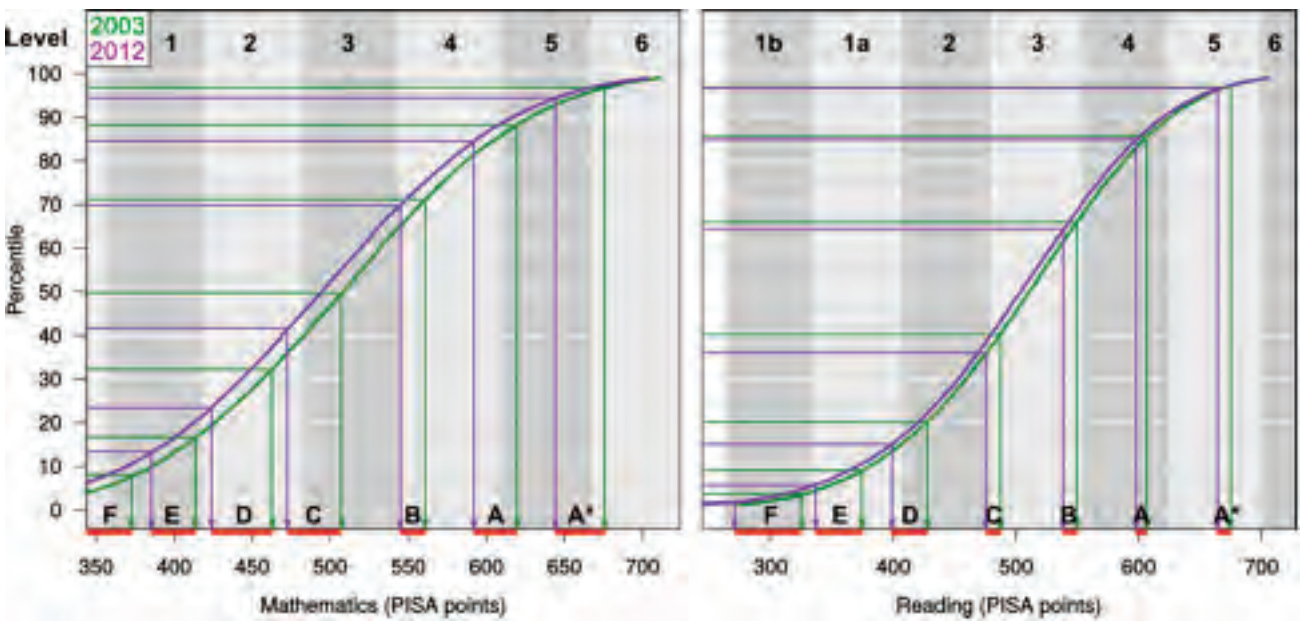

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Figure 7: The relation between PISA scores and GCSE grades. The distribution of scores (with boys and girls taken together) for the years 2003 (green curve) and 2012 (purple curve) for Mathematics (left panel) and Reading (right panel). The cumulative percentages of children attaining a GCSE grade are mapped on the cumulative percentages of PISA scores (y-axes), and the corresponding grades in PISA scores are shown on the x-axes. The thick red lines on the x-axes indicate the downward shift from 2003 to 2012.

General Discussion

This study found considerable sex differences in exam performance and subject choice in secondary education in England, Wales, and Northern Ireland: Boys fall behind in performance in most subjects, and boys and girls choose subjects along traditional interest lines. Further, the observed grade increase over the first decade in Mathematics and English did not match the stability of performance observed in PISA surveys for England, Wales, and Northern Ireland. This means that the British school system is ineffective in narrowing the gender gaps. Further, the finding that PISA scores showed no increase in performance suggests that the failure to narrow gender gaps has not been softened by on overall increase of both girls and boys (instead, here it is argued that the increase was due to grade inflation).

This discussion will start with a more detailed summary of the most important findings of this study, problems facing research into this issue, and implications in the longer run.

Detailed summary of findings

In regard to sex differences, the percentage of boys attaining an A grade was lower than that of girls in nearly all GCSE subjects. This pattern of boys falling behind across subjects matches the findings of the PISA, in which boys generally underperform compared to girls (Stoet & Geary, 2015). In GCSEs, the major exception to this pattern was found for the STEM subjects Mathematics and Physics, in which boys and girls performed similarly. Despite this latter positive note, boys' attained fewer A grades in a number of technology-related subjects, in particular in the popular Design and Technology. As in the GCSEs, boys attained fewer A grades in most A-Level subjects. The main difference from the pattern in GCSEs was that boys attained fewer A grades in the STEM subjects Mathematics and Physics as well.

The gender performance gap is only one dimension of sex differences in education. At least as important is the sex difference in student numbers enrolling for optional subjects (i.e., participation gap); from a socio-political point of view, this is relevant because if girls are outnumbered in STEM subjects at school, they will certainly also be outnumbered in employment. Therefore, an important finding of this study is that both in GCSEs and A-Levels, girls continue to be underrepresented in STEM subjects, whereas boys were particularly underrepresented in social sciences, languages, and art-related subjects. This phenomenon is relatively stable over time, except for girls' under-representation in Computing, a relatively novel subject most important for the development of modern

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technology, which has changed much: the percentage of girls in this subject has dropped from a high of 26% in 2003 to currently 7%.

Further, an interesting observation was that girls outperformed boys in topics in which they were underrepresented (e.g., Physics). This phenomenon was not so common for boys. For example, boys were not only underrepresented in Psychology, they also underperformed in this subject. On the other hand, the phenomenon was actually observed for boys in the modern languages, in which there were fewer but highly performing boys. There are different possible interpretations of this phenomenon, and the different interpretations have different policy implications; therefore, it is important to consider these. First of, one could possibly interprete this as girls generally be better in physics, and therefore that if only more girls would choose physics, girls would be highly competitive in the STEM employment market. A second interpretation is that only high-achieving girls are willing to choose physics, and if this would be the case, one would predict if more girls could be encouraged to choose physics, this larger group would include lower attainers, thus lowering the gender gap in exam scores. The latter interpretation could also imply that girls, in general, have lower self-confidence about their own STEM performance, and that they are only willing to choose it if they know they are high achieving. A similar interpretation is possible for boys in the modern languages, in which boys are in the minority but score higher than girls. Importantly, though, it is not true for Psychology, in which boys are not only in the minority, but they are also underperforming. The latter observation about boys in Psychology seems to clash with the self-confidence interpretation. It is possible that self-confidence is not the causal factor, but that some types of assessments work better for boys than for girls (e.g., writing essay questions is a common method of assessing Psychology). At this point, the best way forward to resolve this outstanding question is further analysis in both cognitive and non-cognitive factors, such as self-confidence in gender stereotyped subjects. Also, we need to consider if specific assessment types are more easily dealt with by boys than by girls. For example, it is possible that psychology assessments require non-psychology specific essay-writing skills that boys find more difficult than girls.

Finally, the PISA scores in Mathematics and English were compared to the GCSE scores. The conclusion is that in 2012 lower skill levels were required to attain the same grades as in 2003. In particular in Mathematics, the drop in required skill levels dropped whole proficiency levels. For example, in order to attain the highest exam grade in 2003 GCSE (an A*) for Mathematics, students had to have the highest PISA proficiency level (level 6, see Appendix for description); in 2012 students could attain an A* grade while being in proficiency level 5. In other words, if we trust the reliability and validity of the extremely well tested and validated PISA surveys, it has over the years become easier to attain a top grade. Indeed, this matches the opinion of mathematicians and policy makers (Kounine, Marks, & Truss, 2008).

Have gender gaps narrowed?

One of the main questions is whether gender gaps have been or can be narrowed. This paper has clearly shown that the performance gap across subjects has not been narrowed (if anything, it has grown), and the participation gap stayed the same. This is both true for the general underperformance of boys and the gaps in participation along traditional lines. Nevertheless, some people might argue that at least in terms of girls' performance in Mathematics, girls now do perform similarly to

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boys in the U.K., a finding that matches findings from other countries (Hyde et al., 2008, Voyer & Voyer, 2014).

The finding that girls do now equally well in mathematics as boys is not evidence that boys and girls have become more similar to one another, though. Instead, one can argue that at least in school exams, boys have fallen so far behind that even in the subjects in which they were often stronger they now just manage to break even. This is a problematic finding for two reasons. First of all, it means that the educational system has failed to deal with the problem of boys' general underachievement, an issue that has been actively researched for more than 20 years, and which the U.K. government (including Scotland) has aimed to deal with (Younger & Warrington, 2004, Department For Education and Skills, 2007, Condie et al., 2006). Second, it means that when the overall performance of boys would rise, the first subjects in which girls would fall behind in would be STEM subjects such as Mathematics and Physics. This because, relatively speaking, boys do better in STEM subjects than in languages, whereas for girls it is the opposite way around (observed around the world, Stoet & Geary, 2015). In other words, if the average score of boys would be raised, boys will likely outperform girls in Mathematics and Physics. In summary, the apparent elimination of the mathematics gender gap seems to be nothing more than a side effect of boys' overall lower educational performance, and not a genuinly positive development of equipping boys and girls with the same skills.

Finally, the finding that the gender gaps were somewhat smaller in the A-levels is likely due to a selection mechanism: The A-levels are optional, and the poorest performing students will most likely not participate in the A-levels. Many more boys than girls performed poorly in the compulsory GCSEs, and as a consequence more boys than girls will not even start with the A-levels. Therefore, the underperformance of boys in the GCSEs seems to be a limiting factor for boys' educational and career opportunities.

Can psychological attitudes really be changed?

A common assumption underlying much educational interventions as well as current policies is that changing the gender differences in psychological attitudes (such as in confidence and interest) would be a great way to narrow the gender gaps. For example, recently, the U.K. Minister of Education Elizabeth Truss argued that the PISA gender gap in mathematics is not due to competence but due to a lack of confidence in girls (Truss, 2014). Others have argued that girls suffer from anxiety (Maloney & Beilock, 2012), for example due to stereotypes (Nguyen & Ryan, 2008). And again others argue that role models might change girls' attitudes (Donald, 2011). And some argue that changing interests can change gender gaps in participation (Meece & Glienke, 2006).

The big question is, though, whether it is really possible to change these attitudes. We need to be sceptical about the proposed solutions, some of which are disputed. For example, there is reasonably good evidence that same-sex role models do not make a difference in schools (Carrington, Tymms, & Merrell, 2008, Helbig, 2012), and it has been argued that girls' mathematics performance is not negatively affected by stereotype threat (Stoet & Geary, 2012, Ganley et al., 2013). The stability of gender differences in vocational interests shows that decades of gender equality initiatives and gender-equality campaigns making women aware of the possibility of non-traditional career paths have not

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made much of a difference in actual subject choices (Lippa, 1998, Su et al., 2009, Lippa et al., 2014).

The challenge for the idea that we can change performance through changing attitudes is that this idea is strongly based on the basic assumption that attitudes are both learned and remain changeable to further experience. But it seems that this idea is far more popular in the media and among some social scientists than it is among other researchers. For example, the era that experimental psychologists assumed that children's minds were blank slates has had its heydays long ago (Pinker, 2003). Over time, researchers have developed a far more balanced view of the role of nature and nurture in development. Indeed, among psychologists it is now far more accepted than in the past that gender differences in attitudes are influenced by biological variables which cannot be changed through learning or experience. For example, vocational interests appear to be influenced by exposure to prenatal hormones (Beltz, Swanson, & Berenbaum, 2011), and similarly, gender differences in affective responses (e.g., anxiety related responses) can be linked to biological factors (Altemus, 2006). This does not at all mean that everything is fixed; instead it means that opportunities for change through education are more challenging and difficult than many have hoped or expected (the actual lack of change despite political will for change supports this argument).

Of course, one can further debate the role of nature and nurture in explaining gender differences in attitudes. For example, the fact that there are international differences in gender gaps demonstrates unequivocally that society and culture play a role in gender gaps. What matters most in the current discussion is that the possibility that these gender differences might be fairly stable needs to be taken more seriously by policy makers. Currently, there is little reason to believe that policy makers (e.g., Truss, 2014) take the possibility of relatively fixed attitudes very seriously into consideration. Yet, we risk that aims are being set that are unrealistic, and this would likely lead to an ineffective use of limited educational and financial resources.

The fact that boys and girls continue to choose subjects along traditional lines in even some of the most progressive countries suggests that gender-specific interests are indeed hard to change. It might of course be possible, but if so, nobody knows how it can be done (again, if somebody would have known, we should have seen an effect by now, but we have not). A solution to this problem is rather than trying to change children's gender specific attitudes, we might adjust teaching to the existing attitudes of children, which can have a positive effect on performance (Oakhill & Petrides, 2007, Kerger, Martin, & Brunner, 2011). A possible answer to whether attitudes can be changed or how teaching can be adjusted to existing gender differences in attitudes can only come from a closer collaboration between educational researchers and psychologists. Yet, there seems a lack of collaboration between educational researchers and psychologists, which is the topic of the next section.

Lack of interdisciplinary work

In writing this article, I became aware of the lack of crosstalk between educational researchers and psychologists when it comes to the study of sex differences. This is somewhat surprising, because these researchers share many interests, such as the causes of differences in cognitive performance and the role of attitudes, affective states, and meta-cognitive factors (such as attention). The lack of collaboration between disciplines makes it also difficult to understand and compare previous work. For example, the review of literature and strategies written by educational researchers for the Scottish

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government (Condie et al., 2006) has 84 pages, but the word "psychology" is only used once (in an unrelated way). Similarly, a report by the Department of Education (Department For Education and Skills, 2007) with more than a 100 footnotes refers to only 3 papers in psychology journals.

