Doing Equality Consciously:

Understanding Unconscious Bias and its Role and Implications in the Achievement of Equality in Hong Kong and Asia

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WSRC is the only HKU-based entity which brings researchers, policy makers, leaders from different sectors within the broader community together around issues of gender, sexuality and diversity across disciplines, cultures, and contexts. WSRC has historically been and continues to be uniquely placed due to its cross-university and cross-community connections to drive research, conversations and discourses on gender, diversity and equity and to do capacity-building work as a form of applied research. WSRC has served as a hub where people come to to collaborate and share in research and knowledge-exchange initiatives, expertise about the latest theoretical and intellectual developments in the fields of women's/gender/sexuality/queer/intersectionality studies. For further information about the WSRC, please visit: https://www.wsrcweb.hku.hk/.

CCPL was established in 1995 as a non-profit virtual research centre in the Faculty of Law. Its goals are to (1) advance knowledge on public law and human rights issues primarily from the perspectives of international and comparative law and practice; (2) encourage and facilitate collaborative work within the Faculty of Law, the University of Hong Kong, and the broader community in the fields of comparative and public law; and (3) make the law more accessible to the community and more effective as an agent of social change. The Centre's projects and events generally come within one of the following themes: Comparative Public Policy; Comparative Human Rights; Constitutional Societies; and International Law in the Domestic Order. For further information about CCPL, please visit: https://www.law.hku.hk/ccpl/.

Both Centres have, over the years, led numerous research studies and made contributions on various aspects of human rights, including submissions to the Hong Kong Legislative Council, the Government of the Hong Kong Special Administrative Region and United Nations treaty bodies. Centre colleagues regularly collaborate with academics and researchers at local, regional and international universities, research institues and civil society organisations in furtherance of the aims and objectives of the Centres.

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ABOUT THE AUTHOR

Puja Kapai is an Associate Professor of Law at the University of Hong Kong (HKU) where she serves as the Convenor of the Women's Studies Research Centre (WSRC) and Chairs HKU's Equal Opportunity Committee's Working Group on Gender Identity, Sexual Orientation and Race. She was until recently a Co-opted member of the Hong Kong Equal Opportunity Commission's Policy, Training and Research Committee and currently serves as a Member of the EOC's Advisory Committee on Racial Equality and Integration and its Working Group on Education for Ethnic Minorities. Puja is also a founding member of the Everywoman Everywhere Violence Against Women treaty initiative being led by the Carr Centre for Human Rights at the Kennedy School of Government, Harvard and serves on the group's Drafting Committee. Her research expertise lies in international human rights law, in particular, equality law and minority rights. Puja was the Director of the Centre for Comparative and Public Law (CCPL) between 2013 and 2017.

She has published widely on these issues including on the rights of ethnic minorities, violence against women, children's rights and freedom of religion and hate speech. Puja was awarded the International Women of Courage Hong Kong Award 2015 by the Consul General of the United States of America in Hong Kong, the Faculty of Law's Outstanding Teaching Award 2016 and Knowledge Exchange Award 2017 in recognition of her contribution to teaching and the impact of her work in the community. She has regularly appeared before the Legislative Council to present on issues impacting ethnic minorities, women and children as well as before the United Nations treaty bodies, including the Human Rights Committee, the Children's Rights Committee in 2013 and the Committee on the Elimination of Racial Discrimination in 2018, at their hearings on Hong Kong. She sits on the Boards of various non-governmental organisations and is widely consulted on issues impacting gender, race, sexuality, violence, education and children.

LIST OF ABBREVIATIONS

IAT1 = Total score from first IAT
IAT2 = Total score from second IAT
IAT2-IAT1 = **magnitude of change** between first and second scores averaged out (IAT2 mean score minus IAT1 mean score)

IAT2-IAT1 (Bias Score) = how much closer to zero was IAT2 than IAT1 (subtracted the absolute value of IAT1 from the absolute value of IAT2)

CG = control group
IG = intervention group

GS = Gender-Science
GC = Gender-Career
CSA = Chinese-South Asian
HKM = Hong Kong – Mainland

INTRODUCTION

In 1948, the United Nations General Assembly resolved to pass the Universal Declaration of Human Rights (UDHR), recognising the princple of inherent human dignity of every human being. The Preamble states that "recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world." The UDHR established a global commitment to equality and non-discrimination to ensure the protection of the rights and freedoms of all people as human beings, without distinction of any kind on grounds such as sex, race, ethnicity, religion, nationality, disability, immigration or other statuses. It also emphasised the interdependence and indivisibility of human rights and underscored the need for safeguarding basic human needs, which was vital to enabling a life of dignity for all persons. The effective protection of one right contributes to the advancement of other rights whereas the failure to adequately safeguard one right invariably undermines other fundamental rights.

The UDHR should be read against the context in which it was introduced in the aftermath of the Second World War which saw the most heinous crimes against humanity committed against a people who were singled out for their Jewish identity and targeted for mass genocide. This era brought the community of world states together to safeguard equal human dignity of all people through protecting and fulfilling these commitments so that the atrocities perpetrated in the preceding years would never be experienced again. However, time and again, we continue to witness unparalleled hatred, prejudice, and bias against communities targeted for their race, religion, ethnicity, sexuality, disability or other minority or intersectional status. This critically impacts their most basic human rights, often resulting in the deprivation of one or more rights, which negatively impacts their enjoyment of other human rights as well.

Despite the availability of extensive research and statistical data demonstrating the widespread prevalence of bias and its detrimental impact in diverse domains, denial that discrimination is real remains rampant. This denial, coupled with the intractable inertia of those in positions of power and authority to meaningfully and systematically address this silent but potent poison in our societies, has meant that the perpetuation of inequality and second-class citizenship has been written into our futures indefinitely.

Within the field of the study of bias, there is a distinction between explicit (or overt) bias, which is more closely aligned with discriminatory conduct, and implicit (or unconscious) bias which is broadly cast as attitudinal rather than actual in terms of impact.

There are three broad categories which act as signatures of unequal treatment and bias and their manifestation towards groups in society today: **prejudice, stereotypes and discrimination**. While societies have introduced anti-discrimination laws to protect against discrimination on a number of prohibited

grounds including, gender, race, ethnicity, nationality, religion, disability, marital or family status and sexual orientation (although not all jurisidctions prohibit discrimination on all these grounds), the data trends highlight the persistence of inequalities across multiple domains along these lines. This is largely due to the structural limits of the law, which focuses predominantly on actions or outcomes which evidence discriminatory conduct.

Discrimination is differential (usually unfair) treatment of or conduct towards individuals or an entire group based on particular characteristics (actual or perceived).[1] These are known as 'protected characteristics'. Direct discrimination occurs when an individual is treated unfavourably on the basis of a protected characteristic. Indirect discrimination refers to circumstances where a particular rule, policy or requirement, which appears to be neutral in its application to all persons, disproportionately and negatively impacts individuals with protected characteristics in practice. In such instances, the rule serves as a proxy for discrimination based on protected characteristics. Discrimination is typically recognised as a form of **explicit bias** because the conduct that is the subject of complaint is deliberate (although the deliberate act may not have been designed or intended to result in differential treatment)**.**

Attitudes which reflect broad and generalised (usually negative but sometimes positive) beliefs or evaluations of a social group which we believe to be true are a form of prejudice whereas **stereotypes** are associations drawn between assumed, perceived, or known characteristics (usually inaccurate but sometimes accurate) and particular groups and their members. Stereotypes are essentially socially-constructed through personal experience or exposure to (mis)information from other people or the media. When we lack opportunities for personal experience or interaction with groups outside of our social network, we tend to be heavily influenced by media stereotypes.[2] Negative stereotypes often result in prejudice. **Prejudice** is a preconceived view which is not grounded in reason or actual experience. Prejudice may manifest as a form of explicit bias (for example, hate speech, discriminatory conduct, etc.) or unconcscious or implicit bias.

Unconscious bias refers to the practice of unknowingly subjecting someone to differential treatment based on a protected characteristic but without realising or intending it. **Unconscious bias** (which is also discussed in terms of **implicit bias**, indirect bias, unintentional bias, automatic bias and intergroup bias) affects us all and manifests in a variety of ways. It is a complex process undergirded by the tendency to assess an individual and associated actual or presupposed characteristics based on perceptions and often, misconceptions surrounding these traits. These views form through various processes and mechanisms. The socialisation of attitudes, values and preferences among individuals is often informed by cultural, religious, racial or ethnic, national, economic, geopolitical and / or other societal forces and our exposure to them. The processes

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[1] Dovidio, J.F., Hewstone, M., Glick, P., Esses, V.M., (2010) "Prejudice, Stereotyping and Discrimination: Theoretical and Empirical Overview" in *The SAGE Handbook of Prejudice, Stereotyping and Discrimination*, ch.1.

[2] Ibroscheva, E., Ramaprasad, J., (2008) 'Do media matter? A social construction model of stereotypes of foreigners' *Journal of Intercultural Communication,* no.16.

through which this exchange between our experiences, identities and perceptions occur are manifold. They include, but are not limited to, education (formal and informal), community life (family and social circle gatherings, native community activities, churches, temples or other religious or spiritual congregations, volunteering with communities in need), media (print and digital, online and offline media, theatre, cultural life), work (including care responsibilities), travel, exposure to groups dissimilar to our own and engagement in various activities. These processes of subtle and explicit exposure build on earlier perceptions of or direct experiences with individuals belonging to particular groups, resulting in the aggregation of this information to form and inform attitudes, prejudices, and stereotypes and eventually, they impact our conduct towards these groups and their members.