It is important to note that psychologists often seem to be more "accepting" of the notion that boys and girls have different interests. Such differences are often observed from a young age, and aims to socially engineer such differences away might, in part, be inspired by an unrealistic believe of educators in the malleability of the mind. Of course, this latter point might be viewed by some as a fairly strong generalization of the disciplines psychology and education (with a varied group of researchers), but at the same time, in the face of a stagnation in any change in educational gender gaps, despite a political and societal will for change, researchers should be willing to speculate and explore possible reasons why this stagnation occurs. At the very least, I hope that readers will agree with me that there is much more room for collaboration between educational researchers and psychologists.

Why do PISA and GCSEs show different results?

One of the surprising finding of this paper is that girls do not fall behind in mathematics in GCSE exams (and even outperform boys in A levels). It is surprising because PISA data show the opposite pattern for England, Wales and Northern Ireland in all five PISA surveys that have been carried out from 2000 to 2012. And this gender gap in PISA clearly influences ideas about narrowing the gender gap among the highest level policy makers (e.g., Truss, 2014).

At the very least, this mismatch of results implies that the PISA surveys measure a (slightly) different type of skill than GCSEs. It is difficult to explain why exactly girls perform (in comparison to boys) equal or better in British exams than in PISA. I propose that there are two major possible explanations that require further study. First of all, it is possible that girls do better than boys to prepare for exams because girls have more positive attitudes to school and learning, which helps them to prepare better for curriculum-specific questions (Martin, 2004, Condie et al., 2006).

Second, there is evidence that during their school career, boys try out more varied strategies to solve problems than girls (Bailey, Littlefield, & Geary, 2012). Thus, it might be that because PISA requires solutions to problems that less directly match the curriculum and which require alternative strategies, which girls are less likely to employ. Of course, one could make many different conjectures, such as the stakes being different in exams than in the PISA assessment, which has no direct effect on student's further school career. The bottom line is that at this point, we can only speculate, and it is important to find out what the cause of the difference between exam scores and PISA results is. This is not only important for the U.K.; it is well possible that similar differences between exam results and PISA occur in other countries (e.g., Voyer & Voyer, 2014, found no mathematics gaps in exams around the world), and it would be of great interest and importance to find out why this might be the case. For example, if it is the case that children are not very good in dealing with novel problems that do not exactly match the text book problems they have learned at school, there is an urgent need for change in learning strategies. After all, if anything, the aim of schools is for children not to merely succeed in exams, but to apply their skills in novel situations (which is exactly what PISA tests).

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Increase and decline of grades

One of the results reported here is the degree to which grades have increased until around 2011 and since then decreased. The U.K. Office of Qualifications and Examinations Regulations has stated that grade inflation explains at least part of the rise in GCSEs and A-Levels (Henry, 2012). Now, grade inflation is not the main point of this paper, yet it is highly relevant as a context for the discussion about gender differences. After all, if we would have observed that the gender gap in performance stays similar but that at the same time both genders improve considerably, we have a situation that is not great, but which still has a positive message for both boys and girls (Department For Education and Skills, 2007, p.77). But here it is argued that this is not the case.

Grade inflation is generally a big problem and difficult to solve, because nearly all stakeholders (students, parents, teachers, schools, politicians) in the educational system seem to benefit in the short term: Students and their parents equally desire high grades to get access to universities, and the higher the grades, the better the universities students will have access to (in terms of prestige and job prospects). Higher grades reflect well on schools who compete for fee-paying students. In the U.K., teachers benefit from higher grades in their performance evaluation, and this can play a role in their career progression. And finally, politicians will benefit from the success of their educational policies as measured by an increase in performance (note that the Department of Education has recently started to address the rise, but this should have happened much earlier).

Nonetheless, these perceived benefits are short term and are long-term disadvantages for the educational system as a whole. The biggest problem of grade inflation is that it makes it harder to differentiate between the true abilities of students. Differentiation is an important purpose of grades in the U.K. educational system (e.g., grades determine eligibility for higher education). If students cannot be differentiated based on their A-Level grades, universities will be forced to choose other methods of selection, such as university entry admission tests. In a sense, one could argue that if that were to happen, the grading system in the U.K. would have proved to be useless for university admissions, which is the most important use of A-Level grades.

It is also important to note that there are no examples of countries that have made real progress in changing gender gaps (Stoet & Geary, 2013). One of the main problems with changing the gender gaps is that a change in the mathematics gap (often negatively affecting girls) seems to be associated with a change in the reading gap in the other direction (negatively affecting boys) (Stoet & Geary, 2013). Thus, even if a country could narrow the gender gap in mathematics (good for girls), the same country will likely increase the gender gap in reading skills (bad for boys). Currently, no government has proposed a plan to tackle this issue and there is not a single government that has both no mathematics gap and no reading gap; in fact, some highly developed countries with no mathematics gap have an unusually high reading gap (such as Finland, see Stoet & Geary, 2013). Thus, even if we could make progress in subject domain, we might fall behind in another subject domain.

Implications

This study has a number of implications for policy makers in the domains of gender equality and

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education. First of all, the fact that boys continue to fall behind requires a new approach to this problem. Given that psychological researchers appear to have a different view on the issue than educational researchers and policy makers, and given that previous plans to deal with the issue have not translated into progress, it is time to foster more interdisciplinary approaches to the problem. Second, the fact that girls today do equally well in maths in British exams (this is similar in the US), might be a side effect of boys' general underperformance, rather than real progress. If it is indeed a side effect of the male underperformance, this will have negative consequences for girls. This because it would mean that when an effective intervention to help boys is found, girls will soon again fall behind in mathematics and physics. Thus, our dealing with boys' underperformance and ways of resolving this is not only relevant for boys, but also for girls and their participation in technology subjects. Third, the fact that boys and girls continue to choose subjects along traditional lines needs to be considered in discussions about aims to have more gender diversity among occupations. If individual school children choose subjects that they find most interesting and enjoyable, in whose benefit would the aims to change these choices actually be? If the only argument is that some male dominated occupations enjoy higher earnings, the national discussion should probably be about a different distribution of payment across occupations rather than about changing boys' and girls' decision to study the subjects they find most interesting.

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Stress mechanism is sex-specific: Female amelioration or escape from stress to avoid compromising reproduction contrasts with male utilisation or in effect manufacture of stress to fulfill male 'genetic filter' function

Steve Moxon

Research into stress response has exploded in the wake of findings of major sex differences, to show, further, that mechanism is genetically and epigenetically underpinned non-overlapping neuro-hormonal pathway specific to each sex: that is, it is not merely sex-dimorphic but sex-dichotomous; sex-specific. A general principle now appears to emerge of a still more fundamental distinction in stress mechanism than the generally accepted conceptualisation of female 'tend and befriend' vis-a-vis male 'fight or flight'. Stress for the female essentially is a problem because of its negative impact on reproduction, and hence females have evolved to escape stressors through easily registering them in order

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to be motivated to escape; if need be through profound inactivity (major depression). By contrast, stress for males not only is not the problem it is for females, but it usefully drives intra-sexual competition, which males require so as to achieve rank indicating genetic quality – and the stress entailed in contesting and maintaining rank makes it 'honest signalling'. With male ranking determining sexual selection by females, then it is in the service of purging accumulated gene replication error (the fundamental problem for all biological systems): the 'genetic filter' [Atmar (1991)] / 'mutational cleanser' [West-Eberhard (2005)] key function of the male. Consequently, males tend not to try to escape stressors but to live with and to utilise, and even, in effect, to 'manufacture' stress; and thus have evolved a higher threshold to register stress and can attenuate and override it. Sex-specific stress mechanism appears, as would be anticipated, to be a manifestation of the foundational distinction in function between the sexes.

Keywords: gender relations, genetics, male filter function, reproduction

The recent explosion of research into stress response mechanism has come in the wake of the realisation that there are profound sex differences long entirely missed through experimentation having been conducted only on males (usually mice/rats, but other mammal species as well as humans; stress response being almost identical across mammalia, humans not excluded). This restriction in choice of subjects was because data from females would be confounded by the effects of levels of female sex hormones varying according to the point reached in the oestrus cycle; these hormones themselves impacting on stress response. It was insufficiently appreciated that they may be integral to female stress mechanism, which, therefore, would not be generalisable from data obtained from all-male sampling. Yet it may not have been easily foreseen that stress mechanism would diverge so profoundly according to sex. That the male was considered the default less complicated sex, with female stress physiology 'bolted on', as it were, was far from an unreasonable position, and actually (it has recently been discovered) had scientific validity in that the biology of sex determination is not from a generic female template, as long had been supposed, but a male developmental trajectory which has to be actively suppressed instead for female individuals to be derived [Boulanger et al (2014)].

Somewhat paradoxically upholding the use of only male subjects, the ideological notion that the female functions in no respect in a different (and possibly by implication 'lesser') way than does the male, leads to data from experiments being considered equally admissible irrespective of whether they are from all-male, all-female or mixed-sex sampling. With male same-sex data viewed as being as good as any, then continued use of university students, mostly or almost exclusively male, was not regarded as problematic; until the increasing proportions of female students led additionally to mixed-sex and even female same-sex sampling to produce inconsistent and contradictory data. Even incorporating into experimental design controls for the effects of oestrus cycling so that all-female samples supposedly would be equivalent to those all-male, still did not produce similar results, thereby confirming that female and male stress physiology are not the same, overturning the premise of sex-identicality.

This was seized upon to drive a research programme, still very much ascendant, to discover the basis in stress reactivity of the much higher incidence of major depression in women: a major

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focus through an important funding stream stemming from contemporary ideological concern with the female a supposed victim and concomitantly supposedly 'better', built on deep-seated pro-female attitudes arising from the biological stark fact that the female is the limiting factor in reproduction, and equally corresponding deep-seated anti-male prejudices stemming from the biological imperative to control male access to females. The insistence hitherto on male and female identicality is flippable to an insistence on their difference, even to the extent of mutual inversion – reflecting a general perennial oscillation within feminist ideology in vain attempt to reconcile the claim of nil sex difference with the supposition that one sex 'oppresses' the other. Concentrating on female depression has tended to narrow research to looking for gross hormonal changes, to the detriment of an holistic understanding of stress mechanism. Then again, the volume of funding has enabled teams to draw on it for ostensible investigation of female depression whilst actually examining stress mechanism more widely.

In the end, from the perspective of either science and/or current ideology, then, acknowledging and studying profound sex-difference proved inescapable.

In the wake of properly regarding the sexes separately, beginning circa 1995, by 2000 an evidenced sex dichotomy was proposed, based on interpreting endocrinological findings in the light of the evolved divergence of male and female strategic requirements. Ancestrally, females needed to respond to threats by remaining with offspring in mutual support with female non-kin upon female exogamy (moving from the natal group to the male pair-bond partner's community), leaving males to respond actively and to be prepared to take risks in defending their natal group from human and animal-predator attack as well as to hunt large and dangerous game. This evolutionary rationale informed interpretation of data, to give rise to the now well-known conceptualisation of stress in terms of female 'tend-and-befriend' vis-a-vis male 'fight-or-flight' [Taylor et al (2000), well supported subsequently; eg, and most recently by Byrd-Craven, Auer & Kennison (2014)]. The broad endocrinological basis of this had become established two decades ago, before the Taylor theory was formulated; being indeed a basis of it, with oxytocin the key. For females, oxytocin reinforced by oestrogen and other female sex hormones counteracts the negative impact of stress through being a cortisol antagonist; whereas for males, not only does the absence of female sex hormones preclude an amplification of the effects of oxytocin, but the male anyway has comparatively low levels of oxytocin; and, furthermore, these are depressed by testosterone, which instead promotes (argenine-)vasopressin and thereby an actually amplified stress response [Uvnas-Moberg (1997), McCarthy (1995), Jezova et al (1995, 1996)]. Subsequent to Taylor, vasopressin has been found to have profoundly different effect according to sex: in males it underpins agonistic (aggressive) behaviour; for females it promotes affiliative responses [Thompson et al (2005)]; this clearly underlying the 'tend-and-befriend' vis-a-vis 'fight-or-flight' model. The impact of stress is further counteracted, uniquely in women in the inhibition of cortisol secretion by beta-endorphin
[Lovallo et al (2015)]; and also through higher levels, compared to men, of Corticosteroid Binding Globulin (CBG, a.k.a. Transcortin), the protein which binds to and transports cortisol in the bloodstream, resulting in more cortisol becoming tied up and rendered inactive in women [Stolk et al (1996)]. Instead of higher cortisol levels being responsible for stress-induced greater emotional reactivity in females than in males, it is now known to be through lowered levels of the female sex hormone, estradiol [Minni et al (2015)]. This seeming paradoxical state in females of an enhanced registering of stress at the same time as greater dampening down of the impact of stress physiology

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is addressed below. The major difference between the sexes in the character of stress mechanism is shown in the overall deleterious impact of stress in multi-systemic wear & tear (allostatic load), which increases with occupational status for men, and actually decreases for women [Juster et al (2013)].