Unconscious bias not only forms the foundational subtext for institutional or systemic discrimination but also serves as the springboard from which discriminatory conduct at the individual level manifests. Unconscious bias serves as a conductor or transmitter which triggers a chain reaction between the brain and an action taken to achieve a particular impact. Unconscious bias carries the potential to translate into discriminatory conduct when the brain is confronted with a new experience that serves as an information overlay tagging onto extant impressions, causing the aggregate prejudicial quotient in the brain where information and experiences pertaining to particular groups is stored, to tip over into discriminatory behavioural manifestations. Necessarily, unconscious bias also serves as a dangerous amplifier for prejudice and stereotypes to coalesce into overt discriminatory impact against people on unlawful grounds. We have recently seen the interplay between the unconscious and the conscious or deliberate spheres of human activity and cognitive functions interact to fuse together unanticipated but predictable if we consider the numerous examples that have, time and again, revealed that exposure to "echo-chambers" and particular types of politically-charged propaganda primes individuals for pernicious action.[3]

In recent years, research has presented an increasingly sophisticated and substantive picture of the workings of unconscious bias. On the one hand, experiences and expectations contribute to a person's perceptions, impressions and judgements about people whist on the other, neural pathways of the brain are deployed almost autonomously in response to social cues which help the brain subconsciously organize vast amounts of material to which it is regularly exposed. Through this process, individuals develop and harbour implicit biases based on stereotypes and prejudices formed through the brain's subconscious and automated data organizing functions, linking certain constructs, characteristics and traits to particular groups in society without the intent, awareness or deliberation of the individuals concerned.[4]

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[3] See Evans, R., (2019) 'Shitposting, Inspirational Terrorism, and the Christchurch Mosque Massacre' *Bellingcat*, available: https://www.bellingcat.com/news/rest-of-world/2019/03/15/shitposting-inspirational-terrorism-and-the-christchurch-mosque-massacre/ for discussion about the role of online hate speech in motivating the terrorist suspect in the March 2019 Christchurch mosque shootings.

[4] Jost, J., Rudman, L., Blair, I., Carney, D., Dasgupta, N., Glaser, J., Hardin, C., (2009) 'The existence of implicit bias is beyond reasonable doubt: A refutation of ideological and methodological objections and executive summary of ten studies that no manager should ignore', *Research in Organizational Behavior*, vol.29, 39-69.

Social inequalities greatly impact the exercise of various freedoms and access to basic human rights, due in large part to discrimination and a lack of political or economic power. There is now a significant body of data which demonstrates that members of particular social groups and classes tend to be persistently disadvantaged, for example, women, children, people with disabilities and ethnic, racial, and national minorities, both socially but also, economically. Economic and social inequality are closely inter-linked perpetuating the vicious cycle of economic inequality and entrenched poverty for already marginalised groups. Therefore, groups which face exclusion and discrimination are overrepresented in groups living under poverty, facing violence and conflict, as well as disparities in access to reasonable accommodation, affordable healthcare and the right to exercise political rights.

While economic inequality arises from the unequal concentration and distribution of wealth and income within the hands of a privilieged few, social inequalities result from the ways in which societies organise their social structures and delimit access to opportunities and the distribution of resources. Such inequalities often stem from gender, racial, religious, disability and sexuality-based discrimination and have a pervasive impact in other spaces which serve as access-points to upward social mobility and empowerment, including economic empowerment. Entrenched discrimination within social structures are not only causative of these widespread disparities but they further inhibit access to pathways for breaking free from entrenched inequality.

Moreover, conditions of disadvantage facing margnialised communities tend to get progressively worse at a quicker pace than before, with virtually no improvement relative to two to three decades ago. This is especially so for groups that belong to historically marginalised communities. It is for this reason that many laws targeting unlawful discrimination contain provisions to implement temporary special measures designed to address the deleterious effects of systemic discrimination against groups, especially on grounds of gender, race or religion, as a form of positive discrimination to counteract systemic disadvantage impacting entire communities. These pernicious forms of discrimination (e.g. anti-mescegenation, racial segregation laws) that were historically entrenched through the use of legislation and government policy continue to have an impact on the groups and their descendents even today. The corollary of all this is that less unequal societies have lower levels of poverty and socio-economic inequalities.

Although anti-discrimination laws do not require proof of intention to discriminate to establish liability, and as such, rely on an assessment of acts or omissions as evaluated against outcomes for particular protected classes to cover both direct and indirect forms of discrimination, it is less adept at addressing unconscious or implicit bias due to the manifest burdens of the evidentiary thresholds and the lack of empirical data which is specific enough to establish causality or at least, a plausible nexus to satisfy the burden of proof. In the context of anti-discrimination law, the relevant standard is a balance of probabilities.

The prevalence of unconscious bias based on a variety of traits ranging from gender, race, sexuality, religion, disability and more have been widely evidenced most notably based on the results of the Implicit Association Test (IAT), which has been administered in different settings but most popularly in the form of a self-administered test on a designated website.[5] More disturbing data has emerged drawing a link between implicit bias scores and actual behaviour.[6] Moreover, the data highlights that such implicit bias measures are better predictors of discriminatory behavioural patterns than explicit bias measures[7] and as such, establish a causal connection between implicit bias and discriminatory conduct.[8]

This voluminous body of evidence decisively links unconscious bias with behavioural manifestations of discrimination which have real-world consequences for disadvantaged groups in a range of settings including education, employment, healthcare, social welfare, policing, jury trials and more. These consequences not only concern formalised discrimination in terms of law, policy or institutional decision-making but also, informal differential treatment in a multitude of contexts, within significant impact in specific areas impacting future life chances and opportunities. The implications of this are clear and serve to explain the continued disparities experienced by marginalised groups. It is imperative that this violation of the right to equal treatment and non-discrimination be adequately enforced through the law even where the source of bias is implicit or unconscious.

However, legal provisions and determinations of policy alone are not a panacea. As numerous surveys show, those who face discrimination on any number of grounds tend not to lodge formal complaints or pursue legal action, citing various reasons. For most, the law is a burdensome tool and one which requires staying power to facedown one's oppressors. The more marginalised the protected class to which the individual member belongs, the more difficult the task. For this reason, it is important to address the root cause of discrimination, which stem from attitudinal constructs acquired through various channels. If left unchecked, they transform into unconscious bias and become entrenched as part of our neurological processes to organise and understand the world around us. This influences our behavioural tendencies towards the perpetration of discrimination.

In volatile times where sexism and racism, among many other –isms are condemning marginalised communities to impoverishment, imprisonment and even death, it is insufficient to take a passive approach to addressing these harms. Humanity's obligations extend beyond passivity imposing a positive obligation

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[5] Anthony G. Greenwald, Debbie E. McGhee & Jordan L.K. Schwartz, Measuring Individual Differences in Implicit Cognition: The Implicit Association Test, 74 *Journal of Personality and Social Psychology*, 1464 (1998) and Brian A. Nosek, Mahzarin R. Banaji & Anthony G. Greenwald, Harvesting Implicit Group Attitudes and Beliefs from a Demonstration Website, 6 *Group Dynamics* 101 (2002), for example.

[6] See Anthony G. Greenwald & Linda Hamilton Krieger, Implicit Bias: Scientific Foundations, 94 *California Law Review*,. 945 and Allen R. McConnell & Jill M. Leibold, Relations among the Implicit Association Test, Discriminatory Behavior, and Explicit Measures of Racial Attitudes, 37 *Journal of Experimental Social Psychology,* 435 (2001).

[7] Anthony G. Greenwald & Linda Hamilton Krieger, *ibid*, at 966.

[8] Word, C. O. et al., (1974) 'The Nonverbal Mediation of Self-Fulfilling Prophecies in Interracial Interaction,' *Journal of Experimental Social Psychology*, vol. 10, 109.

on society to actively take measures to wrestle with this entrenched attitudinal bias. One only needs to review existing statistics pertaining to the overrepresentation of women, persons of colour and religious minorities in prisons and take reference from the multiple recent shootings and deaths of people on account of their religious beliefs or skin-colour, to recognise that such deeprooted biases should never be taken lightly. The Black Lives Matter Movement, widespread anti-Semitism, anti-immgrant rhetoric and Islamophobia levelled against minorities globally are a testament to the urgency of attending to systemic prejudice, conscious and unconscious bias. Unconscious bias often acts as the hidden lever that transforms a prejudicial thought into action with dire consequences. The susceptibility of the unconscious mind to deliberate designs to prime people's minds to harbour particular forms of prejudice is most apparent from carefually architectured, yet seemingly innocuous, manipulation of social media feeds of specific population groups. We saw this with Brexit, the US 2016 Presidential election campaign and most recently, with Myanmar in the wake of the genocide against the Rohingya population.

Unconscious bias is a global phenomenon and Hong Kong is no different. Hong Kong has seen its share of racist, sexist and misogynist views and experienced their influence on policy or action, when discussing crime in the city, pursuing crimes committed against single-women brothels or prostitutes, victim-blaming and shaming around #metoo complaints and other rape victims, as well as anti-immigrant rhetoric peddled by the HKSAR Government and legislative council members who advocated Hong Kong pull out of the Convention Against Torture in a move to guard the city's borders against 'fake' or 'economic' refugees. These manifestations vary however, due to Hong Kong's unique history.

In Hong Kong, examples of how unconscious biases affect minorities abound, the most obvious manifestations of which being racial profiling by the police, who disproportionately stop and search ethnic minorities, specifically those who appear to be of South Asian or African descent.[9] 'South Asians' are also often overrepresented in mainstream media reports about crimes even though there is no statistical evidence that ethnic minorities are more likely to commit criminal offences compared to other members of the general population.[10] There is even a perceivable hierarchy of race and acceptance in Hong Kong, where ethnic groups with lighter skin colour (Chinese, Caucasians, Japanese and Korean) are more widely accepted in society compared to those with darker skin tones (South Asians, Africans) in their day-to-day life (education, housing, serving as colleagues, as potential marriage partners or family members).[11] There is also extensive research in Hong Kong demonstrating the pervasive gender-role stereotypes, gender-based discrimination

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[9] See, for example, Chiu, P., (2019) 'Why fourth-generation Hongkonger of Pakistani origin who was first stopped and searched by police at age 8 can't count on racial discrimination law for help' *South China Morning Post*, available at https://www.scmp.com/news/hong-kong/society/article/3002579/why-fourth-generation-hongkonger-pakistani-origin-who-was and Ng, E., (2017) 'Asia's world city? Hong Kong ethnic minorities feel targeted by police stop and search actions' *Hong Kong Free Press*, available at https://www.hongkongfp.com/2017/10/08/asias-world-city-hong-kong-ethnic-minorities-feel-targeted-police-stop-search-actions/.

[10] Kapai, P., (2015) 'Perceptions and Self-Perceptions' in *Status of Ethnic Minorities in Hong Kong 1997-2014,* The Zubin Foundation and The Centre for Comparative and Public Law, ch.1.

[11] Kapai, P., (2015) 'The Education of Ethnic Minorities' in *Status of Ethnic Minorities in Hong Kong 1997-2014,* The Zubin Foundation and The Centre for Comparative and Public Law, ch.3.

and underrepresentation of women across positions of leadership in corporate, government and political settings and in certain disciplinary domains.[12] Hong Kong also has a gender pay gap, much like many other countries and the work of women whether 'at work' or at home is grossly undervalued. In many instances, women continue to perform the bulk of household labour while holding down a full-time job due to gender-role biases and their normalisation.

Drawing these threads together, it becomes all too clear how women of colour experience life in various domains in Hong Kong[13] and other parts of Asia where minorities have long had a history of being racialised as a result of historical and cultural legacies, including colonialism and domestic regimes of power. Moreover, there are differences within and between ethnic minority women in terms of how they experience prejudice and bias.[14] These diverse experiences are predicated on other markers of subjugation which attract the imposition of power and dominance, for example, class, caste, religion or sexuality to name just a few.

In order to address these issues proactively and effectively, however, it is vital to better understand the different types and levels of bias that are prevalent in Hong Kong as well as whether, and how, these can be addressed. These are some of the key questions that this research study is concerned with:

(1) What are the levels of unconscious bias on grounds of gender and race in Hong Kong?
(2) Who harbours which types of unconscious biases?
(3) Do such biases serve as predictors of discriminatory behaviour?
(4) Is it possible to ameliorate these unconscious biases? if so, how and to what extent?

Thus far, unconscious or implicit bias has not been explicitly targeted by legal policy or provisions. However, given the fact that the law currently does not require intent to establish unlawful discrimination, the effects of such unconscious bias on discriminatory acts and outcomes are clearly pertinent in terms of providing an evidentiary basis to claims of discrimination which have often been challenging to prove. The threshold to establish the nexus between the conduct or outcome complained of and its underlying rationale has proved challenging to meet, particularly for complainants, who generally lack access to the relevant decision-making

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[12] See, for example, The Women's Foundation, (2014) *Work to do: Women in male-dominated industries in Hong Kong*, available at https://twfhk.org/twf-research?field_tags_tid=All&field_date_value%5Bmin%5D=&field_date_value%5Bmax%5D=&page=2%2C0 and MasterCard, (2016) *MasterCard Index of Women's Advancement 2016*, available at https://newsroom.mastercard.com/asia-pacific/files/2016/03/Report-MasterCard-Index-of-Womens-Advancement-2016-Asia-Pacific.pdf.

[13] In Hong Kong, for example, ethnic minorities experience discrimination and various set-backs in relation to seeking assistance in relation to domestic or sexual violence. Kapai, P., (2015) *Delivering on the Promise of Equal Protection under the Law: Understanding the Experiences and Help-seeking Behaviours of Ethnic Minority and Immigrant Victims of Domestic Violence in Hong Kong and the United Kingdom*, The Centre for Comparative and Public Law.

[14] Hong Kong Pakistani women, for example, had a labour participation rate of just 12% in 2012 and continue to be underrepresented in many key indicators of integration such as literacy, English and Chinese language abilities, financial position and ownership of assets. *See* Kapai, P., (2015) 'The Employment of Ethnic Minorities' in *Status of Ethnic Minorities in Hong Kong 1997-2014,* The Zubin Foundation and The Centre for Comparative and Public Law, ch.4.

considerations used by the respondent and where a person is unaware of their own biases because it is not deliberate. Given the strong nexus between unconscious bias and discriminatory treatment demonstrated by research on unconscious bias and the significance of its impact on various rights, the outcomes of this research study would help plug the evidentiary gap, which often impedes the success of anti-discrimination claims. Furthermore, the findings would also underscore the importance of using temporary special measures to address historical disadvantages which particular marginalised communities have been subjected to. Whilst the relevant provisions are in place under the law, they have yet to be applied to address the historical inequity on grounds of race and gender in Hong Kong.

Because unconscious bias manifests at the individual level, it needs to be tackled at that level. At the same time however, the aggregate effect of cumulative unconscious bias levelled against already disadvantaged minority groups amplifies the effect of unconscious bias, elevating it to a systemic level. Individuals act as agents of systems and when they incorporate their unconscious biases into the work they do for institutions, these attitudes become internalised and institutionalised as part of the institution's structures and processes. This becomes another platform for the perpetration of biases and needs to be dismantled systemically.

The research findings from this study would serve as a strong foundation for the legislature, courts and other government departments involved in the development and interpretation of law and policy, to draw on as evidence of people's behavioural tendencies, the systemic marginalisation of protected classes and their connection with intuitive judgment-formation processes. However, law alone is not the answer because that depends on initiations of complaint which are dependent on a host of factors, including resources, evidence and capacity, among others. There are however, deeper-level, structural issues which need to be addressed to get to the heart of inequalities. These are deeprooted and entrenched attitudes and stereotypes which are transmitted through generation after generation under the present system. Thus, it would be instructive for educational institutions, principals, teachers and policy-makers to consider their role and responsibility in designing classroom spaces and curricula to ensure that bias is kept at bay through for preventive and corrective strategies as young people cultivate their knowledge-processors and internal 'data bank'. Finally, the research data carries significant insights for professionals across industries serving different client groups and communities and should inform their codes of practice, policies and professional services.

LITERATURE REVIEW OF UNCONSCIOUS BIAS RESEARCH AND INTERVENTIONS

Unconscious bias has been identified by psychologists and neuroscientists as a normal phenomenon stemming from and an evolutionary remnant of the human instinct to remain on guard against perceived external threats. As such, everyone harbours certain biases and this is perfectly normal. However, it is also very apparent that if left unchecked, it performs a self-serving function in terms of bolstering in-group position and can perpetually harm institutional and societal morale given the real-life and negative consequences for out-groups, such as traditionally marginalised groups. If allowed to fester, biases have the potential to undermine desired outcomes in terms of social cohesion, progress as well as institutional excellence and growth.[15] This is especially so considering people act on such biases in day-to-day decision-making, whether in the workplace or in other settings, such as educational, medical, social work or judicial decision-making contexts, where seemingly innocuous decisions end up having deleterious effects for those impacted most directly while the penumbra of bias ripples farther out to systemically entrench these biases. Even if these decisions do not necessarily result in discrimination that comes under the purview of law, bias begets bias, subtle or otherwise. Strikingly, research has shown that bias affects even those who profess a commitment to equality and non-discrimination, with the consequence that racism, sexism, and homophobia are prevalent even among those who are not generally racist, sexist, or homophobic.

However, this does not mean that people who care about human rights are being hypocritical. What the literature demonstrates is that there are neuroscientific processes at work that are influenced by automatic triggers: *everyone* harbours unconscious biases even when they explicitly believe that prejudice and discrimination are wrong.[16] We carry these unconscious stereotypes with us everywhere we go. They inform our perceptions, interactions and expectations. At the micro-level, these constitute our individual patterns of behaviour as manifested towards members of particular 'out-groups'. At the macro-level however, these become institutionalized as institutional or societal culture, wielding the power to impact the everyday lived experiences of those considered memebrs of outgroups.

The role of the evolutionary advantage is to assist the brain to rapidly organise information often in the most basic terms i.e. 'good' or 'bad', 'threatening' or 'benign', 'safe' or 'unsafe'. Guided by an innate survival

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[15] For example, McKinsey Global Institute's 2015 study of 366 companies in Canada, Latin America, the UK and the US found a nexus between gender diversity and performance. The lack of gender diversity seemed to be associated with below par performance in the sample consulted. Hunt, V., Layton, D., and Prince, S., (2015) *Why diversity matters*, McKinsey & Company, available at https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Organization/Our%20Insights/Why%20diversity%20matters/Why%20diversity%20matters.ashx.

[16] For example, McCormack provides case studies from Google, the Royal Bank of Canada and Roche Diagnostics to highlight how mitigation tactics such as awareness raising (Google, Royal bank of Canada and Roche Diagnostics); a mentoring programme to help women into middle management positions (Roche); a boost in maternity and paternity benefits to attract diverse candidates (Roche); and the administration of the Harvard IAT (Royal Bank of Canada) yielded significant results. *See,* McCormack, H., (2015), above. *See also,* Henneman, T., (2014) 'You, Biased? No, It's Your Brain' *Workforce*, available at https://www.workforce.com/2014/02/09/you-biased-no-its-your-brain/.

instinct, it is difficult to eradicate it. Despite this, however, the same literature also offers the potential solution to this. By understanding what triggers our survival instinct to act in particular ways, we can develop strategies to effectively disrupt them through the development of specific tools. These mechanisms can be deployed preemptively to *precede the operation of unconscious biases* when confronting certain known triggers.[17]

Mahzarin Banaji, a social psychologist who has studied and written extensively about the manifestation and ways of mitigating unconscious bias, writes, 'When good people discover their blind spots, they are inherently motivated to wish to change. I try to make use of that motive to do good and take it one step further – to ask about the extent to which people are willing to doubt their own intuitions.'[18] It is important that this work be done sensitively since broad claims about pervasive and systemic bias also damage institutional morale and lead to ill-feeling within and between communities. This can create a further rift as a result of people feeling upset about the insinuations while undermining the prospects of engaging the very stakeholders whose buy-in is instrumental to effect change.[19] For example, it may lead to concerns that one is being labeled a racist, sexist or a bigot. Such a climate puts people on the defensive and makes it unlikely that bias would be effectively tackled. If anything, it would likely make things worse. What is needed instead is to identify strategies for engagement which would incentivise individuals to rectify these harms.

Therefore, the importance of raising awareness about how we make decisions and their impact on others is a vital first step to unpacking our judgment-forming processes, recognising that they are not always scientific or based on facts and therefore, free from bias as much as we would like them to be.

REWIRING THE BRAIN – DO INTERVENTIONS WORK

Although theories about race as a category that denotes biological differences and implicate traits reflecting superiority/inferiority have long been debunked,[20] racial stereotypes and biases continue to drive many individuals' decision-making processes on an everyday basis unconsciously, even if they generally would not speak or even think in explicitly racist terms. This is where unconscious bias comes into play. As Daniel Kahneman's framework of 'thinking fast and slow'[21] illustrates, when making everyday decisions that do not allow for rational deliberation, for example when encountering a stranger on the street, our brains will rely on first-order judgements or instincts (usually based on stereotypes) to make snap judgments, which are fast,

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[17] McCormack, H (2015), *ibid.*

[18] Henneman, T., (2014), above.