Further than the sex-polarisation envisaged as merely sex- dimorphism in the Taylor model, it is now known (as here outlined) that male vis-a-vis female stress response in the most important respects is non-overlapping: that is, there is not merely sex-dimorphism but sex-dichotomy; sex-specificity. Differences in many respects are not merely separate quantitative ranges of what qualitatively is the same mechanism, but actually different neuro-hormonal pathways according to sex (see below); and even when system elements appear to be the same, or are dissimilar though corresponding to that of the other sex, then changes in response to stress may be in opposing directions; notably regarding hormones. For example, in response to acute stress, both estradiol and testosterone decrease in females, when they increase or are unchanged in males [Lu et al (2015)]; and in response to chronic stress, in the adrenal gland, testosterone receptors decrease in females whilst oestrogen receptors increase in males [Balog et al (2015)] – this relating to the remarkable sex-dichotomy of chronic stress causing obesity in women but weight loss in men. The cascade of findings and scale of interest in stress sex-specificity is indicated by the large number even of just the very recent papers with the terms 'stress' and 'sex-specific' both in the title – about sixty since 2012. Sex-specificity is a most interesting finding, being fully anticipated from key biological principles still more foundational than the evolutionary explanations put forward by and in the wake of the Taylor theory. The mechanisms of how the individual deals with a range of stressors – how stress is either ameliorated or utilised – appears to be a translation at a more proximal level of the foundational facets of complex biological systems.

Why there is more than merely quantitative sex-difference to amount to sex-dichotomy is easily answered by considering the respective functions of the sexes. The central biological problem of how to deal with accumulated gene replication error is the basis of why there is a separate male mating type, to which natural and sexual selection in effect can be quarantined away from females, allowing them to continue unhindered with reproduction. From this male 'genetic filter' [Atmar (1991)] / 'mutational cleanser' [West-Eberhard (2005)] function, it is clear that males are obliged to be intra-sexually highly competitive, in order to achieve sufficient rank in male dominance or prestige hierarchy to thereby advertise genetic quality, which is the criteria by which females assess male attractiveness. Males with 'good genes' are sexually selected by females; and, if particularly high-status, a male is able to serially pair-bond with high-fertility females and attract many others for potential extra-pair sex. Females not only have no use for this – apart from having no 'genetic filter' function, the female cannot benefit from sexual partners in number – but need to avoid competition, given that it can have physical and physiological adverse impacts on their reproductive potential; this being particularly serious in the female, being the sex that is the limiting factor in reproduction. This is just what is seen, as outlined above, with the various ways that cortisol is counteracted in the female. Given that stress cannot all be alleviated, then women have also evolved the facility to directly react to stress in terms of reproductive strategy. They can modify behaviour to be in accord with an environment relatively inauspicious for reproduction, where the reliability and utility of a pair-bond partner is questionable, by more short-term mating behaviour rather than just pair-bonding [Reeve, Kelly & Welling (2015)]; the sex-specific mechanisms underpinning which are known [Toufexis et al

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(2013)].

Whereas females need to rid themselves of stress, males can usefully utilise stress as an endogenous means of motivational tension prompting resolution in intense competition to achieve dominance rank as a signal to females of their genetic quality; and, moreover, inasmuch as the stress entailed in such competition is deleterious to the victor through the effects of cortisol and testosterone, this is all to the good in facilitating 'honest signalling' of 'good genes' in male ranking [eg, Muehlenbein & Watts (2010)], thereby furthering still more the male function of 'genetic filter' / 'mutational cleanser'. This function is served most of all by male stress mechanism in the impact on low-status (low mate-value) males. These males may benefit individually if they withdraw from competitiveness in order to bide time (until perhaps they develop in ways allowing them to compete more effectively) and to avoid further loss in status, wasted effort, and not unlikely serious injury; but, more importantly, the cortisol produced by the chronic stress of low status together with the fall in testosterone cannot but lead to a physiological fertility decline in what is auto-reproductive-suppression differentially corresponding to dominance rank [For fuller outline, see Moxon (2009, 2012)]. [Note that there is no theoretical problem here with an ostensible group-level adaptation: this is an illusory issue; a false framing. Just as dominance ranking itself evolved without any requirement for 'group selection', either naïve or as reformulated by Novak, Tarnita & Wilson (2010), so too did the associated reproductive-suppression. Selection is often misunderstood as necessarily being in terms of a multi-level conceptualisation ('individual' versus 'group'), when instead it is a matter of population genetics. A proper understanding of 'kin selection' reveals co-operation evolving through the interplay of genetic and population structuring [Lion, Jansen & Day (2011)]. Independently, Powers, Penn & Watson (2011) arrived at a similar model. An alternative perspective is that lower individual fitness in the short-term can be more than compensated by higher fitness in the long-term, through the exploitation of an aspect of the selection process itself in 'lineage selection' [Nunney (1999)]. With a number of mathematically equivalent rival models, it is more a question of which is preferred philosophically than which is empirically justified. They are complementary in addressing the same seeming paradox of selection across level, which turns out to be an artefact of how the question was posed.]

Stressing males, then, achieves several closely related ends: stress can be utilised and generated within males to drive competitiveness, with the impact of long-term stress both purging deleterious genetic material via those males who, through their low-status, suffer substantial falls in testosterone and rises in cortisol, and thereby have their potential to reproduce to some degree shut down; and the 'honest signalling' of genetic quality in those males who can gain high-status despite the impact of cortisol and testosterone. [Notwithstanding the adaptiveness of 'honest signalling', there may also be, within male stress mechanism, some physiological process circumventing the deleterious effects of long-term stress on high-rank individuals – most likely an epigenetic change of a gene concerning one of the several types or cortisol receptor — so that they are not inhibited from the potential prodigious reproduction available to them through being preferentially chosen by high-fertility females. However this is a topic on which research is hard to find.]

Though a picture of sex-specific stress mechanism has been fairly clear behaviourally for some time, the endocrinological understanding was limited, with hitherto a lack of research on the relevant neuro-hormonal pathways and in particular of the underlying genetics, to show concretely

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that indeed there is a sex-dichotomy in stress response, and that it fits with the key biological principles just outlined. This impasse no longer pertains, albeit that there is still much to explore. There is now coherent multi-level general mammalian modellng of stress mechanism fully applicable to humans, as well as specifically human data.

From the foregoing discussion, what would be anticipated overall is that different stress response mechanisms from genes via hormones or directly to neural pathways are associated with females being particularly sensitive to stressors as negative stimuli, detecting them at low threshold and continuing to react against them through the above-cited greater emotional reactivity in females through lowered levels of estradiol; thereby prompting steps to alleviate the source of stress – through the oxytocin and oestrogen mediated responses in terms of the afore-discussed female 'tend and befriend' mode – and to damp down the deleterious physiological impact of cortisol aside from registering it – as seen in the afore-mentioned female inhibition of cortisol secretion by beta-endorphin, and the predominantly female binding of cortisol to ECG, rendering it inert. Males, on the other hand, would be expected to be not merely less sensitive to some types of stressor as negative stimuli, but to utilise some stressors and even endogenously to generate stress in order to sufficiently drive intra-sexual competition. This profound distinction between the sexes is evident in gross personality 'style' measures, though this has been masked by pooling of data from men and women, controlling for any sex difference, not reporting or not further investigating when one emerges, and ignoring studies where sex difference is strongly suggested or even when clear from the data. The history of neglect and wilful obstruction here, together with the evidence all too evident for anyone to find, is well set out in a review and new study [Desoto & Salinas (2015)] showing that for women, neuroticism actually correlates negatively with cortisol levels, with the correlation being positive only for men. Most simply, males would be expected to have a higher threshold for registering the impact of a stressor as stress, and to possess the facility to attenuate stress if and when it becomes chronic to the point that it is less motivational than a nuisance.

Consistent with this picture, Bangasser et al (2010) find that the receptors in the mammalian brain for corticotrophin-releasing factor (CRF) – the hormone principally responsible for orchestrating the hypothalamic-pituitary-adrenal (HPA) main stress axis, as well as directly producing autonomic, behavioural and cognitive effects – are in females both far more sensitive to low levels and unable to deal with high levels. Thus is the female driven to take steps to alleviate the source of stress and escape it. By contrast, uniquely in males there is desensitisation, as well as a much higher threshold to trigger the receptors. This sex-specificity is as a result of completely different functioning of the CRF-receptor in females (regarding the mode of signalling and compromising of receptor 'internalisation', which never occurs in males). The underlying genetic basis of this opposite CRF functioning according to sex is beginning to be revealed [Gilman et al (2015)].

Not only is the genetic – and, not least, epigenetic – underpinning of constituent pathways such as this being found, but the apex of the genetic cascade orchestrating male stress mechanism has been found to be a single key gene: tellingly, the same gene, SRY, that is responsible for male sex-determination (and known to be expressed in the brain) [Lee & Harley (2012)]. This common control is just what is found even in species far more 'primitive' than mammals; viz, the fruit fly [Argue & Neckameyer (2014)], indicating that the co-determination of stress and sex is highly conserved, phylogenetically extremely ancient, and therefore that the sex-specificality of stress mecha-

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nism is a key emanation from male / female function across animal biology, with a mammalian model in all essential features encompassing humans.

It is not too much of a surprise, therefore, that a perfect sex-dichotomy – almost nil data overlap, notwithstanding unavoidable usual data 'noise' – in human acute stress response is shown in brain neuro-imaging of cerebral blood flow in consequence of mild psychological stress, irrespective of the method of analysis or classification [Wang et al (2007)]. Stress in men is here associated with increased blood flow in the right pre-frontal cortex and reduction in the left orbito-frontal cortex; a robust response persisting beyond the task. But acute stress in women activated various subcortical structures; and, unlike the male response, was poorly correlated with cortisol levels.

The progress to outline sex-specificity in stress response already is so significant that a recent summation of research included a declaration in its title that the field had undergone a "metamorphosis" [Juster & Lupien (2012)]; and this from reviewers who pointedly distinguish between sex and gender [sic], in ignorance of its being scientifically and philosophically unsupportable to maintain that any aspect of male/female could be other than at root a biological phenomenon, and revealing an ideological orientation to regard the sexes as being essentially the same. Not only do Juster & Lupien conclude that the sexes are entirely distinct, but that far from sex and gender [sic] here being antagonistic, "progress in stress research has benefited most by investigating sex and gender in synergy and not separately". They point up as a key insight that whereas women are negatively stressed by social rejection, men are "more reactive to" – in other words, they are driven by – achievement-based stressors. This major divide is also what is found in a review of psychosocial stress in adolescence [Sordaz & Luna (2012)]. Study of reward-seeking reveals that stress motivates men in this regard, yet women shy away; the sex-specific underlying brain activation patterns being identifiable from functional magnetic resonance imaging (fMRI). Neural activation in the dorsal striatum and anterior insula (areas of the forebrain closely connected with the amygdala, which is located below and is evolutionarily more ancient than the cerebral cortex) increases in men but decreases in women – an opposite mechanism according to sex [Lighthall et al (2012)]. This is in line with previous work by Lighthall and collaborators, and by others, as Lighthall reviews; directly connecting stress with competitiveness.

Studies of the impact of chronic stress – which is more interesting and revealing of principal patterns than mere acute stress — have been reviewed, with a focus on limbic (mid-brain) structures; first by McLaughlin, Baran & Conrad (2009), who concluded that the profound changes entailed are mostly restricted to males, with what effects do appear in females being opposite. For males, there is substantial retraction of nerve cell dendrites in the hippocampus and, conversely, hypertrophy (dendritic extension and proliferation) in the amygdala; neither of which occurs in females: and although for males there is further dendritic retraction in the prefrontal cortex, the opposite is the case for females. These very different patterns create a considerable imbalance between the component limbic structures in males but not in females, resulting in markedly less behavioural flexibility and greater emotional and motivational arousal for males; whereas, in respect of both of these effects, the inverse though less pronounced changes for females. The amygdala is the structure where basic drives, emotions and memory are integrated in motivation, and it is telling that it is only in this mid-brain region in males where innervation is developing as a result of prolonged stress – consonant with the afore-cited work by Lighthall on reward-seeking and brain areas closely connected to the

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amygdala. The prefrontal cortex would bring higher functions to bear, but with the retreat in innervation in the male, then there is prevention of too much cognition getting in the way of the amygdala's work in utilising stress to drive intra-sexual competitiveness. Similarly, the hippocampus would link-in very basic homeostatic maintenance activity in the evolutionarily most ancient parts of the brain – the brainstem and associated structures; but, here again, in the male the neural shrinkage indicates an overriding of such interference in managing long-term stress.

The most comprehensive and detailed investigation cum review in the literature of chronic stress (and also acute stress, but this is here ignored in the context to avoid confusion and because the findings are more complex and equivocal), setting out in great detail highly complex inter-related systems at several levels [Sterrenburg (2012), incorporating Kozicz, Sterrenburg & Xu (2011) and Sterrenburg et al (2011, 2012)], ends likewise in a conclusion that major limbic changes in the male are not apparent in the female; going further in stating that the limbic regions are activated only in males, and that there is a plethora of further profound sex-specificities, in what is a very large piece of work beyond the scope of the present review to summarise more than in a near cursory manner. The key conclusions relevant to the present paper are that only in males is neuronal CRF messenger RNA increased in the paraventricular nucleus of the hypothalamus – the inverse of the sex-dichotomy when the stress is merely acute: then, only in the female is the very same change — with other immediate early gene expression apparent in several key limbic regions; whilst CRF in females actually declined. This replicates previous findings [Duncko et al (2001)] and indicates that males synthesise replacement CRF to match what has been released, though females simply use up existing CRF and don't replace it. The male overall response, then, is not simply active rather than passive, but is amplified; the inverse of the female pattern of generally a passive response, which would work well for females as a default strategy to escape the sort of stressors females typically encounter. Strikingly, below the level of neuro-hormonal pathways, Sterrenburg identifies sex-specific epigenetic changes: altered degrees of transcription of the CRF gene — here by all the four modes, of DNA methylation/ demethylation and histone acetylation/ deacetylation – in different key parts of the limbic system, including the amygdala and the paraventricular nucleus of the hypothalamus. These epigenetic changes in one sex are against an opposite or null change in the other. Other important sex-specificities include a male-only increase in the messenger RNA of the neuropeptide, urocortin, in the midbrain centrally projecting Edinger-Westphal nucleus [Derks et al (2010)], which is found to be strongly elevated in male but not female suicides [Kozicz et al (2008b)].