[19] Michelle Ryan, a social and organisational psychologist at the University of Exeter in the UK, explained at the Collaborating for gender equality in STEM conference, 'Everyone's unconscious biases are wrapped up in identity…You get men saying "I don't know why I've got to think about gender"; it's because they're invisible, part of the majority. Privilege is invisible.' *See* Chapmanm K, and Lalloo, M., (2017) 'Science's problem with unconscious bias' *ChemistryWorld*, available at https://www.chemistryworld.com/features/sciences-problem-with-unconscious-bias/3007586.article.

[20] As historian Barbara Fields writes, 'Anyone who continues to believe in race as a physical attribute of individuals, despite the now commonplace disclaimers of biologists and geneticists, might as well also believe that Santa Claus, the Easter Bunny and the tooth fairy are real, and that the earth stands still while the sun moves.' Fields, B.J., (1990) 'Slavery, race and ideology in the United States of Ameirca' *New Left Review* Vol.181.

[21] Kahneman, D., (2011) *Thinking Fast and Slow.*

automatic, and unconscious. Relying only on these snap judgments is unreliable, especially if such judgments are emotionally loaded.[22] This is what makes unconscious bias especially dangerous, as we can easily be manipulated by our emotions of fear, anger and stress without our awareness, thereby diluting our ability to counter these inaccurate judgments with rationality in the moment. The consequences of these irrational snap judgments driven by unconscious bias include systemic discrimination in the form of racial profiling by law enforcement, which can lead to feelings of fear and low self-esteem and self-isolation on the part of ethnic minorities or others such as sexual minorities who fear being targeted unfairly based on prejudicial stereotypes about race and sexuality. We need to understand the way in which we are psychologically wired and adapt our thought-processes accordingly to enable us to deliver better informed judgments especially where it may have significant implications for the targets of our snap assessments.

Labelling the types of bias likely to occur and creating structures or processes to slow down quick assessments and facilitate considered decision-making can help temper the impact of unconscious biases on our decision-making. Examples of these structures and processes include allowing for more deliberation, giving others an opportunity to comment, stripping identifying information from resumes and using standardised interview questions.[23] Such systems can be applied in a variety of settings including education, corporate, and government, among others.

Recognition of the existence of unconscious bias and the immense harm that it can bring to minorities and society at large is thus an important first step. If we are not aware of our blind spots, we cannot start addressing them. However, mere awareness is not sufficient to eliminate unconscious bias either. Deliberate, counter-stereotypic thinking needs to be carefully incorporated in individuals' everyday lives and the everyday processes and practices of institutions. This requires more than simply holding a strong goal intention (for example, 'I will not discriminate') but also setting out 'implementation intention' plans, which are a series of behaviours that a person commits to in order to address self-regulatory problems in the process of striving for their goals. Being aware that certain situations will present in the process of striving for their goals, new behavioural responses may be planned out to override automatic responses. These plans come in the form of 'if (situation…), then I will…'.[24]

Applying this to the domain of unconscious bias intervention, we can discipline ourselves to adopt alternative behaviours when faced with situations that usually provoke old habits or biases by identifying the triggers of our biases and prescribing our responses to them in advance or at least, to build in a re-think before falling back into old habits. This has been used by various organisations to combat unconscious

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[22] Mullainathan, S., (2015) 'Racial Bias, Even When We Have Good Intentions' *The New York Times*, available at https://www.nytimes.com/2015/01/04/upshot/the-measuring-sticks-of-racial-bias-.html.

[23] McCormack, H. (2015), above.

[24] Gollwitzer, P.M. and Sheeran, P., (2006) 'Implemnentation Intentions and Goal Achievement: A meta-analysis of effects and processes', *Advances in Experimental Social Psychology* vol.38, 69-119.

bias.[25] A further example of good institutional practices in the context of hiring is to set out criteria for particular positions clearly and discuss them with the interview panel in advance so that it is made explicit what the considerations are. Keeping them to ourselves allows us the permission to fit desired candidates to our 'revised' criteria once we have decided someone is a better fit. However, such judgments may be influenced by factors that are not objective and thus, would be unfair to impose in retrospect after the interview.

In order to design interventions that work to help reduce or eliminate bias, we need to ask the right questions and understand how bias works in the first place in the specific context we are looking at. These include:

(a) What are the areas where bias manifests?
(b) Which groups are predisposed to bias, towards which targets, and to what extent?
(c) What factors serve as predictive of bias moving in a particular direction?
(d) What are the contexts within which there is a high-risk impact of unconscious bias in terms of life-altering consequences?
(e) What are the realms in which unconscious bias persists more subtly yet has systemic, longer-term implications?
(f) What is the effect of interventions?
(g) Which interventions work for which types of biases and contexts?
(h) If not designed suitably, interventions can have the opposite effect and even be deeply divisive.[26] Why are some interventions counter-productive?

The IAT helps us assess what our blind spots are and understand that taking time to make a considered decision can help mitigate discriminatory behaviour. Bias, conscious or unconscious, whatever its origins, does not *have to* result in discrimination. With appropriate measures in place as well as good systems of practice to stay on guard against biases creeping into decision-making processes and responses to diverse groups, interventions have the potential to reduce unconscious bias and its discriminatory impact and put into place suitable thought systems that address such bias from manifesting preemptively.

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[25] For example, the Aurora Leadership Foundation's tip-sheet on 'Understanding the impact of unconscious bias' suggests that we can consciously correct for bias by having good quality policies and practices to provide guidance, raising awareness of bias, and developing a more mindful approach towards making key decisions, including using the implementation intention principle: 'If I see a (short/fat/female/black) applicant, then I will (e.g., review or grade their application strictly according to the pre-determined selection criteria)'. The Aurora reports on 'validated research' in which people directed to employ the implementation intention principle to ignore the colour of an applicant's skin demonstrated no prejudice in their assessment of the candidate. Secker, J. and Nestor, R., (2013) 'Understanding the impact of unconscious bias', Aurora Leadership Foundation, available at https://www.lfhe.ac.uk/download.cfm/docid/FF7BA7E4-B526-406C-A58EB04FB13666CE.

[26] Suzy Firkin, principle associate at the Wise campaign for gender balance in science, technology and engineering in the UK, as quoted in Chapmanm K, and Lalloo, M., (2017) 'Science's problem with unconscious bias' *ChemistryWorld*, available at https://www.chemistryworld.com/features/sciences-problem-with-unconscious-bias/3007586.article.

THE ROLE AND LIMITATIONS OF LAW AND POLICY

The interaction between individuals, communities and institutions routinely generates varying forms and levels of bias (conscious and unconscious) occurring at diverse sites, often cutting across the mirco-, meso- and macro- levels or domains of human activity but also, at their intersections. These manifest in three primary domains: at the individual, institutional and the cultural or community-level but are further complicated by the fact that while prejudice and stereotypes are pervasive, on their own, they are incapable of being targeted for legal action unless they are acted upon and result in certain outcomes. This does not mean that they are without impact. Moreover, while individual discrimination is typically manifested through actions and may contribute to institutional discrimination, institutional discrimination may occur without acts of individual discrimination due to prevailing laws, policies or norms which have become entrenched. Community-level or societal discrimination is often culturally embedded as a result of historical and social norms and forces. We have a tendency to type cast or stereotype those we perceive to be different from us and we treat them as members of an out-group. We are habitually conditioned to see outgroups as more homogenous than they really are. In this way, we essentialise characteristics we associate with groups.

The three concepts of prejudice, stereotypes, and discrimination are closely interrelated. In considering the role for legal regulation as a means through which to target undesirable social conduct, it is vital to better understand the psychology underlying the processes through which we gather and sift through information, and use this to form judgements and influence our thoughts, intent and (deliberate and non-deliberate) actions. The formation of stereotypes is dependent on the brain's processes for organising various stimuli, which in turn, is dependent on nature, degree and quality of exposure, direct and indirect, to the relevant information which assists in the determination of categorisations. Sorting and categorisation are normally-occurring functions of the brain and serve an important purpose – to conserve mental resources for other activities. A rigorous process enables the brain to maximise its efficiency in devoting time to other tasks requiring its focus. In this way, stereotypes often function as 'short-cuts' in times when the brain is in overdrive. When the brain relies on these short-cuts, it is operating at a subconscious level and often, in an automated fashion. While this is certainly helpful if the process is effective in sifting out inaccurate and harmful stereotypes and ensuring the organisation and categorisation of stimuli reliably and correctly, it is counter-productive and harmful when accuracy cannot be guaranteed or worse still, where negative stereotypes pertaining to particular groups appear to be most prevalent. Far from attaining the objective of efficiency (which is defeated where the information stored is unreliable), we end up entrenching malicious content as a result of the brain's reliance on processes which are iterative and therefore, aggregative in effect. The corollary of this may be that we end up relying on an unconscious process for activity which requires

more conscious efforts to be discerning, scrupulous and rigorous in ensuring that our process remains free from corruptive forces of negative stereotypes and prejudice that are harmful.

Together, the trifecta of biases and the domains in which they operate are so pervasive that they manifest in inequities in various spheres of life for targets of such biases, eroding the protections guaranteed for equality and non-discrimination.[27]

For example, in Hong Kong, there is a widespread assumption that Caucasians speak better English and therefore, are more competent as native-speaking English teachers (NET), while those who are of non-Caucasian background (i.e. visible minorities by virtue of their colour), despite English being their native tongue, are less competent to teach English. This assumption reflects **prejudice** based on race. The operative presumption here is that non-Caucasian English speakers (South Asians, Filipinos, Chinese or Africans, for example), have accents that are less socially desirable, acceptable or comprehensible (to HongKongers). This may not be borne out by the professional qualifications (reason) or the candidate's performance at the interview (experience) assuming they were shortlisted on the basis of their qualifications as demonstrated on their resumé.[28] This translates into the belief that they are unsuitable for jobs requiring English language skills at a native level. This belief constitutes a **stereotype**, i.e. an assumed characteristic that may or may not be accurate for individuals belonging to the group. When tutorial centres or schools make hiring decisions based on the view that non-Caucasians are necessarily less competent than Caucasians as teachers of English, their actions may constitute direct racial **discrimination** where the decision is predicated on the race of the individual or indirect racial discrimination if it is based on language. Language-based discrimination is arguably a form of indirect racial discrimination as it often serves as a proxy for race. This falls under the purview of the Race Discrimination Ordinance (RDO) in Hong Kong[29] which prohibits racial discrimination.