Sterrenburg's research programme cum review for all its detail and depth points up how much work remains to be done in unravelling and integrating the inter-related pathways and genetic/ epigenetic/ neuronal/ hormonal levels in stress mechanism, to construct models where the multiple component axes, systems and levels coordinate. This is dauntingly complex given additional related systems coming under investigation as it is realised they are part of stress mechanism, and which also display sex-specificity; such as the major mode of neuro-transmission within limbic structures by glucomates, which are modified in various ways in both acute and chronic stress scenarios by cortisol. Several of the glucomate amino acids utilised as neurotransmitters and their various receptors act in different parts of these brain regions (the hippocampus, the prefrontal cortex and the amygdala) in sex-specific ways to impact on memory and cognition [Wang et al (2015)]. Another example is the impact of serotonin on the HPA axis [Goel & Bale (2010)], whereby greater expression of serotonin receptors in the pituitary gland boosts female stress responsiveness. Nevertheless, the progress

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made in the past few years has been rapid and surprisingly detailed, with already complex modelling all the way down to individual gene base-pair epigenetic changes, far ahead of the former vanguard of tenuous, rough and highly qualified outlines typically from assays of cortisol and one other hormone in the investigation of their co-variation under stress.

Everywhere investigators probe, sex-specificity is easily found, reinforcing its paradigmatic force. More focus is required on distinguishing sex-specificity according to a dimension additional to sex and type of stress: type of stressor. Already noted is the major distinction between social relationship and achievement being key stressors respectively for women and men; which would be fully anticipated from the foregoing discussion of the nature of stress according to sex. Other stressors may not be so obvious as to their likely or possible sex-specificity. Within both acute and chronic stress scenarios, there are stressors pertaining to only one sex or the other. As well as for early acute social stress of isolation, it is now known that early chronic isolation stress has profound sex-specific long-term impact on males [Eg, Elfwing et al (2015)]; and also that restraint produces greater cortisol reactivity in females [Turner et al (2010), Babb et al (2013)]. There are a number of other recent studies regarding both acute and chronic stressor/sex interaction across phyla (from insect models through fish to mammals) [eg, Anthenelli et al (2014), Freitak et al (2012), Donaldson et al (2014), Sanders, Stevens & Boeh (2010)], but they are usually confined to some component of mechanism, leaving conclusions heavily qualified because of the highly complex interaction of multiple systems in stress response. To make matters worse, some stress protocols within experiments may so poorly reflect stress as usually experienced in the natural environment as to have little value – an absence of external or ecological validity. Consequently, stressor-specificity is a sub-topic where comparability across studies is very limited, with no review to make overall sense of how stressor type interacts with sex as yet attempted (and, certainly, such would be beyond the scope of the present review). This is surely soon forthcoming, however; given that the additional factor of stressor type can provide a key to further unlock the nature and basis of stress sex-specificity. On the other hand, a three-way matrix of sex, type of stress and type of stressor, in being such an obstacle to comparability provides great scope for confusion in the literature and an open door to the ideologically hidebound to avoid experimental design where sex-specificity is detectable, let alone to test it as an hypothesis. It is indicative of the profundity of the sex-specificity being revealed, that far from being obscured by inter-relating factors as yet not fully explored, instead it has become so fully recognised as to become the new paradigm in research.

The sex-specificity of stress mechanism has major implications for other aspects of animal and human biology in prompting a corresponding sex-dichotomous approach as it is realised that this generally has been long neglected. The most obvious study area here would be mechanism underlying the epiphenomenon of dominance hierarchy, which, long having been recognised as quintessentially male sociality, clearly relates to stress mechanism in that it likewise concerns male intra-sexual competitiveness and, necessarily in turn, the root male function of 'genetic filter' / 'mutational cleanser'; and now is shown to be underpinned by the SRY gene, confirming its male-specificity [Van den Berg, Lamballais & Kushner (2015)]. Van den Berg, Lamballais & Kushner have discovered that whereas males require and make use of past experience of contests with all same-sex others in the group to bias their future efforts to either properly contest or back off, females always engage anew at each meeting (even with those previously encountered), simply by assessing the other in terms of their apparent inherent attributes. Both of these sex-specific modes produce

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ostensible same-sex transitive hierarchies, but the female apparent hierarchy is not transitive and has no social reality; it's artefactual. Only males possess the neural mechanism to process either 'winner' and/or 'loser' effects necessary to produce an actual hierarchy. The same research team is soon to publish a study directly examining 'winner'/'loser' effects, and preliminary results indicate a fundamentally different proclivity to process and integrate social experience, confirming the male-specificity of actual rather than artefactual dominance hierarchy.

This important new direction in understanding the nature of dominance hierarchy is an example of how the new paradigm of sex-specificity widening out from the study of stress mechanism, with investigation right down to genetic and epigenetic levels, can bridge between biological theory and observable behaviour and inferred cognition to significantly contribute to an integrated, cross-level understanding of the 'symbiotic' very different functions of the sexes.

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Gender Differences in the Association between Attachment Style and Adulthood Relationship Satisfaction

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In general, the quality of the caregiver-child attachment formed in early childhood will influence the quality of relationships in adulthood. Our survey of 217 adults aimed to assess to what extent relationship satisfaction in adults is accounted for by attachment style. After controlling for demographic variables, we found that an increase in attachment problems predicted a reduction in adulthood relationship satisfaction. The effect of attachment on adulthood relationships was stronger in women than men for avoidant attachment (β = -5.67, $p < .00000005$, and β = -4.60, p

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<.001 respectively), and weaker for women than men for anxious attachment (β = -2.21, p < .05, and β = -4.33, p <.01 respectively). Implications for child rearing and adult therapy are discussed.

Keywords: attachment, gender, males, females, satisfaction in relationships

INTRODUCTION

An attachment (1,2) is an emotional bond which forms in humans and other mammalian species from birth, usually between infants and adults, and develops through interaction with a primary caregiver. Seager (2014) states that "A human being's first non-verbal attachment experiences lay down the first pattern or blueprint of 'self in relation to other' onto which subsequent language-based experience must be mapped and through which subsequent relationships are interpreted" (3, Seager 2014, p.215). The emotional bond that develops between adult romantic partners is influenced by the type of attachment developed in early childhood. (4) A *secure childhood attachment* is likely if a person describes their adult relationship in something like the following terms:

"I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't often worry about being abandoned or about someone getting too close to me". An *ambivalent attachment*, which corresponds to the 'anxious attachment' (5)(described below), is likely if the adult's attitude is:

"I find that others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away". The *avoidant attachment* style is suggested by the attitude:

"I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, love partners want me to be more intimate than I feel comfortable being".

A person's attachment style is of clinical importance because attachment difficulties are associated with difficulties in later life. For example, some previous research suggests that avoidant attachment contributes to psychological and behavioural problems, such as antisocial behaviour (6) and poorer coping with stressful life events. (7)

Some studies have found sex differences in how childhood attachment is related to later behavior. For example, insecure attachments led to externalizing behavior in girls more than boys. (8) Despite the fact that such sex differences are of potential importance to theory and clinical practice, many studies do not analyse data on attachment separately by sex. Thus, the aims of the present study were to:

1/ Assess the association between adult relationships and attachment style,
2/ Identify sex differences in such association, and
3/ Assess the degree to which attachment is related to psychological functioning

Method

The design was a cross-sectional online survey, analysed using multiple linear regression.

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Participants

Between June 2013 and September 2014, 140 women and 77 men, mean (+ SD) age 32.5 (+ 11.5) completed an online survey. Participants were recruited via two general psychology websites (Psychology on The Net and Online Psychology Research) and, to help the recruitment of male participants, two male-focused sites (Men's Health Forum and Mensmindsmatter). Participants were excluded if they: did not provide key information (health behaviour, marital status etc.), were under 18, or did not complete the consent form.

Materials
Relationship quality

The Relationship Assessment Scale (RAS) (9) is a seven-item measure. It includes items such as 'How well does your partner meet your needs?', 'How satisfied are you with your relationship?' and 'To what extent has your relationship met your original expectations?' Higher scores represent more satisfaction with the relationship.

Attachment style

Avoidant and anxious attachment styles were measured using The Relationship Structures (ECR-RS) questionnaire, (5) a nine-item scale based on Hazan & Shaver's work.(4) In the ECR-RS, *Anxious Attachment* (which corresponds to Hazan & Shaver's description of *ambivalent attachment*, above) is described by three items: 'I often worry that this person doesn't really care for me', I'm afraid that this person may abandon me', and 'I worry that this person won't care about me as much as I care about him or her'. *Avoidant Attachment* is described by six items: 'It helps to turn to this person in times of need', 'I usually discuss my problems and concerns with this person', 'I talk things over with this person', 'I find it easy to depend on this person', 'I don't feel comfortable opening up to this person', 'I prefer not to show this person how I feel deep down'. Higher scores on the scales indicate more problems with attachment.

Psychological well-being

This was measured using the Positive Mindset Index (PMI).(10) This scale measures how positively a person is thinking currently, and consists of six items: happiness, confidence, being in control, emotional stability, motivation and optimism. Higher scores represent a more positive mindset.

Neuroticism

This was measured using the EPQ-R-Short Neuroticism items,(11) with higher scores representing more neuroticism.

Aggression

This was measured using the short version of the Aggression Questionnaire.(12) Higher scores indicate more aggression.

Attitudes Towards Women's Equality

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Attitudes Towards Women Scale – Short version.(13) This is a 25-item scale which measures attitudes towards women's roles in society. Responses are on a four-point Likert scale from 'agree strongly' to 'disagree strongly'. Higher scores indicate more gender egalitarian views.

Alcohol problems

Problem alcohol use was measured using The Alcohol Use Disorders Identification Test (AUDIT): Self-Report Version.(14) This is a 10-item questionnaire designed to detect early signs of harmful drinking behaviour. Items include 'How often do you have a drink containing alcohol?' and 'Have you or someone else been injured as a result of your drinking?' Items are scored on five point scale e.g. from 'Never' to 'Daily or almost daily'.

Demographic variables

Age, educational level, relationship status (married, cohabiting etc).

Procedure

An invitation to participate in the survey was posted on the four websites. Participants filled in the questionnaires after completing the information sheet and consent sections of the survey. The trial recruited between June 2013 and Sept 2014. Ethical approval was granted by the Research Ethics Committee.

Statistics

Background variables were analysed using χ^2 and *t*-tests. Data for the main hypotheses were analysed with multiple linear regression, using the enter method. The criterion variable was Relationship Satisfaction, and the predictors were: demographic variables (age, relationship status, educational achievement) psychological variables (Neuroticism, alcohol problems, PMI, and Aggression, Attitudes to Women Scale) and attachment style (Avoidant attachment and Anxious attachment style). The sample size required, based on guidelines in Tabachnick and Fidell (15) was 50+8m (50+(8*10)) thus 130 participants were required for multiple linear regression. The threshold for significance was $p<.05$, and all significance values are two tailed. Data were analysed using SPSS statistical software, Version 22.

Results

After 16 participants who had never been in an adult romantic relationship were excluded, 140 women and 77 men were entered into the analysis.

Table 1 shows the background variables for men and women. There were no differences in educational achievement. There were significant differences between women and men for age and marital status - in this sample, men were older and more likely to be married than the women. In order to control for the sex difference in age and marital status, these variables were entered into the multiple regression model.

Table 1. Descriptive statistics and comparison by gender for background characteristics. Values are shown as mean (SD) or frequency (percentage) as appropriate.

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		Men (N = 77)	Women (N = 140)	Test statistic
Age		37.161 (14.11)	28.95 (9.76)	3.922[a]****
Educational Achievement	Doctorate	2 (3%)	6 (4%)	
	Masters	14 (19%)	29 (21%)	
	Bachelor / college	40 (53%)	61 (44%)	2.463[b]
	Secondary / high school	19 (25%)	43 (31%)	
	Primary school	0 (0%)	1 (1%)	
Relationship Status	Married	36 (47%)	32 (30%)	13.184***
	Divorced	3 (4%)	5 (4%)	0.150
	Cohabiting	10 (13%)	24 (17%)	0.649
	Not-cohabiting with partner	5 (7%)	19 (14%)	2.530
	Currently single	25 (33%)	60 (43%)	2.250

* P<.05, ** P<.01, *** P<.001, **** P<.0001 (two tailed).

[a] Independent groups *t*-test with 'equal variances not assumed' correction used

[b] χ^2 with Fisher's Exact Test correction for cells with expected count of less than 5

Table 2 shows the descriptive statistics and comparison by gender for the variables in the model of the predictors of Relationship Assessment.

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Table 2. Descriptive statistics and comparison by gender (using independent t-tests) for the influence of the predictors of Relationship Assessment. Values are show as mean (SD).