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[27] These rights are protected under the International Covenant on Civil and Political Rights, the International Covenant for Economic, Social and Cultural Rights, the Convention for the Elimination of All Forms of Discrimination Against Women, the Convention for the Elimination of Racial Discrimination and the Convention on the Rights of Persons with Disabilities, all of which, Hong Kong is a party to and bound by under international law. These human rights guarantees have been domesticated into local laws under the Hong Kong Basic Law's Articles 25 and 39 and Chapter 3 more broadly as well as individual ordinances, including the Hong Kong Bill of Rights Ordinance, the Sex Discrimination Ordinance, the Family Status Discrimination Ordinance, the Disability Discrimination Ordinance and the Race Discrimination Ordinance. The last four anti-discrimination ordinances mentioned herein come under the mandate of the EOC, which has various powers to investigate allegations of discrimination on the prohibited grounds or to process individual complaints, guiding them through a reconciliation process or where appropriate, supporting claimants in litigation.

[28] This in itself may be unlikely as assumed ethnicity based on candidate names is often used to screen out visibly minority applicants.

[29] See, Tong, E. and Grundy, T., (2017) "'They might want a Caucasian": Outrage as Asian rejected from native English tutor job' *Hong Kong Free Press*, available at: https://www.hongkongfp.com/2017/05/27/might-want-caucasian-outrage-asian-rejected-native-english-tutor-job/ and Ng, Y., (2018) 'The hidden racism plaguing Hong Kong, and how one student is fighting back' *South China Morning Post*, available at: https://www.scmp.com/news/hong-kong/education/article/2136449/hidden-racism-plaguing-hong-kong-and-how-one-student, for examples of such cases.

However, seldom will the reasons for the hire be so clearly articulated. Oftentimes, the Caucasian candidate is considered to be stronger as a native English speaker while non-Caucasian candidates are presumed to be non-native, despite their fluency and equivalent qualifications. However, if we dig deeper, the working presumptions pertaining to accents stem from their assumptions about the 'immigrant' would have sufficiently mastered a 'foreign' language. These views are predicated on a false premise that nations are homogenous and do not have multi-ethnic populations who acquire hybrid identities by birth or as a result of their ancestors' generational history in countries of immigration. Moreover, these misguided beliefs serve to undervalue the formal qualifications that candidates present in their applications and counter the strength of their interview performance, if shortlisted. These presumptions operationalise unconscious or implicit biases on grounds of race, ethnicity and immigration status, leading to the decision not to hire the candidate. There may also be other reasons put forward for the decision. For example, in Hong Kong, it is common for schools or tutorial centres to argue that parents of Chinese children would not consider the provider was offering quality services if they hired non-Caucasians to teach English. However, this market-informed decision on this ground alone would not survive scrutiny under the RDO. The challenge however, in securing a successful outcome in a complaint on grounds of racial discrimination would be convincing the judge that this implicit thought process influenced the decision ultimately and that it was based on the protected ground of race or ethnicity. Enabling specific reliance on broader evidence of unconscious bias on grounds of race in this regard, would strengthen the complainant's argument by effectively situating their complaint in light of the **unconscious bias**, which masquerades as the underlying rationale behind the decision.

As research has plainly demonstrated, these behaviors have real life and negative consequences for individuals and groups that have traditionally been targets of unconscious bias.[30] This is particularly important because in times when our brain is overloaded or experiences distress, distractions or in times of urgency, it is more likely to draw on such stereotypes.[31] However, these are times when we are at our most stretched, challenged and vulnerable, and therefore, our capacities for exercising judgment effectively may be compromised or dictated by other factors and fears, which are imprudent predictors of threat and therefore, less reliable as receptors. These stereotypes feed on prejudice and serve as fertile ground for discriminatory conduct, consciously or unconsciously (cementing the nexus between the three categories of bias and their role at each stage in the origination of prejudice leading to manifestations of bias and a tendency towards discrimination).

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[30] Horan, J., (2014) 'Unconscious Bias Uncovered' in *How Asian Women Lead*, ch.7.

[31] Hinton, P., (2017) 'Implicit stereotypes and the predictive brain: cognition and culture in "biased" person perception' *Palgrave Communications* (3).

The manifestations of unconscious bias are further explained by social identity theory[32] which suggests that people tend to treat members of their own group (the in-group) more favourably than those they perceive as outsiders to their group (the out-group).[33] In-group identity is connected to the development and preservation of self-esteem.[34] Implicit theory frameworks further inform our understanding of how in- and out-group biases operate by examining peoples' underlying worldviews, knowledge systems and biases and how these feed into the development of impressions formed when people make new encounters based on limited information.[35] Necessarily, these processes bear significant implications for equality and non-discrimination in various social and professional contexts as they form the building blocks to guide attitudes and conduct across societal settings.

The prevalence and impact of unconscious bias has been widely documented in a number of studies across a range of disciplines and fields. Both quantitative and qualitative research confirm that unconscious bias is pervasive and operative in multiple spheres. No sector is bias free. For example, the implicit bias of teachers results in applications of differential standards of punishment[36] and academic expectations[37] to different groups of students. Unconscious bias is also operative in the workplace and manifests itself based on gender, race[38], age, accent, and physical appearance resulting in inequality of access to employment opportunities,[39] wage gaps, performance assessments, promotion prospects and so on.[40] Implicit bias impacts

[32] Tajfel, H., Turner, J.C., (1979) 'An integrative theory of intergroup conflict' in Austin, W.G., Worchel, S., *The social psychology of intergroup relations*, ch.3.

[33] Hewstone, M., Rubin, M., and Willis, H. (2002) 'Intergroup bias', *Annual Review of Psychology*, vol. 53, 575-604 and Kapai, P., (2012) 'Developing Capacities for Inclusive Citizenship in Multicultural Societies: The Role of Deliberative Theory and Citizenship Education' *Public Organization Review*, vol.12(3), 277-298.

[34] Aberson C., Healy, M., and Romero, V., (2000) 'Ingroup bias and self-esteem: a meta-analysis', *Personal Soc Psychol Rev.*, vol. 4, 157–173.

[35] Dweck, C., Chiu, C., Hong, Y., (1995) '*Implicit theories and their role in judgments and reactions: A word from two perspectives*', Psychological Inquiry, vol.6(4), 267-285.

[36] Staats, C., (2014) *Implicit Racial Bias and School Discipline Disparities Exploring the Connection,* Kirwan Institute, The Ohio State University.

[37] Peterson, E.R., Rubie-Davies, C., Osborne, D and Sibley, C. (2016) 'Teachers' explicit expectations and implicit prejudiced attitudes to educational achievement: Relations with student achievement and the ethnic achievement gap'. *Learning and Instruction,* vol.42, 123-140.

[14] Rudman, L.A. and Glick, P., (2001) 'Prescriptive gender stereotypes and backlash toward agentic women' *Journal of Social Issues*, vol.57, 743-762 and Collins, B.W., (2007) *New York University Law Review*, vol.82, 870-912.

[39] Rooth, D.O., (2007) 'Implicit Discrimination in Hiring: Real World Evidence' *IDAS Working Paper Series from RePEc*

[40] Horan, J. (2014) 'Unconscious bias uncovered', in Horan, J, *How Asian Women Lead*, US: Palgrave Macmillan US. Ross, H. (2008) *Proven Strategies for Addressing Unconscious Bias in the Workplace,* available at: http://www.cookross.com/docs/UnconsciousBias.pdf.

decisions made by police officers[41], courts[42] and prosecutors,[43] medical professionals and health care specialists[44] influencing access to quality healthcare and medical treatments for racial and ethnic minorities.[45]

Given the impact that implicit bias wields on quality of life and institutional efficacy across wide-ranging domains including education, governance and law enforcement, business and service provision and the administration of justice, its harmful contribution to perpetuating structural and substantive discrimination are far reaching. Such attitudes and their manifestations can be particularly damaging, even life-threatening, because of the power wielded by the state, its agents and other dominant actors in society in inflicting damage that is real and becomes embedded in the lives of those most often targeted. Biased attitudes also matter in more mundane, day-to-day settings such as the workplace or school or university. Bias limits mindsets and curtails expectations of fairness. The social costs of this behaviour are significant, particularly, in terms of lost human and social capital. Institutions flounder when ingrained prejudice is rendered invisible, normalised, denied or treated as benign.[46] In the professional context, a lack of equal access to opportunities can undermine efforts to increase employee productivity and foster effective mentoring for upward mobility and leadership. In the context of education and society, bias can deplete morale and dampen the prospects for harnessing the talents and contributions of a diverse community of individuals in society by enabling their belonging through positive identity construction and socialisation.

Worse still, not only is the impact of explicit and implicit biases detrimental in life-altering ways, bias has its favourites, targeting historically marginalised groups, weak and vulnerable communities denied voice and power. This entrenches the cycle of marginalisation perpetrated against communities and their members over generations. Historically marginalised groups continue to labour under the vestiges of these oppressive frameworks, which, despite their formal eradication as a matter of law, continue as a matter of social and cultural practice. Among other groups, racial, religious, and ethnic minorities have been most significantly marginalised due to intergroup bias and prejudice. Gender is another category that has historically been a factor in the lives of individuals who have and continue to face significant marginalization. There is some evidence that the circumstances of women as a 'class' have improved somewhat since the twentieth century.

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[41] Fridell, L.and Lim, H. (2016) 'Assessing the racial aspects of police force using the implicit- and counter-bias perspectives'. *Journal of Criminal Justice,* vol.44, 36-48.

[42] Kang, J. et al., (2012) 'Implicit Bias in the Courtroom' *UCLA Law Review*, vol.59, 1124-1186.

[43] Smith R., and Levinson, J., (2012) 'The impact of implicit racial bias on the exercise of prosecutorial discretion' *Seattle University Law Review*, vol.35(3), 795-826.

[44] Green, A.R., et al., (2007) 'Implicit Bias among Physicians and its Prediction of Thrombolysis Decisions for Black and White Patients' *J. Gen. Intern. Med.*, vol.22, 1231-1238; Blair, I.V., (2013) 'Clinicians' Implicit Ethnic/Racial Bias and Perceptions of Care Among Black and Latino Patients' *Ann. Fam. Med.*, vol.11, 43-52; Sabin, J.A., et al., (2012) 'Implicit and Explicit Anti-Fat Bias among a Large Sample of Medical Doctors by BMI, Race/Ethnicity and Gender' *PLOS One*, vol.7.