	Men	Women	*t* value
Relationship assessment	4.38 (0.81)	4.33 (0.78)	0.449
Avoidant attachment	3.59 (0.81)	3.33 (0.89)	2.056*
Anxious attachment	2.38 (1.13)	2.36 (1.12)	0.102
Positive mindset	3.23 (0.81)	3.40 (0.80)	-1.363
Neuroticism	5.45 (3.35)	6.17 (3.60)	-1.386
Aggression	22.80 (8.51)	22.51 (8.27)	0.864
Attitude to Women	3.33 (0.44)	3.44 (0.42)	-1.598
Alcohol	7.2 (5.30)	5.16 (4.69)	2.724**

* P<.05, ** P<.01 (two tailed).
[a] 'Equal variances not assumed' correction used

Multiple linear regression
Collinearity statistics in the model were within acceptable limits (Field 2005), with the maximum VIF at 2.35 and the minimum tolerance level at 0.558. The regression models performed significantly better than chance for men (F (8, 40) = 6.276, p<.00005) and women (F (8, 90) = 15.998, p<.000000000000005). For men, the overall regression model was a moderate predictor of the amount of variation in Relationship Assessment scoring (Adjusted R Square = 46.8%) and for women it was a strong predictor (Adjusted R Square = 54.9%). Table 3 shows that for women, greater relationship satisfaction was predicted by having a less avoidant attachment style (β = -5.67, p < .00000005) and a less anxious attachment style (β = -2.21, p < .05). For men, greater relationship satisfaction was predicted by having a less avoidant attachment style (β = -4.60, p <.001) and a less anxious attachment style (β = -4.33, p <.01). None of the other predictors were significant.

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Table 3. Predictors of Relationship Assessment in men and women.

Variable	Men			Women		
	B	SE B	β	B	SE B	β
Avoidant attachment	-.437	.120	-.460***	-.497	.084	-.567*******
Anxious attachment	-.299	.114	-.433**	-.153	.070	-.221*
Age	-.009	.008	-.150	-.009	.008	-.116
Marital status	.044	.219	.029	.098	.178	.056
Positive mind	-.180	.153	-.190	.017	.110	.018
Neuroticism	-.002	.029	-.008	-.003	.024	-.014
Aggression	-.011	.011	-.124	-.009	.009	-.102
Attitudes to women	.049	.207	.029	-.015	.178	-.008
Alcohol	-.008	.015	-.062	-.007	.015	-.039

* P<.05, ** P<.01, *** P<.001, **** P<.0001, ******* P<.0000001 (two tailed).

To test the hypothesis that attachment is related to psychological functioning, four further models were run. These models were the same as that in Table 3, but in each case replacing the original outcome variable (relationship assessment) with a psychological variable (previously a predictor), and keeping all other predictors in place. Thus the psychological variables (positive mindset, neuroticism, aggression, and risky drinking behavior) each in turn became an outcome variable in each model. The main findings from these models are in Tables 4a and 4b.

Table 4a. Predictors of positive mindset (PMI) in men and women. Only significant predictors are shown.

Variable	Men			Women		
	B	SE B	β	B	SE B	β
Anxious attachment	-.403	.106	-.559***	-	-	-
Marital status	-.485	.209	-.301*	-	-	-
Neuroticism	-.096	.028	-.398**	-.113	.024	-.509****

* P<.05, ** P<.01, *** P<.001, **** P<.0001 (two tailed).

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Table 4a shows that men had a less positive mindset if they had a more anxious attachment style, if they were married, or if they were more neurotic. Women had a less positive mindset if they were more neurotic.

Table 4b. Predictors of neuroticism in men and women. Only significant predictors are shown.

Variable	Men			Women		
	B	SE B	β	B	SE B	β
Positive mind	-2.539	.745	-.613**	-2.333	.504	-.517****
Aggression	-	-	-	.095	.046	.219*
Alcohol	-	-	-	.151	.075	.196*

* P<.05, ** P<.01, *** P<.001, **** P<.0001 (two tailed).

Table 4b shows that men were more neurotic when they had a less positive mindset. Women were more neurotic when they had a less positive mindset, when they engaged in more risky drinking behaviour, and when they were more aggressive.

Increased aggression was predicted only by increased neuroticism, and only in women (β = 0.306, p<.05). Increased risky drinking was predicted only by increased neuroticism, and only in women (β = 0.323, p<.05). For women, being unmarried (β = 0.209, p=.054) and believing more in gender equality (β = -0.204, p=.058) were borderline significantly related to a less positive mindset.

DISCUSSION

The main finding of this survey was that, after controlling for other variables, greater relationship satisfaction was predicted by having fewer problems in attachment style. For avoidant attachment, the effect was stronger in women than men (β = -5.67, p < .00000005, and β = -4.60, p <.001 respectively), and for anxious attachment the effect was weaker for women than men (β = -2.21, p < .05, and β = -4.33, p <.01 respectively). It appears therefore that avoidant attachment has a much bigger impact (β = -5.67 versus β = -2.21) on relationship satisfaction for women than anxious attachment does, but for men anxious attachment and avoidant attachment have about the same degree of impact on relationship satisfaction.

Comparison with previous research

Some previous research suggests that avoidant attachment contributes to poorer psychological functioning, for example, antisocial behaviour (6) and poorer coping with stressful life events.(7) The only link between attachment and psychological functioning in the present study was that a more anxious attachment predicted a less positive mindset, and in men only. No link between attachment style was found for neuroticism, aggression, or risking drinking behavior.

Usually previous research has combined outcomes for men and women. Combining men and women runs the risk of obscuring potentially important gender differences and our study was therefore designed to look for the possibility of gender differences. Table 2 shows that men scored

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significantly higher on avoidant attachment style, and Table 3 shows differences between men and women regarding the association between attachment style and relationship satisfaction. Tables 4a and 4b present further examples.

Interpreting the avoidant attachment findings

One way of interpreting the smaller beta value for avoidant attachment in men compared to women is that men find it less important than women to feel emotionally close to their partner. For example, women find it more important in a relationship to be able to share their feelings with their partner. However the sex difference in the size of the beta value is not large, so we should not over-emphasise this difference.

Interpreting the anxious attachment findings

One way of interpreting the larger beta value for anxious attachment in men compared to women is that men find it more important than women to feel cared for by their partner. For example, men find it more important in a relationship to feel that their partner won't abandon them. The beta value for the influence of anxious attachment is twice as big in men compared to women, thus we should take an interest in this finding.

Implications for child rearing

Sensitivity in child rearing is important in creating secure attachments. For example, avoidant attachment is said to result from separation from the mother.(16,17) The findings of the present study suggest that there are long-term implications for avoidant attachment, and they apply roughly equally to both sexes. On the other hand, regarding anxious attachment the findings of the present study suggest that the long-term effect of a child feeling that their primary care giver doesn't care very much about them is worse for boys than girls, because boys seem more likely to grow up to have more concerns that their wife or partner doesn't care about them. It might be useful to emphasise these findings in parenting classes and books on parenting, to advise parents on ways to help their children to form secure attachments.

Implications for adult therapy

Relationship problems in adulthood can be reduced by addressing problems with childhood attachment styles.(18) In a longitudinal study recruiting from daycare centers it was found that the schema that most clearly persisted from age six to age 21 was abandonment.(19) Because abandonment is a feature of anxious attachment, this might be significant to the present study, especially for men, whose adult relationships may have been damaged by childhood attachment problems.

Limitations of this study

Given the retrospective and self-reported nature of the data on attachment style, we cannot say for certain that the reported attachment style truly reflects the quality of the childhood bond. Also, the mean age and marital status were significantly different for men and women, such that the male sample was older and more likely to be married than the female sample. Although the effect of these differences on the link between attachment style and relationship assessment would have been minimised or eliminated by the use of linear regression, a more comparable sample would be preferable.

The sample size analysis indicated that the ideal number for regression in each sample should be 130 for each group. Although the sample size was sufficient to power the statistical tests used for

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the female sample (n=140), it was underpowered for the male sample (n=77). Although this will have reduced the statistical significance of the strength of the correlation between the predictors and Relationship Satisfaction, the beta coefficients will have been relatively unaffected. Given that the non-significant beta values (Table 3) for men were all below 2.0, they are unlikely to have become significant even had the sample size been 140. Therefore the suboptimal sample size is unlikely to have affected the findings of this study, though future studies are advised to recruit a larger sample.

Conclusion

The present study aimed to assess how much relationship satisfaction in adults is accounted for by attachment style. The strongest predictor of better relationship satisfaction was a less avoidant attachment style, and it was an especially strong predictor in women. It is also interesting that anxious attachment was a stronger predictor of relationship satisfaction in men than in women. These results reinforce the importance of attachment in the field of mental health and demonstrate the value of analysing gender differences in understanding and promoting the health of adult relationships.

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"I hate generalising, but...". Coaches' Views on Differences in Treatment Style for Male and Female Clients

Sam Russ
Vicky Ellam-Dyson
Martin Seager
John Barry

Men are generally more reluctant than women to seek psychological help, perhaps because of negative preconceptions about therapy. We interviewed 20 life coaches to find out whether they had seen gender differences in expectations and outcomes regarding coaching in their male and female clients. Analysis of the interviews, using the grounded theory method, revealed that although al-

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most all coaches described gender differences in help seeking and treatment preferences in their clients, most coaches demonstrated ambivalence about describing such gender differences. Findings are discussed both in terms of cognitive dissonance theory, and in terms of the beta bias hindering the recognition of gender differences. These findings have implications for how coaches (and psychotherapists, psychologists etc) can improve the delivery of their therapy.

Keywords: gender; coaching; generalisation; cognitive dissonance; beta bias.

Although men are at three times higher risk of committing suicide than women (Office of National Statistics, 2012), men tend to seek help for physical and emotional problems less than women do (Addis & Mahalik, 2003). Although there are exceptions (e.g. Farrimond 2011), this gender difference in help-seeking might be related to men's preferred ways of coping with problems, with men generally being less likely than women to want to discuss problems with a therapist or seek emotional support (Tamres et al, 2002). This begs the question of whether, in general, men prefer different psychological treatments to women, but this question is relatively unexplored, and most studies don't even report the outcome of treatment by gender.

A review by Parker et al (2011) found a statistically significant gender difference in outcome in a third of studies of various types of psychotherapy for depression. The reasons for these differences remain to be explored, but other peer-reviewed studies demonstrate specific situations where men and women need different approaches to therapy. For example, faced with fertility problems, women often experience more infertility-related stress than men, and tend to seek emotional support from family and counselling whereas men tend to use problem-focused strategies (Peterson et al, 2012).

In support of the hypothesis of gender differences in treatment preferences, of the range of therapies assessed by the Improving Access to Psychological Therapies programme (IAPT) in the UK, men are least likely to attend counseling (30% of clients) and most likely to attend employment support (46% of clients) (Health and Social Care Information Centre, 2014) the latter of which is relatively unchallenging emotionally. It is possible that men might be more amenable to coaching than to traditional psychotherapies because coaching is not generally considered an emotion-focused therapy on a par with counselling or psychotherapy. As such, coaching might be less a problem in terms of help-seeking, especially for men with higher conformity to masculine norms (McKelley and Rochlen, 2010).

Coaching differs from therapy in several ways, including that coaching conversations are largely focused on future achievements, typically with only light delving into the past. The focus is less on emotional distress and healing and more on personal/professional development, with growth and progress being rapid and enjoyable rather than slow and painful (Williams, 2003). Positive dynamics and reduced stigma may be aspects that make coaching a more appealing option than therapy for men. Coaching provides space for problem solving and thinking through potential solutions, and although it may involve some exploration of feelings, there is typically less focus on feelings than one might expect in a therapeutic intervention. Research using the Myers-Briggs

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Type Indicator (MBTI), a personality assessment tool used by many coaches, has shown that men and women have different preferences for thinking and feeling, particularly as approaches to making decisions (Myers & McCaulley, 1985), lending support to the notion that coaching may be a more preferable intervention than therapy for men.

The present study aimed to find out the degree to which coaches believe that men and women differ in how inclined they are to seek coaching, and whether they have preferences for different approaches in coaching.

Method

Participants and Sampling

This qualitative study involved interviews with 20 coaches, five men and 15 women, most of whom were based in the UK. Interviews lasted roughly 20 minutes on average, and were conducted by phone or Skype between Oct 2013 and Feb 2014. Skype allowed a number of coaches living abroad to be interviewed (two from Western Europe, two from the United States, and one from South America). Transcripts of the interviews were analysed using the grounded theory method (Strauss & Corbin, 1990).

The participants were includable if they had qualifications and experience as a practicing coach. Participants were recruited from a sample frame based on VE-D's network of coaches. VE-D emailed these coaches with an invitation to be interviewed by SR. Because of the importance of subtleties of language and meaning in qualitative research, participants needed to have fluent spoken English ability.

Coaches were contacted by Dr VE-D with an invitation to the study. They were informed about the topic in question, that their semi-structured interview would last between 20 to 60 minutes, and that their interview would be recorded for transcription and analysis. Interested coaches contacted the interviewer, SR, who sent the information sheet, and arranged the time of the interviews, which were recorded and conducted either by phone or Skype.

The Research Team

As the lead author, I will use the first person to describe my background. I am a psychodynamic psychotherapist and integrative counselor with experience of working in emotional support services. I am currently undertaking a Psychology PhD investigating therapeutic approaches to men's psychological health. Becoming aware of differences in the way male and female service-users typically engage (for example that men typically took longer to emotionally disclose) spurred my interest in the impact that gender has on treatment. The other team members have engaged in various types of 'talking therapies'. JB was a clinical hypnotherapist in private practice for ten years. MS is a consultant clinical psychologist, recently retired from the National Health Service (NHS). Both JB and MS are interested in the question of whether men might seek therapy more readily, and have better outcomes from therapy if the therapies available to them were more male-

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focused. VE-D is a coaching psychology practitioner, lecturer and researcher. She has a particular interest in the use of cognitive behavioural approaches in coaching for improved performance and wellbeing in the workplace.

I conducted the interviews, did the transcription and did most of the coding and categorization. JB guided the coding and categorization process, having taught grounded theory analysis to undergraduate psychology students for several years. MS helped with the original conceptualisation of the project and the interpretation of the results. VE-D supported the recruitment of participants, provided background information on coaching, and contributed to the meaning making of the interview data. All authors contributed to the writing of the paper.