[45] Kapai, P., 'Healthcare Needs of Ethnic Minorities' in *Status of Ethnic Minorities in Hong Kong 1997-2014,* The Zubin Foundation and The Centre for Comparative and Public Law ch.7.

[46] For empirical studies on the negative effects of discrimination on business, see Pager, D., (2016) 'Are Firms That Discriminate More Likely to Go Out of Business?' *Sociological Science*, vol.3, 849-859.

That said, however, gender-based discrimination remains rampant across the board in politics, workplace, education, courts and various social contexts[47] not just with respect to women but against those who fail to conform to gendered exepectations and stereotypes. As such, structural and substantive discrimination remain pervasive and particular groups continue to bear the consequences of these transgressions which are now institutionalised. The untrammeled impact of unconscious bias is detrimental to society as a whole because we exclude a significant population from spaces of economic, social and political activity. This dilutes the quality of life of the excluded community but also, the society more broadly. Our misperceptions about our in-group homogeneity and the consequent creation of exclusive domains for privilege and inclusion means that we fail to benefit from the enrichment and innovation that diversity promises in terms of societal regeneration and the resolution of the many challenges humanity is faced with.

Apart from the group-based discrimination, cutting across this discourse is the often ignored but pertinent intersectional discrimination which is characterised by the confluence of multiple vectors of discrimination or biases in an additive, incremental or intersecting manner.[48] Intersectional discrimination captures the plight of those who are marginalised on multiple grounds. Their intersectional identity traverses the boundaries of a single identity and therefore, prejudice or discrimination based on a single ground. Instead, their experience is only understood through an intersectional lens which sees their circumstances as occurring at the intersection of two or more grounds of discrimination as defined by the entirety of that experience.[49] This complexity further challenges the effectiveness of existing legal frameworks which are designed to guard against such invidious forms of discrimination and unequal treatment as they are seldom able to do justice to intersectional discrimination claims due to structural gaps in the law and its limited capacity for recognising the layers of complexity experienced by multiply marginalised groups.

A pertinent example of this would be the systemic discrimination and exclusion from mainstream services ethnic minority victims of domestic violence in Hong Kong face. Studies have found that nearly 20% of frontline responders believe that ethnic minority victims should not be entitled to the same level of access to social services as the general population group.[50] Ethnic minority victims of domestic violence interviewed in one study reported that frontline responders were dismissive of their claims on the basis that the level of

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[47] Data on gender pay gap, leadership gaps, missing girls in education, missing girls in countries indicate we have a long way to go yet. See, for example, figures from UNESCO on missing girls in education, (2013) 'Girls' education – the facts', available at: https://en.unesco.org/gem-report/sites/gem-report/files/girls-factsheet-en.pdf and figures from the World Economic Forum on global gender gaps, (2018) 'The Global Gender Gap Report 2018', available at: https://www.weforum.org/reports/the-global-gender-gap-report-2018.

[48] Howard, E., (2011) 'Multiple discrimination in law' *Think Equal, Symposium on Multiple Discrimination, National Commission for the Promotion of Equality (NCPE), Malta.*

[49] Crenshaw, K., (1991) 'Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color' *Stanford Law Review*, vol.43(6), 1241-1299.

[50] Kapai, P., (2015) *Delivering on the Promise of Equal Protection under the Law: Understanding the Experiences and Help-seeking Behaviours of Ethnic Minority and Immigrant Victims of Domestic Violence in Hong Kong and the United Kingdom*, The Centre for Comparative and Public Law. See also Kapai, P., (2016) 'Bringing Intersectionality Home: Delivering Contextualised Justice in response to Gender-Based Violence in Hong Kong' in Barrow, A. and Chia, J.L. (eds), *Gender, Violence and the State in Asia*, 148-166.

violence was not nearly as bad as they would face 'back home'. Victims said their claims were dismissed as 'domestic' incidents and their 'cultures' were blamed for enabling such violence against women. In other instances, victims reported they were rebuked for not taking the steps suggested by the frontline respondents, for example, to separate from or divorce the perpetrator of abuse. In such circumstances, frontline respondents asked them to return to their home countries when they sought help as that would 'be better' for them.[51] As such, as victims of violence, this group of women experience both gender-based and race-based discrimination. They are additive in nature here (multiple discrimination) but at the same time, they also experience intersectional discrimination which is based on their unique position being *ethnic minority victims of gender-based violence*. Under the framework of anti-discrimination law in Hong Kong, however, they have no basis upon which to bring a claim against their experience of intersectional discrimination.[52] In similar vein, persons with diability routinely face intersectional discrimination on grounds of race, gender, religion, sexuality or other factors when considered with their disability.

Generally, when inequalities prevail, society turns to legal institutions and relies on the regulatory framework of the law in responding to discrimination on various grounds. However, the law's effectiveness and impact is predicated on various factors, including its deterrent effect on future behaviour and its success in terms of enforcement. This depends largely on the standards it sets for culpability and the availability of evidence undergirding the act which is alleged to be in violation of the law. Necessarily, implicit bias is likely to fall through the catch-hold of the law in most instances[53] due to the challenges of the mounting evidentiary burdens in establishing whether decisions were based on unlawful discrimination.[54] This has been particularly evident in the challenges faced by claimants seeking to establish indirect discrimination.[55]

Traditionally, the law has sought to prevail over acts and omissions which stem from conscious decisions and deliberate actions.[56] This has seen the law scrutinise both action and the underlying intent to give it the necessary interpretive context.[57] The duality of elements that have been the focus of the law in ascertaining culpability and accountability have often however, posed challenges where there is a lack of consonance between the two spheres of engagement. This has been most noticeable in areas such as mental infirmity or

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[51] *Ibid.*

[52] Kapai's study on the help-seeking behaviours of ethnic minority victims of domestic violence in Hong Kong has found that they experience systemic discrimination and exclusion from mainstream services: *see* Kapai, P., (2015) *Delivering on the Promise of Equal Protection under the Law: Understanding the Experiences and Help-seeking Behaviours of Ethnic Minority and Immigrant Victims of Domestic Violence in Hong Kong and the United Kingdom*, The Centre for Comparative and Public Law. *See also* Kapai, P., (2015) 'Marriage, Family and Domestic Violence' in *Status of Ethnic Minorities in Hong Kong 1997-2014*, The Zubin Foundation and The Centre for Comparative and Public Law, ch.6.

[53] Sturm, S. (2001) 'Second generation employment discrimination: A structural approach' *Columbia Law Review*, vol.101, 458-568.

[54] Bartlett, K. (2009) 'Making good intentions: The critical role of motivation in reducing implicit workplace discrimination' *Virginia Law Review*, vol. 95, no. 8, p.1893-1972.

[55] See literature on the difficulties of establishing claims of indirect discrimination: Abate, D. and Tran, H., (2001) 'Defining Discrimination' in Abate, D. and Tran, H. (eds.), *Discrimination Law & Practice in Hong Kong*, ch.4.

[56] Jolls, C. and Sunstein, C.R., (2006) 'The Law of Implicit Bias' *California Law Review*, vol.94, 969-996.

[57] *Ibid.*

reckless disregard for the consequences of one's actions. In these circumstances, the law determines the 'mental' element required to constitute the wrong to be missing or distorted in the case of mental infirmity and therefore, less culpable or egregiously deliberate in its complete lack of concern for consequences in the case of recklessness. In a similar vein, in some circumstances, public policy motivations have led lawmakers to deem it fit to impose strict liability for certain types of offences which occur within one's sphere of control[58] but without the requisite knowledge, direct involvement or actual intent.[59]

International and regional treaties and the vast majority of states have enshrined the broad principle of equality into their constitutions, while many others have enacted specific legislation to safeguard the right to equal treatment and non-discrimination on various enumerated grounds. The Millennium Declaration highlighted the centrality of equality, non-discrimination and human rights to the development of inclusive and sustainable societies. Governments soon realised however, that despite progress made on realising the Millennium Development Goals (MDGs), social and economic inequalities, income and wealth disparities have continued to rise across most developed economies and remain an ongoing challenge for developing countries. In these societies, measures to ensure minimum standards of living a life of equal dignity through their income and wealth redistribution mechanisms and social services as well as access to minimum wage and opportunities to generate new wealth are political priorities designed to guard against the ills of inequality. In many of these countries, anti-discrimination laws have been enacted to protect certain groups against discrimination on various grounds. Despite this however, the measures have had limited impact. This is because the root causes of inequality need to be contextualised against the broader frameworks for social organisation and governance, which is key to understanding which groups get left behind and more importantly, why.

The failure to incorporate equality, non-discrimination and the human rights-based approaches into the grounding framework for the MDGs meant that the targets set failed to effectively address the entrenched nature of inequalities which stemmed not only from deptivations and inequalities pertaining to economic opportunities and access to resources but also, social inequalities. Until and unless entrenched discrimination has been effectively addressed, despite global commitments and benchmarks for sustainable and inclusive futures for all, persisting inequalities threaten to spiral beyond control. The Sustainable Development Goals (SDGs) set by the United Nations for a 2030 stock-taking agenda incorporate equality and non-discrimination as well as human rights-based approaches into their framework. However, interim reports of state progress towards these benchmarks show, we are far from meeting these targets within the stipulated timeframe.

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[58] See, for example, the seminal English case *Rylands v Fletcher* [1868] UKHL 1: 'any person who for his own purposes brings on his lands and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and, if he does not do so, is prima facie answerable for all the damage which is the natural consequence of its escape.'

[59] See, for example, Hong Kong's Road Traffic Ordinance (Cap.374), s.36 and Dangerous Drug Ordinance (Cap.134), s.8.

Anti-discrimination law targets behaviour which treats those belonging to protected classes under the law in an unfair manner, resulting in unequal treatment. The premise for anti-discrimination law is that it violates the principle of equality and the inherent dignity of those belonging to groups which have historically been and continue to be marginalised on grounds of sex, race, disability and family status, among other grounds.[60] There can be no justification in the majority of the circumstances, save in the very limited situations specified under the law, for discrimination on prohibited grounds. The prevalence of such discrimination creates and perpetuates an underclass of marginalised communities among us. Discriminatory conduct is unlawful in all cases where such treatment is deliberate and unjustifiable or, if the discrimination was unintended but the relevant conduct complained of has such an effect. Intention to discriminate is irrelevant under Hong Kong's anti-discrimination law which means that it is not a defence against a discrimination claim to say that one did not intend to discriminate. Anti-discrimination law has permitted a 'strict liability' approach in the loose sense by allowing impact of the conduct or policy to serve as a stand-in for the mental element. However, necessarily, the presence of intent signifies a higher degree of culpability[61] - this is particularly so where institutionalized patterns of discrimination are manifest and one's conduct or institutional policy appears to be of the 'reckless disregard' or ignorant variety[62] insofar as obligations pertaining to equality and non-discrimination are concerned. In most discrimination claims, there is a particular policy, act or omission which is the subject of complaint due to its disproportionately negative impact on the protected class of people.