Grounded Theory Methodology

This study used semi-structured interviews, analysed using grounded theory (GT). GT is a sociological method designed by Glaser & Strauss (1967) to minimize subjectivity in interpretation of the interview material, thus avoiding preconceptions that might be imposed by the researcher. Despite some inevitably subjective aspects of the GT process, the aim of this method is to give the clearest possible voice to those being interviewed. This is achieved, in part, through the ability of the researchers to limit the contribution of their subjectivity to the interpretation of the transcripts. Thus researchers strive to be aware of their own subjective processes during the study, especially during data analysis. To aid this self-awareness, SR kept notes ('memos') of his mental processes during key phases of the study (interviews and data analysis) in order to be able to reflect upon his reactions to the transcripts, and his decision making in the development of the codes and categories, thus minimising the effect of any expectations or biases brought to the analysis.

The interviews were recorded and transcribed, and the transcripts analysed by the methods of GT as described by Strauss & Corbin (1990). This method involves identifying recurring themes or 'codes' in transcripts, and identifying where these themes cluster together as higher-order categories. Thus in each transcription the emerging themes were organised into descriptive line-by-line codes. These initial codes were then grouped based on their common themes into more abstract, higher order categories, or focused codes. These higher order focused codes were in turn grouped with other focused codes, resulting in the emergence of still higher order categories. Theoretical saturation was recognised to have been reached when the addition of a transcript to the analysis did not result in any change to the higher order categories. The organizing and sorting of codes into increasingly higher order categories continued over several iterations, until ultimately the core category emerged.

The research involved a semi-structured interview which asked several open ended a priori questions such as 'Some people say that men are less inclined to seek help than women are, including psychological therapies. What are your thoughts on this, based on your coaching experience?' and 'Some people suggest that say that men and women may have different preferences for modes of coaching. How much have you seen of this in your practice, if at all?' These questions served as a means of allowing the interviewee a starting point from which to share their opinions on the subject, with a minimum of steering from the interviewer, thus allowing the interviewee the maxi-

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mum freedom in how they expressed themselves.

The study was approved by the UCL Research Ethics Committee and the British Psychological Society code of ethics was followed. Informed consent was given by all participants.

Researcher Reflexivity

I went into the study open to finding differences in how men and women sought help and how they got the best from an intervention. Thus my first impression was puzzlement that many coaches appeared to state that gender had no impact. Then, on reading the transcripts, the emergence of a subtle ambiguity around gender-based generalizations was surprising and intriguing. It was not until carrying out post-analysis research that I came across work on beta bias and gender blindness which then made sense of these findings.

Results

Line-by-line coding of the 20 interviews yielded 71 open codes, from 602 line by line codes. These were grouped by meaning to form five subcategories, which were then combined to form two categories (see Table I). From these two categories, the core category of Ambivalence Towards Generalisation emerged. From this process, an empirically grounded theory of cognitive dissonance in coaching was derived.

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Table I. Categories and subcategories that emerged from interviews with 20 coaches regarding gender differences in client needs, attributes and outcomes.

Core Category	Categories	N (%)	Subcategories	N (%)
Attitude towards making generalizations about clients based on gender	***Ambivalence towards generalizing***	13 (65%)	***'I hate generalising, but...'*** Ambivalence towards generalising while simultaneously describing gender differences	8 (40%)
			Gender blindness Not seeing gender differences, only individual differences / personality types	*4* (20%)
			Reframing Gender Recognizing differences but only working with Myers-Briggs Personality Types	*5* (25%)
	Features of clients	18 (90%)	***Help seeking*** Men and women approach help-seeking differently	*17* (85%)
			Client needs Men and women have different needs in coaching	*18* (90%)

Notes: N = number of coaches who expressed sentiments related to this category or subcategory; '%' indicates percentage of the 20 coaches who expressed sentiments related to this category or subcategory. In the third column, the ambivalence towards generalising N value is 13, while the N value of its subcategories is 17. This is because sometimes a participant gave responses that came under more than one sub-category. For example they may have at one point expressed ambivalence about generalising about gender, and also indicated gender blindness at another point in their interview.

Core Category: Ambivalence towards making generalisations about gender

The key theme to emerge was a sense of ambivalence on the part of many of the coaches towards making generalisations about clients based on gender. A dimensional range of ambivalence was found. At one end of the range, coaches expressed no ambivalence when speaking about gender differences when coaching male and female clients:

I'm much in favour of coaching women than I I far far more en-, enjoy coaching a woman... 'cause there's not so much resistance, and...I can see the results in my coaching when I coach them...they

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take it very serious...'[C19]

At the other end of the range, coaches expressed great ambivalence while talking about gender differences. This arose mainly when they spoke about differences in treatment preferences and client needs for men and women.

Category 1: Ambivalence towards generalising

A theme throughout the three Ambivalence sub-categories was that acknowledging gender differences somehow diminished respect for the client as a person. Participant 17 highlights how it could be viewed that making gender distinctions might imply not treating men and women as equals:
'...I know we've been taught to make no no distinction between male and female and treat everyone equally' [C17]

There was a dimensional range with gender at one end and individual differences at the other. Some participants explicitly acknowledged the danger of ignoring sex differences:
'*...there is a danger that we're saying that actually men and women aren't that different in the in the corporate world and therefore we can put them together, use all the same competency frameworks and and they can sort of morph into some sort of homogenous group' [C02]*

On the other end of the range, coaches highlighted the danger of seeing men and women in gender terms only. For example:
'*...I don't go in there and think 'Well they're a man so perhaps this is true', or 'They're a woman so perhaps this is true', because I think that's a bit dangerous' [C20]*

Three subcategories emerged which were particular to clients who expressed ambivalence:

Subcategory 1: 'I hate generalising, but...'

The first category comprises instances where coaches expressed ambivalence about making gender-based generalizations (e.g. 'men are like....women are like...') while simultaneously describing gender differences. There were many instances of this in the interviews, for example:
'I hate generalising for lots of reasons, but women are more inclined to blame themselves. But I don't like generalising because I find men and women quite different...women will be a bit more thoughtful about it and less concerned about the status piece of having a coach. And again I hate generalizing, but that's sort of an instinctive response.' [C06]
'...terrible generalisations of course but there is a gender bias towards for men not to show that vulnerability...sounds awful but this is not what guys generally talk about' [C16]

Subcategory 2: Gender Blindness - not seeing gender differences, only individual differences/personality types

A second category emerged at the extreme end of the ambivalence range: instances where coaches appeared not to see gender differences, only individual differences. They expressed ambivalence about generalising based on gender because they felt that by doing so they would not be respecting individual differences. Note that all four of the coaches who fell into this subcategory acknowledged that they might be 'blind' to gender.

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It appeared to be difficult for Participant 6 to recognise gender as being at the root of gender differences:
'...it's not a gender issue, but I sort of observe, erm, men may want more a process result, a fast process result sometimes...I think it goes back to the whole gender issues, stop, let's stop talking about gender and talk about individual needs...I think men have a lot of issues that aren't named, that aren't spoken out loud, about how they might feel' [C06]

However, she acknowledges her difficulties about recognising gender:
'I feel I've rambled all over the place...I think it reflects it reflects my own confusion and my own questioning about gender issues at the moment' [C06]

Also, talking about gender stereotyping, Participant 6 reveals how this can mean not respecting individual differences:
'...they absolutely hate how men label women, and you know a real recognition actually it's about us all respecting each other individually.' [C06]

The other coaches who displayed instances of gender blindness had greater difficulty acknowledging sex differences. Participant 20 referred to the notion that men are less likely to seek help as a "sweeping generalisation" and described few gender differences in help-seeking or client needs. However, she suggests at the end of interview that if she ignores gender it's probably so that she can relate to the client as an individual:
'...you will have noticed by the responses I've been giving you that I'm clearly not very aware of them [gender issues]...and to be honest I probably try to ignore it and just relate to them as an individual...[C20]

Participant 5 also acknowledges how she might ignore gender by focusing on the whole personality:
'...it can get very politicised around it as well so I'm very sensitive to, to gender, but, I don't think I'd thought about that because I think I tend to think about it in terms of personality much more ... I don't find myself being aware, so aware of people's gender... which actually if I think about it, that's quite interesting really...so that's made me think a bit actually.' [C05]

Participant 4 expresses much ambivalence about making gender distinctions. For example, after talking about how the coach's gender could influence whether a client seeks their help, she suddenly dismisses this point:
'...I don't think I can actually go from that point of view because it's too generalised, it's very erm specific to to the coach and the client... ' [C04]

She later appears to take a 'gender neutral' position after highlighting the importance of respecting the individual characteristics of both the client and coach:
*'... it is dependent on the individual rather than the on gender...it's actually about the characteristics of the two coming together, erm, who can have mutual respect for each other...I sound very neutral in this case' *laughs* [C04]*

Subcategory 3: Recognising gender differences but only working with Myers-Briggs Personality

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Types

A third subcategory emerged whereby coaches did not directly express ambivalence when talking about gender differences. However, even after talking about the significant impact that gender has, they appeared to frame their coaching approach in terms of only working with the various Myers-Briggs personality type indicators.

Although Participant 11 refers to the 'utterly different' impact of gender on personality, he frames his coaching approach in terms of personality types:
'...how an NT [MBTI type] will play out in a woman is utterly different to how an NT plays out in a man, it's also coloured by their scripts and patterns that they've learned er to in childhood, so, the Myers-Briggs types I will automatically more define my approach depending on what type they are... I could get the whole variety inside any one sex you know.....I don't think there's a huge difference between the sexes' [C11]

Participant 15 provided many examples of 'general' sex differences which impact the coaching, such as women being more open to coaching than men, and men needing to be set homework more than women do. And he describes success initially in terms of gender:
'...I would describe success stories in terms of coaching, er I would immediately look to erm female clients... [C15]

However, he goes on to reframe this in terms of wondering if matching of MBTI types between coach and coachee determines successful outcomes:
'...some coaches er may be better at erm coaching certain type of clients...it's not a gender issue in that sense it may well be that it's er it's matching the right coach to the right er to the right client' [C15]

Participant 10 acknowledges a number of sex differences, such as:
'...men are generally more reluctant to talk about, erm, their own their feelings er, perhaps feelings of not always succeeding...I think there's a great reluctance' [C10]

She also wonders about the relationship between gender and occupation:
'...I just wonder whether people get promoted in the police sector because they're male and they're very good at what they do technically.' [C10]

However, she later reframes both the client's coaching and occupational preferences in terms of personality:
'...I've never seen male-female differences [on the]MBTI, there's obviously a lot of preference difference among a group of people, I don't know if they'd be related gender-wise... I think there's a correlation of what jobs people go into, er, and certainly, OPQ32 the FHL, MBTI.....-, [C10]

Participant 17 described many gender differences, such as:
'Well men typically are more interested in er erm th- they present with the management issues at first and then it it turns into a a life coaching issue in the end...women will present more with a life issue and then er will would do the management issues...' [C17]

She also acknowledges the importance of the coach's gender identity:

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'...I think female coaches typically that I know are more female-oriented, I might work very well with males because of my tendency to be to see things as a male might...you have to be aware where you are in your head 'cause you have both capabilities male and female' [C17]

However, when later asked about gender preferences and differences in coaching, she reframes these in terms of personality differences:
'...I want to know typically what their personality style may be...I look for that personality style to approach but I also assess their learning and communication style... just boil down to their personality style and er preferences ' [C17]

Despite her dislike of putting people into 'boxes', C20 still referred to the usefulness of categorising behaviours using the Myers-Briggs personality types:
'To have some way of understanding individual differences... perhaps Myers-Briggs... it's really important to get out of the boxes and the labels but it is a good starting point.' [C20]. This quote also suggests gender blindness (Subcategory 2, above).

Category 2: Features of clients

The two subcategories of Features of clients were Help-seeking and Client Needs. Regardless of where responses fell within the dimensional range of ambivalence (from no ambivalence to great ambivalence about making gender distinctions), coaches expressed opinions which fell into two main categories: gender differences in client needs, and gender differences in help-seeking behaviour.

Subcategory 4: Help-seeking

The majority of coaches reported a sex difference in help-seeking. Some said that men find it more difficult than women to accept themselves as needing help:
'...I think men think they don't need it they are the strong masculine you know warrior and that they can solve all the problems they don't need help' [C14]

Women were generally seen as being able to make use of their larger social networks to help themselves:
'...women tend to have a network other women that they are custom talking to' [C13]

Most of the coaches expressed the opinion that men need encouragement from others before they will seek help:
'...men will tend to go if, if they are nagged about it' [C01]
'...it's their wives who have or very close friends who have suggested that they engage in coaching, so it hasn't ever been a direct, erm, direct meeting with the client straight away...' [C04]

However, the coaches highlighted a range of triggers to help-seeking, with men seeking help mainly in response to 'big triggers':
'...when we had the World Trade Centre disasters, er, I, I had more men after that come to me and say...I'm depressed, I need to talk to somebody...I think those big triggers in our country they brought more men to seek help than I'd ever seen in my entire life' [C03]

Help-seeking for men was also associated with business rather than personal issues, with men

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being more likely to speak about personal issues only when it affects work:
'...if they feel that erm the separation has an effect on their work also yes they do address it but if that's not the case men mainly don't talk about their private life.' [C14]

Some coaches also suggested that framing personal issues in terms of business might make it feel safer for men to seek help:
'...[men] make the thing masculine to make it fit and to give them the cover of being there and that they are about business.' [C13]

Subcategory 5: Client Needs.

There were many examples from coaches of gender-based differences in what male and female clients want and need in coaching. Coaches spoke about the difficultly men have with displaying emotions in coaching:
'...women are more willing to be vulnerable and willing to talk.....I've only coached one man who really got into deeply personal issues' [C07]
'...now with women I don't tend to get such an eruption you know the, erm, there's a lot that, the emotional depth seems to weave in and out of every session more evenly' [C02]

Coaches spoke about the importance of giving men permission to emote in coaching:
'...with a man it seems to be, erm, almost like erm, giving, helping the man to have permission to have a wider range of emotions' [C02]
'...I have to explain to them oh that's good, it's good that you can show your feelings and then we can work with it' [C19]

Although women sometimes got bogged down in irrelevant detail, they sometimes were able to start dealing with important material quicker than men:
'...women get to the nitty gritty a lot quicker than men do...women actively speak out that deeper conversation, right from the outset.' [C07]

Men preferred to break issues down and deal with each piece separately; women tended to like to keep their experience whole. Women were thus often seen to take a broader approach to their problems:
'...some male situations seem quite comfortable in breaking the mirror down into different component parts and then working with a number of different smaller mirrors, erm, a female perspective would often be to maintain that mirror at almost all costs because the linkages between different facets are critical and crucial.' [C12]

Men were generally described as seeing themselves as the director of change, whereas women would turn more to their relationships:
'...women tend to erm be thinking about other people can do or what other people are doing...men are more I can do this or I want to do... they're more, looking at themselves as the director of change...'[C01]

Women were seen as more self-critical and prepared to see their own flaws:
'...they have a better understanding and er a grounded reality of their own strengths and weaknesses...they can be perhaps erm, er an over-focus on the weaknesses...' [C15]

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'...this is erm horrible generalisations that men will often look changing their face to the world and woman will often look more closely at their own self-image as a starting point for improvement' [C12]

On the other side of this, women were also generally seen as needing to develop their confidence, and were lacking a 'cutting edge':
'... women have erm a very strong inner critic, for them to stand up to say what they mean, which is totally different from men, you know they really have this capacity to fight for their own opinion...' [C19]

Men were commonly seen as wanting quick solutions:
'... it's a bit well hang on slow down you don't necessarily have to just go away and it's not instant this is not instant...for men it's well...let's get solutions let's get on with it let's do it let's... and I'm you know I will say it's a-, it's about let's win' [C16]

Many coaches also talked about needing a different way of presenting coaching to engage males: men are put off talking if it is seen as weak or 'fluffy'. They prefer to frame talking as problem solving and prefer factual, goal-directed language:
'...I think once if you speak their language...with men more so because it's the nature is and certainly in my world is it's about solution finding, project managing, delivering timelines, delivering milestones, erm, everything is measurable...it needs to be up front because if it's not it will be dismissed as well this is the fluffy stuff...' [C16]

Modelling (observational learning) was seen as important for encouraging help-seeking in men. It appears to be important that treatment is endorsed by men higher up the workplace hierarchy, but this kind of endorsement didn't happen as much as it might:
'...I think that there are times when our male culture of ignoring the emotional side of it, is erm quite dangerous, and the role models in business of erm keep-, keeping calm and carrying on or trying to avoid the emotional side of things...we could find a way of erm role modelling or making it OK for men to feel...' [C12]

Discussion

This interview study, which asked 20 coaches their views on the influence of gender in their practice, found that male and female clients were different in many ways. Interestingly, the coaches often appeared to speak about these differences indirectly, and tended to attribute such differences to individual differences or personality differences rather than gender differences. Possible theoretical explanations for these findings are explored below.

Cognitive dissonance: respecting gender versus respecting individual differences

The 'I hate generalising, but...' subcategory describes an ambivalence towards generalising about men and women, while simultaneously describing gender differences in various ways. Although it is not unusual for people to express contradictory ideas in interviews, the almost apologetic way many coaches described their experience of gender differences suggests a certain amount of what

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Festinger (1962) might call cognitive dissonance: the difficultly of simultaneously holding contradictory beliefs or values. In many instances it appeared that it was both felt to be true that there are gender differences, but also that there was something wrong about having this belief. Cognitive dissonance theory explains that when a person has two conflicting beliefs or attitudes, one of these has to be modified to avoid unbearable emotional tension and discomfort. Thus a person who holds the cultural belief that 'men and women are the same' and that 'generalizing about differences between men and women is nothing more than crude stereotyping' will find it hard to endure the tension caused by specific observations that clearly show evidence of such apparent stereotypical differences. This means, in terms of cognitive dissonance theory, the observation of gender differences has to be disqualified or 'toned down' to fit with prevailing cultural beliefs. This dissonance appeared to be demonstrated in the way that coaches in the 'gender blind' subcategory seemed conflicted about acknowledging gender differences, and felt more comfortable talking of individual differences; it seemed difficult for them to own both these views simultaneously. Indeed, all of the coaches whose responses fell in the gender blind category emphasised the importance of seeing the client as a unique person rather than a man or woman. This might reflect broader cultural pressures regarding the promotion of gender equality in the workplace and elsewhere, resulting in an aversion to what might be seen as the stereotyping that might come from acknowledging gender differences in coaching clients. The power of this cognitive dissonance might also explain the ability of some of the coaches to say that there are no gender differences, while then going on to describe specific gender differences. One way for coaches to reduce this cognitive dissonance could have been to reframe gender differences as something less threatening e.g. individual differences or differences in personality types. It might be much easier to say that 'some people have a higher feeling score on the MBTI than others' than to say 'on average, women have a higher feeling score on the MBTI than men do'.

Beta bias and male gender blindness

Hare-Mustin & Marecek (1988) identify the tendency to ignore or minimise gender differences as 'beta bias'. It could be that those coaches who could not acknowledge gender differences had received a training which is gender blind. This would not be at all surprising in a culture in which it is deemed more accurate and acceptable to focus on gender similarities rather than gender differences. Indeed, citing Hyde (2005), Magnusson and Marecek (2012) suggest that to focus on sex differences in research findings "invites researchers, policymakers, and others to make claims that go far beyond what the data justify" (Magnusson and Marecek 2012, p,171). This assumption may stem from a fear that highlighting gender differences is automatically 'disempowering' for women, and might explain why the four of the coaches in the Gender Blind subcategory were women.

The findings of the present study suggest that to ignore sex differences in research findings – and indeed to fail to assess sex differences at all - may have the effect of encouraging people to make the questionable assumption that men and women can routinely be treated without reference to their gender. Indeed it seems likely that taking a 'gender neutral' stance runs the risk of depriving both men and women of being given psychological treatment that is best meets their needs (Kingerlee et al, 2014). For example, if we treat men and women as being equally open to talking about their emotional problems, then we may not be sensitive to signs that important emotional issues are not being raised by the male client.

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Similarly, Seager et al (2014a) discuss 'male gender blindness', which describes a lack of attention to men as gendered beings. This type of blindness can be seen as an offshoot of beta-bias that relates specifically to how the needs of the male gender can be overlooked in therapy and other contexts. Although this issue was not overtly raised by name in the interviews, it is apparent as a logical consequence of ignoring gender-related needs. It also underlines how men's needs in psychological therapy may be more likely to go unseen than women's needs (Seager et al, 2014b). Given that most people working in psychology are working in an environment that favours beta-bias, it is understandable that psychologists are motivated to see things in a gender-neutral way. If we are asked to think about experiences we have had to the contrary, thoughts of such evidence may cause cognitive dissonance, as demonstrated above.

Gender and the MBTI

The reframing gender sub-category described how many coaches recognised gender differences, with a number of these coaches reporting using the MBTI with their clients as an assessment tool. As was apparent in the interviews, it is important that the use of the MBTI does not cause the coach to ignore other aspects of client's individual differences (e.g. around their gender identity) by focusing solely on the client's psychological type.

While the MBTI is in popular use amongst coaches as a means of identifying clients' personality preferences, it is not widely known amongst coaches that the MBTI detects sex differences in preferences. For example, Furnham and Stringfield (1993) found that men showed greater preferences for thinking, sensing and introversion than women, whilst Hammer and Mitchell (1996) reported that a higher percentage of women than men have a preference for feeling. In order to be truly sensitive to gendered needs of clients, it seems important that coaches are conscious of the sex differences that have been identified by the MBTI. Any other information that might improve the outcome is of importance too.

Help-seeking and Client Needs

The Help-seeking subcategory describes how men and women approach help-seeking differently. 17 (85%) coaches said that men are less inclined to seek help than women are. This was explained partly because in general help-seeking is an admission of vulnerability, and men do not like to admit to vulnerability. There is evidence that men are significantly more invested in the notion of mastery and control of their emotions than women are (Seager et al, 2014b) and therefore a useful strategy in health promotion aimed at men, and in setting the context for interventions for men, might be to reframe help-seeking as a means of taking control of one's problems.

The Client Needs subcategory describes how men and women have different needs in coaching. In many ways the descriptions of gender differences are unsurprising, and familiar, even to the point of being stereotypical. However we might ask ourselves whether these descriptions are any less true or clinically useful even if they appear to be stereotypical and therefore trigger dissonance in many people. Indeed the information cited by the coaches might be considered extremely useful in counselling. For example, coaches indicated that it was helpful to give men permission to express emotions during coaching interventions, and clearly this might be extremely helpful in creating a successful outcome.

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Many of the codes in the Client Needs subcategory overlapped with the Help-Seeking category. Possibly men have difficulty expressing emotion and thus need encouragement to do this in coaching, and this is an important contributor to their help-seeking behaviour (perhaps connected to the difficulty men have showing vulnerability). The suggestion that men see the director of change as themselves rather than those around them also appears connected to their help-seeking behaviour, perhaps connected to not having the breadth of supportive social networks that women were said to have. The importance of having visible and appropriate models of male help-seeking may also encourage men to take up coaching.

Strengths and Limitations of Findings

A criticism of the Help-seeking category is that it is somewhat an artefact of the research process rather than something spontaneously suggested by the interviewees, in that this was a topic that we specifically asked about. However this is fairly usual in interview-based research, and difficult to avoid.

Implications

This study has vital implications for the training of coaches and possibly for others working in related professions (psychotherapists, psychologists etc.). Taking account of gender as one of a range of important differences in client needs is potentially important to the delivery of a successful intervention. It is therefore of greater importance ethically for gender differences to be recognised in talking therapies than for gender to be ignored out of fear of stereotyping.

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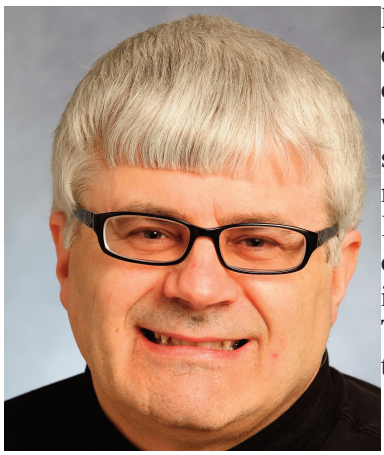

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Let us be silent, that we may hear the whisper of God

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Book Reviews

Jane Ward, Not Gay: Sex between Straight White Men, New York: New York University Press, 2015.

Jane Ward, the author of *Not Gay. Sex between Straight White Men*, is employed by one of the State of California's ten universities, which are, of course, funded by taxpayers. Professor Ward was awarded three degrees in sociology at the Santa Barbara campus of the University system and now is Associate Professor in the Department of Gender and Sexuality Studies at the Riverside campus. Her dissertation, "Beyond the Rainbow: Diversity and Inequality in Lesbian and Gay Organizations" (2003), was directed by Beth Schneider and published five years later as *Respectably Queer: Diversity Culture in LGBT Activist Organizations* (Vanderbilt University Press 2008), a revision of a dissertation "that never felt like my own project" (ix) [all subsequent page numbers are from *Not Straight* (New York University Press 2015)]. She is also founder of the blog *FeministPigs.com*. *Not Gay* is dedicated to the author's "partner, Kat Ross," with whom she is raising "our child," a daughter (xi). (Additional biographical material may be found at 201-204.) At UC Riverside, Professor Ward teachers courses in feminist, queer, and heterosexuality studies. Among them is "Introduction to Gender Studies," which the author reports to have consisted of "approximately four hundred students" one semester (195). Responses of students in that class are some of the data of the author's research leading to the publication of the present volume.

Not Gay was "supported by grants from the Wayne F. Placek Foundation [administered by the American Psychological Association (2005-2006)] and the UC Riverside's Queer Lab" (x). The

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book contains 21 black and white photos of males of various ages, many of them performing forms of oral-genital or anal-genital sex. The cover is a color photograph, by Janet Kimber, of two young shirtless males seated beside one another out of doors. (Their heads have been cropped for the image.) The book is one in the series "Sexual Cultures" published by New York University Press, two of whose editors, Ilene Kalish and Eric Zinner, are singled out "for their excitement about this book" (x). The series includes a volume by Judith [Jack] Halberstam, a professor of English at the University of Southern California, who is cited in the text along with other scholars and researchers in the field of gender studies, including sociologists Michael Kimmel and CJ Pascoe (specialists on boyhood and young manhood) and Robert W. [now Raewyn] Connell (a transsexual who was the first to use to the term "masculinities"), and philosophers Judith Butler, Julia Kristeva and Slavoj Žižek. Catalogued as about "1. Men—Sexual behavior. 2. Gay men. 3. Heterosexual men. 4. Homosexuality" (iv). The volume is described as a book about "'white dick'" (x). It "is based on the premise that homosexual contact is a ubiquitous feature of the culture of straight white men" (7; cf. 216, n. 38). The author claims that "if we view homosexuality as a constitutive element of hetero-masculinity, a central ingredient in the making of heterosexual men, we can then look closely at what homosexual sex *does for* heterosexual men, and for heteronormativity more broadly" (118). It is also a book that "attends to the ways that whiteness intersects with masculinity and sexuality, shaping the relationship between men's homosexual sex and their sense of 'self,' their status as 'normal,' and their position within structural hierarchies" in order to add to "a growing body of work that racializes [male] whiteness and unmasks its delusions" (26).