Despite protections embedded within our laws, however, there remains a realm that appears to be untouchable and sits outside the reach of regulatory imperatives: unconscious bias. Yet the impact of such bias is not only very real but systemic, entrenched and invidious. This is largely because it is very difficult to uncover given that its site of operation is the unconscious domain. This is so even where the consequences are tangibly negative for disadvantaging groups subjected to such biases. Numerous studies pertaining to inequality and bias have shown that people often hold stereotypes and prejudices without deliberation or awareness.[63] In contrast to explicit bias, which people may be aware of harbouring, unconscious bias impacts

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[60] Hong Kong's anti-discrimination laws cover just these four grounds for now although the Basic Law of Hong Kong protects various other grounds which appear in the International Covenant on Civil and Political Rights (ICCPR), which has been entrenched into Hong Kong's mini-constitution under Article 39. The ICCPR has also been enacted into domestic law in the form of the Hong Kong Bill of Rights Ordinance (Cap.383), where the more expansive list of protected grounds under the ICCPR are replicated. The Bill of Rights Ordinance binds government authorities whereas the Hong Kong Basic Law guarantees equality as a constitutional guarantee to all people.

[61] See, for example, Picinali, F., (2014) 'Innocence and burdens of proof in English criminal law' *Law, Probability and Risk*, vol.13, 243-257 for an overview of theories regarding the relationship between strict liability and culpability.

[62] Abate, D. and Tran, H., (2001) 'Defining Discrimination' in Abate, D. and Tran, H. (eds.), *Discrimination Law & Practice in Hong Kong*, ch.4.

[63] See, for example, Dovidio, J.F. et al., (2010) 'Prejudice, Stereotyping and Discrimination: Theoretical and Empirical Overview' in *The SAGE Handbook of Prejudice, Stereotyping and Discrimination*, 3-28 and Ross, H., (2014) *Everyday Bias: Further Explanations into How the Unconscious Mind Shapes Our World at Work*, Cook Ross.

decision-making and daily interactions in an often unintentional and seemingly reflexive manner. The pervasiveness of these biases just beneath the surface make them difficult to trace, assess and address.[64]

In order to get a better sense of the hidden operations of the mind, Donders developed an approach to quantify cognitive associations between concepts and attributes objectively by inferring associations from measuring the time taken to respond to stimuli. The amount of time taken would serve as an indicator of the level of ease or difficulty in attending to the task.[65] In turn, this would reflect the extent to which the association between a concept and attribute was 'normalised' in the mind. The response time and number of errors in relation to congruent and incongruent catergories on the task enabled a comparison to underscore which associations came fast and accurate and which ones came slow (or quick but erroneous). Testing these associations provided the necessary indicators to highlight the mental processes at work.[66] Speed and accuracy reflected that the associations were strong between the subject and the category they were asked to assign attributes to whereas those that elicited slower responses were not common associations between attributes and the categories offered. This latency in response is a measure of implicit bias. This enabled, for the first time, a facile way to measure cognitive processes that were until now, considered to be beyond scientific measurement and fell outside the bounds of self-reporting, which is usually susceptible to social-desirability bias.[67] It was this breakthrough that has since facilitated the measurement of various cognitive processes. One of the most significant measures which has been widely disseminated and continues to be used is the Implicit Association Test (IAT), developed by Greenwald and Banaji.[68] The IAT essentially tests the relative strength between associations made by individuals pertaining to paired concepts, one representing a category (or target or subject) and the other representing an attitude. By measuring the difference in the rapidity with which individuals classify the stimuli across the four different categories but with only two possible responses. The speed of classification determines the relative strength of the association with a fast speed indicative of a closer mental association whereas a longer time period depicts the lack of such association.[69] A digital platform has been developed under the umbrella of Project Implicit which administers the test www.implicit.harvard.edu, which has been taken over 2.5 million times.[70]

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[64] Jolls, C. and Sunstein, C.R., (2006) 'The Law of Implicit Bias' *California Law Review*, vol.94, 969-996.

[65] Donders, F.C., (1969) 'On the speed of mental processes' *Acta Psychologica*, vol.30, 413–421, cited in Lane, K.A. et al., (2007) 'Understanding and Using the Implicit Association Test: IV What We Know (So Far) about the Method,' at p.60 in Wittenbrink, B. and Schwarz, N., (eds) *Implicit Measures of Attitudes*, ch.3.

[66] *Ibid.*, at 59.

[67] Social desirability was a concept introduced by Allen L. Edwards in 1953 to demonstrate the role of social desirability in the measurement of personality traits. Social desirability bias means that respondents tend to answer questions in a manner that will be viewed favourably by others. See Edwards, A.L., (1957) *The social desirability variable in personality assessment and research*.

[68] Greenwald, A.G., McGhee, D.E., a d Schwartz, J.L.K., (1998) 'Measuring individual differences in implicit cognition: The Implicit association test' *Journal of Personality and Social Psychology*, vol.74(6), 1464-1480. See also Dasgupta, N., Greenwald, A.G., and Banaji, M.R., (2003) 'The First Ontological Challenge to the IAT: Attitude or Mere Familiarity' *Psychological Inquiry*, vol.14, 238-243 describing the origins of the IAT.

[69] *Ibid.*, 62.

[70] Reported in 2007 in *ibid.*

In Hong Kong, the EOC provides regular and tailor-made training workshops on prohibited grounds of discrimination and consultancy services for big businesses, small and medium enterprises, NGOS, government departments, and public bodies.[71] These training modules mainly focus on the explicit legislative provisions and the areas within the purview of the anti-discrimination ordinances: namely, sex, family status, disability and race. While these training modules are pragmatic and helpful in overcoming and preventing discrimination by focusing on specific acts or behaviours, the focus is seldom on the underlying causative factors including norm socialisation, power dynamics, unconscious biases or prejudice at play underlying the decisions concerned. In a sense, the training in the law enables employers to do the bare minimum to steer clear of falling foul under the legislation but does little to assuage the subtler forms of bias which aggregate at different junctures in various social contexts to disadvantage particular groups. Clearly, Hong Kong's progress towards the realisation of its equality guarantees has been meagre given the continued disparities and discrimination experienced on grounds of gender[72], family status[73], disability[74], and race[75].

Likewise, various treaty bodies have commented on the need for Hong Kong to address the systemic and entrenched forms of discrimination against marginalised groups in a variety of settings.[76] Many of the limitations stemming from the gaps in the legal framework itself have been outlined the EOC in its Discrimination Law Review exercised carried out between 2014-2016.[77] Despite the 73 recommendations made and 27 highlighted by the EOC for urgent action and implementation[78], the Hong Kong government has pledged to take up 8 of the 27 recommendations for implementation[79] and to carry out the remainder in phases.[80] Moreover, the relative paucity in terms of rates of complaint compared with experiences of discrimination, the number of successful resolutions under the EOC's reconciliation procedure and the outcomes of litigated cases highlight the uphill challenge ranging from the internalisation of various forms

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[71] Equal Opportunities Commission (2017) 'Training modules', available at: http://www.eoc.org.hk/eoc/graphicsfolder/training.aspx.

[72] Mercado Solutions Associates, (2016) *Study on Pregnancy Discrimination and Negative Perceptions Faced by Pregnant Women and Working Mothers in Small and Medium Enterprises* and (2014) *Study on Discrimination in the Hong Kong Workplace*.

[73] Centre for Chinese Family Studies, (2018) *A Study on Family Status Discrimination in the Workplace in Hong Kong*.

[74] Policy 21, (2011) *Baseline Survey on Public Attitudes towards Persons with a Disability 2010*.

[75] See Centre for Civil Society and Governance, (2012) *Study on Racial Encounters and Discrimination Experienced by South Asians*. See also Kapai, P., (2015) *The Status of Ethnic Minorities in Hong Kong 1997-2014*, Centre for Comparative and Public Law and The Zubin Foundation.

[76] Human Rights Committee, (2013) 'Concluding observations on the third periodic report of Hong Kong, China' UN Doc CCPR/C/CHN-HKG/CO/3, paras 22, 23; Committee on Economic, Social and Cultural Rights, (2014) 'Concluding observations on the second periodic report of China, including Hong Kong, China, and Macao, China' UN Doc E/C.12/CHN/CO/2, para 41; Committee on the Elimination of Discrimination against Women, (2014) 'Concluding observations on the combined seventh and eighth periodic reports of China' UN Doc CEDAW/C/CHN/CO/7-8, paras 64, 68; Committee on the Elimination of Racial Discrimination, (2018) 'Concluding observations on the combined fourteenth to seventeenth periodic reports of China' UN Doc CERD/CHN/CO/14-17, paras 7-54.

[77] Equal Opportunities Commission, (2016) *Discrimination Law Review: Submissions to the Government*.

[78] *Ibid*, ch.3.

[79] info.gov.hk, (31 August 2018) 'Government gives an initial response to concluding observations of UN Committee on the Elimination of Racial Discrimination on Hong Kong's Report', available at: https://www.info.gov.hk/gia/general/201808/31/P2018083100325.htm.

[80] Initially, the government had declared it would tackle 9 of the proposed recommendations but this was later watered down to 8. Although the government has said that it plans to address the others in due course, it has not proffered any timeframe for doing so, despite repeatedly being pressed to indicate a timeline to reflect its commitment to taking prompt action on the recommendations for reform. See *ibid*.

of prejudice, its impact on the lives of members of protected classes, the limitations of the public's understanding of and the relatively poor status of implementation of the relevant anti-discrimination laws.[81] Certainly, the law has an important role to play here. However, as in most instances, the law features as a latecomer to the scene of wrongdoing where the damage has mostly been done and the process of securing a desirable outcome is grueling and wrought with challenges, evidentiary, emotional and practical.[82] In many instances, it has also become increasingly difficult to prove discrimination because its expression in its most overt forms has been subsiding in different societies, making its detection particularly challenging. In such circumstances, these gaps clearly reflect the need for enhancing our understanding as to the sources of prejudice, its formation, discriminatory conduct in its various forms (explicit and implicit) and their impact as well as determining approaches that are effective for prevention, eradication and redress.