The author asserts that the contrast heterosexual/homosexual, which was invented during the last years of the 19th century by male psychiatrists, is spurious because it was politically motivated. She substitutes for it the conceptual contrast queer/normative precisely *because* it is politically charged, apparently believing that activism and scholarship (peer-reviewed published research) cannot and should not be separated.

We are in the world of a "queer feminist" (180) who is "of the poststructuralist persuasion" (127), an educator in a tenured university position who has a special interest in "postmodern sexualities" (2), pornography, and "critical whiteness studies" (150). One must be familiar with postmodern jargon in order to follow the discussion in many places: binaries, theorizations, narratives, signifiers, scripts, constructions, tropes, representations, logics, sites, circuits, lenses, registers, "rhetorical spaces" (124); foreclosure, deployment, recuperation, inscription, erasure, elision, performativity, intersectionality, staging. The reader will find a host of neologisms: identitarian, exceptionalism, heteronormativity ("the investment in sexual normalcy" [30]), sexual fluidity, heteroflexibles. Some locutions are difficult to make sense of, for example, "exceptionalizing logics" (81) and the "heteromasculine festish [sic]" (30). A new discipline, "gay biology" (85), is mentioned.

This was a difficult book to read, not because of the jargon but, rather, because of its underlying tone of disparagement of young men. It is primarily a discussion of hazing in fraternities and in the military (Chapter 6). Earlier chapters treat the sexuality of bikers, oral-genital encounters between men in public bathrooms, and liaisons between men who have met on internet websites (Chapter 2). Other material considered includes the film *Humpday* (2009) directed by Lynn Shelton (Chapter 4, where there is a reference to *Brokeback Mountain* [2005]). The fraternity hazing

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ritual singled out for most attention and that seems to hold a special fascination for Professor Ward is called the "elephant walk." Witnessed by a young man whom the author had been dating, it was recounted to her and supplemented with snapshots taken during an episode. In the "elephant walk" incoming fraternity members "were required to strip naked and stand in a circular formation, with one thumb in their mouth and the other in the anus of the young, typically white, man in front of them. . . . they walked slowly in a circle, linked thumb to anus, while older members of the fraternity watched and cheered" (2). (The photo documenting the "elephant walk" (Fig. 1.1) is captioned "1970s . . . Indiana University.") Four "assorted screenshots from Haze.Him.com" are also reprinted (178), as is one from the same site captioned "Brad, Ramon, and another pledge being hazed" (183). Also provided for illustration are seven photographs said to picture men in the military involved in the "crossing the line ceremony" and engaged in practices alleged to have occurred in Afghanistan (159, 171, 173, 174). Other than the cover photo only the one of "Ben" and "Andrew" (from *Humpday*, "discussing whether or not to have sex") and the one of the cast of *Jackass*, a television series, suggest any camaraderie or warmth between the figures. The two lead male characters in *Humpday* are described as "exemplifying the ambivalence within hipster heterosexuality" (121). (In describing the "pivotal moment" of the film, which occurs at a "queer party," the author recounts noticing "a sign on the front door [of the apartment] . . . [that] read 'DIONYSIS' [sic]" (120). In fact, the sign reads in Greek capital letters the Latin spelling of the god of passion: DIONYSUS (Διόνυσος). The author and editors may not be familiar with this figure from Antiquity. "In *Jackass*, sexual contact between straight men is reconfigured as an extreme sport . . ." (125), says the author.

The book is framed by two theoretical essays: Chapter 1 ("Nowhere without It: The Homosexual Ingredient in the Making of Straight Men") and Chapter 6 ("Against Gay Love: This One Goes Out to the Queers"). The point of view of the author is found in the first, where she tells us she "was repelled by the heteromasculine culture of abjection and aggression" (3) in which hazing rituals she had been told about take place. Overcoming her revulsion, she persevered. "Taking sexual contact between straight white men as my point of departure, my aim is to offer a new way to think about heterosexual subjectivity—not as the opposite or absence of homosexuality, but as its own unique mode of engaging homosexual sex, a mode characterized by pretense, disidentification, and heteronormative investments" (5). The evidence (data) brought in support of the author's hypothesis is meager for the weight her conclusions. (a) "In 2005, some friends of mine brought to my attention some personal ads they had discovered in the 'Casual Encounters' section of the online bulletin board Craigslist Los Angeles" (127). Subsequently, an analysis of this material from "the performative world of online personal ads" (127) was carried out: "research assistants and I" (224, n. 6) studied 118 personal ads from Craigslist that appeared during a ten-day period in January 2005 and 125 ads placed on the same website during the period May-July 2006 (224-225, n. 6.) The author dutifully notes: "Both studies received approval from the University of California Internal Review Board for the use of human subjects (although I did not contact or interview human subjects)" [225]); (b) Next are the results of an "exercise" called "Gay or Straight?" that the author carried out in her large class of 400 students, "Introduction to Gender Studies," in which she asked her the students to "shout out" how they understood "various 'circumstances'" including "straight-identified who kiss each other at parties while men watch and cheer"; "straight-identified men who kiss each other at parties while women watch and cheer"; "young boys who touch each other's penises while playing"; "men who have sex with men while in prison but know they are on the out-

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side"; "two women who have lived together for thirty years and sleep in the same bed but do not identify as lesbians"; "two men who have lived together for thirty years and sleep in the same bed but do not identify as gay"; "a young woman who has sex with two women in college, and then marries a man after she graduates"; and "a young man who, while being hazed by a fraternity, strips naked and puts his finger in [sic] other guys' anuses" (195-196). (Just how the responses yelled out were collected and organized is not revealed, although basic research practices require knowing about data collection methodology. I assume that Professor Ward has IRB consent forms from those who shouted out, although we are not told this.) (c) Finally, there are two studies published in peer-reviewed journals that are given detailed attention: Eric Anderson's "'Being Masculine Is Not about Who You Sleep With . . .': Heterosexual Athletes Contesting Masculinity and the One-Time Rule of Homosexuality" (2008), a study of 68 heterosexual football players who decided to become cheerleaders (age 18-23) and Steven Zeeland's *Sailors and Sexual Identity: Crossing the Line between 'Straight' and 'Gay' in the U.S. Navy* (1995), which is based on 125 interviews with men age 18-22 (see 214, nn. 11 and 18, for full citations).

The author takes up the basic question "What Is Heterosexuality?" (26-37) in this section of the introductory chapter and in "A Note on Key Terms" that follows it, Professor Ward provides an account of her understanding of the concept that will guide the subsequent moments of her "project." "Homosexual encounters between adult heterosexuals constitute a unique erotic domain that is characterized by many of the features of childhood sexuality" "because homosexual sex enacted by heterosexuals—like sex between children—occupies a liminal space within sexual relations, one that sits outside of the heterosexual/homosexual binary and is barely perceptible as sex" (27). Males are driven to live out "compulsive heterosexuality [borrowing Adrienne Rich's term]." This is because "most of us have, in fact, been oriented toward straightness. Most of us have been required to inhabit heterosexuality from early childhood, even if we've never engaged in heterosexual sex" (33). How we are to understand how one "inhabits" a concept remains unclear, but the idea seems to be that because 95-97% of the population is heterosexual popular entertainment must understandably feature stories about male/female romance and sex in order to draw viewers. As a result, however, "most of us" have been "oriented" to seeing such relationships and behavior as normal, which from the author's perspective is not desirable. Much as homosexuality and heterosexuality are opposites, queerness and normalcy (straightness) are also opposites. Normalcy (heterosexuality) is not desirable. Queerness is.

In this section, the author refers to Freud's famous developmental account (the *Three Essays on the Theory of* Sexuality [1905]) of how sexual orientation comes about. She misunderstands Freud, however. When Professor Ward mentions the "polymorphous capacity to experience pleasure in response to a broad range of stimuli" ("polymorphous perverse" sexuality) that Freud attributed to children, he had in mind children *before* they had discerned the differences between the sexes. However, Professor Ward is writing about the gender dimorphic world of "girl" (female) children and "boy" (male) children, not the sexually non-differentiated infant and young child (29). In this passage the notion of "opposite" sexes is challenged, but the author later refers to "the same or opposite genitals" (195) of human beings which are the "primary sexual characteristics" of the two sexes that first bring up for a child the question about the differences between males and females.

Professor Ward does not consider that the sexes may be complementary and not opposite. Queer-

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ness and normalcy and must also be opposites and cannot be complementary. In the world of opposites, one of the two can easily be "bad' and the other "good." And so it happens that heterosexuality is "bad" (perhaps even evil) and queerness is "good" (perhaps even desirable). The metaphor of a battle between opponents dominates much of the genre of which Professor Ward's book is an example. It is a world in which all males are said to be violent towards females and females are encouraged to be on the defensive (and, more recently, offensive) with respect to males. The language of *Not Gay* is misandric especially about young white men especially. It echoes the language of Michael Kimmel (*Guyland* and *Angry White Men*), whom Professor Ward cites with approval. (A separate review of the theme of male "whiteness" in *Not Gay* is warranted but must wait for another occasion.)

In the concluding section of the opening chapter of her book Professor Ward discusses "The Birth of the Congenital Heterosexual" (39-42) described by Jonathan Ned Katz (1996). She correctly notes that the term 'heterosexual' (adjective) was first applied disapprovingly to men with unusually strong sexual interests in sex (with women) but forgets to mention that Katz's basic point is that the term was invented after the term 'homosexual' to denote a contrast (and opposite) to that behavior and, later, to individuals who displayed such behavior. Homosexual desire and behavior were mistakenly thought to be a manifestation of evolutionary regression and homosexuals were therefore judged by sexologists to be less than human. These linguistic barbarisms that combine a Greek prefix (homo- [same] or hetero- [other]) with a Latin root *sexus* have, in fact, proven to be less than helpful in distinguishing between an infant's sex assigned at birth, a child's understanding of sex differences, one's self-identified sex (gender identity), and a adult's sexual orientation. Introducing the fresh binary queer/(hetero)normative has not helped matters. Instead, long recognized ambiguities about body functions (especially sexual behavior) that adolescents in the developed West have been given the luxury of indulging in (and are dismissed by Professor Ward as a ruse that distracts all of us from seeing the evils of heterosexuality and challenging the presumption that procreativity is a natural tendency) are in the world of "queerness" the new norm for adult life, the norm "not-normal." But there is a logical problem here, since we are evidently faced with a norm that is not a norm and an identity that is not an identity. Gender "fluidity" ("queerness") precludes any fixed identity. Adolescent gender ambiguity has been elevated to protracted confusion legitimated by the disciplinary status of "gender studies" and "queer studies."

The examples of homosexual heterosexuality provided in the middle chapters seem to be offered chiefly as entertainment, much like the practices themselves as they are pursued and experienced. The reader may spend time with them if he wishes. This reviewer would only like to point out that that Professor Ward seems to be fascinated with anality and scatology. Perhaps these are the next frontier of "edgy" writing in "cultural studies," but there is a certain adolescent quality about this writing that needs to repeat slang *ad nauseum*. What is "dirty" and what is "male" are equated for some reason in the author's imagination. Having at one time found that men's bodies "and masculinity more generally" were "hot" (201), the author tells us in her most extended autobiographical interlude (201 ff.) that now she is "attracted to the bodies (masculine female bodies; feminine male bodies) known within heterosexual culture to be tragic and ugly." Her "first girlfriend" "was hot despite and because she was ugly to the straight world" (202), that is, to the world of heterosexual males and presumably females, too. The author does not have much to say about heterosexual women. Sexual desire for Professor Ward is "felt" for *ideas*, not for bodies. This is why careful

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distinctions are made between straight, gay lesbian and bisexual, in order disavow identification with any of them: "I was queer," she writes (203). And that, if I understand correctly, means without fixed gender identity. Again, however, we must consider the logical error of denying that not having an identity is an identity. It is what Erik Erikson called "negative identity," a psychological status preferable to being "no one at all" and commonly enough found among antisocial adolescents.

The research methodology and data offered in support of this study of male heterosexuality are hardly careful and robust, respectively. *Not Gay* would appear to be an opportunity for the author to express her animus towards males, especially young ones. Professor Ward's psychological and intellectual motivations are of no concern to me, but I am bothered by her contribution to the literature of misandry. It is unlikely that the cover photograph will serve the publishers well for long when it is discovered not to reflect the book's contents. The subculture the author wants to suggest represents most young men—in college and in the military—certainly exists, but it is very small. Moreover, on the internet the practices cited most likely are designed to appeal to a small group of gay men who are fond of B/D/S/M practices. Fraternities have long since abandoned even modest hazing (paddling, forcing "pledges" to eat disgusting foods, etc.). Evidently, a few men in the military behave barbarously even with their comrades. Sanctions against torture are in place. If there is a moral question here, it will not be addressed by books such as *Not Gay* that demonize all young males. It is well known that men in prison rape one another, but no one would consider criminals to be representative of most males.

The author of *Not Gay* is deliberately vulgar as often as she is able to find an opportunity to be. As scholarship, it is mediocre, given the paucity of data. I wonder whether it is among the required books for any of Professor Ward's courses. How it stands as literature in the social sciences alongside her masters—Foucault, Butler, Kristeva, Halberstam, Kimmel, Connell, Katz—must be determined by the reader. I would recommend borrowing a copy from your public library, even though the *Not Gay* is available for amazon prime customers for $89.00 (cloth) and $22.50 (reduced from $25.00). A kindle edition can be had for $12.50. xi + 239 pp.

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