Moreover, the law is typically used to target individual instances of wrongful conduct although there are provisions that enable systemic discrimination that has been institutionalised to be addressed through the law. However, mounting systemic discrimination claims tend to require additional resources and a body of evidence, particularly in terms of numbers or witnesses, policies, decisions and actions and a nexus between all of these and the disadvantage resultant on a particular group. In view of the legal expertise, support and resources required for such actions, these tend to be mounted only rarely. Hong Kong, for example, has only had one such claim of systemic discrimination brought by the EOC challenging the Director of Education's decision to weight the scores of male students in Primary 6 so that they could compete effectively against female students of the same year. The weighting was instituted as a form of temporary special measures (permitted to rectify historical discrimination against a marginalised group under the Sex Discrimination Ordinance[83]) in view of the lower grades obtained by male students relative to females. This was negatively impacting the placement of males at the best secondary schools.[84] The court ruled that this was an inappropriate use of temporary special measures as males were not a class that had been historically

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[81] See Equal Opportunities Commission, (2019) 'Statistics on Enquiries, Complaints and Legal Assistance for the Period of 1 January 2018 to 31 December 2018' <http://www.eoc.org.hk/EOC/GraphicsFolder/InforCenter/Papers/StatisticContent.aspx?ItemID=15994> for the latest figures on the implementation of the four anti-discrimination ordinances. The tables reflect particular disparities in relation to complaints on ground of race. The total number of complaints made under the Race Discrimination Ordinance in 2018 was the second lowest of all anti-discrimination ordinances and the number of applications for legal assistance made under the Race Discrimination Ordinance since 1996 is the lowest of all anti-discrimination ordinances. One reason for this is that the RDO came into effect only in 2009, nearly fifteen years after the other three anti-discrimination ordinances. Other reasons, however, are the defects of the Race Discrimination Ordinance itself in terms of its inherent limitations but also, the lack of awareness among ethnic minorities pertaining to their rights or more likely, the significant barriers to access to justice they face even where they do wish to take action. They may also be an indicator of fears of retaliation or a lack of confidence in the process. A number of these critiques have been outlined in detail in the latest Joint Shadow Report submitted to the United Nations Committee on the Convention for the Elimination of Racial Discrimination by Hong Kong's NGO. *See* Centre for Comparative and Public Law, Hong Kong Human Rights Monitor and Hong Kong Unison <https://www.law.hku.hk/ccpl/newspost/ccpl-helped-coordinate-a-joint-submission-of-52-ngos-in-hong-kong-to-the-un-human-rights-council-as-part-of-the-councils-third-cycle-of-its-universal-periodic-review-upr/>.

[82]82See, for example, Andrews, H., (2016) *The Limits of Australian Anti-discrimination Law*, The Centre for Independent Studies Research Report 17, available at: https://www.cis.org.au/app/uploads/2016/08/rr17.pdf.

[83] Sex Discrimination Ordinance (Cap.480), s.48.

[84] *Equal Opportunities Commission v. Director of Education* [2001] 2 HKLRD 690.

marginalised and therefore, this added weighting of the scores gave male students an advantage over other female students who had outperformed them and was a form of sex discrimination, in violation of the SDO.

Given the paucity of such claims targeting systemic discrimination and the individual actions which are the target of complaints in general, long-term societal change requires complementary approaches to bolster the effectiveness of the anti-discrimination regulatory framework. It is only through a multidisciplinary approach drawing on a combination of laws, policies and best practice across diverse sectors, that higher standards for the achievement of substantive equality and justice for regularly marginalised communities in society will be possible. For example, affirmative action [85] or training [86] and consultation facilitate significant improvements in awareness of unconscious bias if well-designed and executed.[87]

Moreover, given recent research shedding light on the brain's faculties and its processes, ranging from the sorting and organising of information to decision-making and responding to social cues, as well as the factors which are influential in determining how effectively and accurately these functions are performed, it is clear that counteracting strategies to prime or (re-)orient the brain are necessary and indispensable to creating conditions within which equality and non-discrimination guarantees can be substantively realised in any meaningful sense.[88] Studies have shown that unconscious bias is malleable and can be mitigated with appropriate education, training and tools.[89] It is possible to unlearn and reduce implicit associations as well as minimise discrimination if biases are brought to people's attention by drawing on specific evidence that negates [90] or challenges prevalent stereotypes (stereotype-incongruent information) [91] ; presents counterstereotypic information[92]; or counterstereotypical imagery.[93] Research demonstrates that through these means, coupled with the use of reflective learning activities and debriefing strategies in a structured

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[85] Kang, J. and Banaji, M., (2006) 'Fair measures: A behavioural realist revision of affirmative action' *California Law review*, vol.94, 1063-1118.

[86] Celik, H., Klinge, I., Weijden, T., Widdershoven, G. and Lagro-Janssen, T., (2008) 'Gender sensitivity among general practitioners: results of a training programme' *BMC medical education,* vol.8, 36-42.

[87] Jackson, S., Hillard, A. and Schneider, T., (2014) 'Using Implicit Bias Training to Improve Attitudes toward Women in STEM' *Social Psychology of Education: An International Journal,* vol.17, 419-438.

[88] For example, in one study where participants were shown the photo of Martin Luther King before completing the IAT, their bias scores against blacks were significantly reduced. This suggests that priming can be an important function in preparing mindsets to make decisions which may unconsciously be (negatively) impacted by markers of identity. *See* Dasgupta, N. and Greenwald, A. G., (2001) 'On the malleability of automatic attitudes: Combating automatic prejudice with images of admired and disliked individuals' *Journal of Personality and Social Psychology*, vol.81, 800–814.

[89] Dweck, C.S., (2009) 'Prejudice: How It Develops and How It Can Be Undone' *Human Development*, vol.52, 371-376.

[90] Kawakami, K., et al., (2000) 'Just say no (to stereotyping): Effects of training in the negation of stereotypic associations on stereotype activation' *Journal of Personality and Social Psychology*, vol.78(5), 871-888.

[91] Wittenbrink, B., Judd, C.M. and Park, B., (2001) 'Spontaneous Prejudice in Context: Variability in Automatically Activated Attitudes' *Journal of Personality and Social Psychology*, vol.81(5), 815-827.

[92] Dasgupta, N. and Greenwald, A.G., (2001) 'On the malleability of automatic attitudes: Combating automatic prejudice with images of admired and disliked individuals' *Journal of Personality and Social Psychology*, vol.81(5), 800-814; Barden, J., Maddux, W.W., Petty, R.E., and Brewer, M.B., (2004) 'Contextual Moderation of Racial Bias: The Impact of Social Roles on Controlled and Automatically Activated Attitudes' *Journal of Personality and Social Psychology*, vol.87(1), 5-22; Dasgupta, N. and Asgari, S., (2004) 'Seeing is Believing: Exposure to Counterstereotypic Women Leaders and its Effect on the Malleability of Automatic Gender Stereotyping' *Journal of Experimental Social Psychology*, vol.40(5), 642-658.

[93] Blair, I.V., Ma, J.E., and Lenton, A.P., (2001) 'Imagining stereotypes away: The moderation of implicit stereotypes through mental imagery' *Journal of Personality and Social Psychology*, vol.81(5), 828-841.

and safe setting, implicit associations can be reduced as can intergroup boundaries which categorise social groups into 'us' and 'them'.[94] Indeed, an entire field of work has emerged to examine whether and how such biases can be addressed, unlearned and eliminated. More importantly, emergent studies seek to test the limits and successes of such programs. Despite recent literature contradicting some of these 'success' claims[95] that threatens to cast doubts as to the long-term viability of some these models[96] heralded as best practice, empirical research demonstrates that these critiques are more properly to be seen as directed at the ineffectiveness of the interventions concerned as opposed to a broader verdict as to the effectiveness of *any* interventions in mitigating unconscious bias.[97]

THE SIGNIFICANCE OF CULTURAL CONTEXT IN DOING EQUALITY CONSCIOUSLY

Through the accumulation of data over Project Implicit's www.implicit.harvard.edu and the Southern Law Poverty Centre's platforms, the generation of large datasets drawing on responses from demographically varied respondent groups globally has established patterns of associations across demographic groups.[98] For example, the accumulated data reveals that there is a robust association between social groups and positive implicit attitudes or stereotypes towards groups that are culturally valued (read dominant) for example, Whites over Blacks, Other (non-Arab) Muslims over Arab Muslims, straight over gay, able over disabled, and young over old.[99] Another significant pattern which emerged from the data is that associations vary widely between implicit and explicit measures in the case of attitudes towards social groups, depicting greater negative implicit associations than explicit ones.[100] This confirms that measures where respondents are explicitly asked to report on their attitudes will be less effective and yield weaker levels of bias relative to

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[94] Hall, Crisp and Suen, (2009) Reducing Implicit Prejudice by Blurring Intergroup Boundaries, *Basic and Applied Social Psychology*, 31:244–254. However, this needs to be done with care given the potential resistance invoked in blurring identity boundaries. *See* Dovidio, J. F., Gaertner, S. L., & Validzic, A. (1998). Intergroup bias: Status, differentiation and a common in-group identity. *Journal of Personality and Social Psychology,* 75, 109–120 and Hornsey, M. J., & Hogg, M. A. (2000). Subgroup relations: A comparison of mutual intergroup differentiation and common ingroup identity models of prejudice reduction. *Personality and Social Psychology Bulletin*, 26, 242–256.

[95] See, for example, Noon, M., 'Pointless Diversity Training: Unconscious Bias, New Racism and Agency' *Work, Employment and Society*, vol.32, 198-209 and Dobbin, F. and Kalev, A., (2016) 'Why Diversity Programs Fail' *Harvard Business Review*, available at: https://hbr.org/2016/07/why-diversity-programs-fail?referral=03759&cm_vc=rr_item_page.bottom.

[96] Atewologun, D., et al., (2018) 'Unconscious bias training: An assessment of the evidence for effectiveness', *Equality and Human Rights Commission Research Report 113.*

[97] *Ibid.*

[98] Lane, K.A., et al., (2007) 'Understanding and Using the Implicit Association Test: IV What We Know (So Far) about the Method' in Wittenbrink, B. and Schwarz, N., *Implicit Measures of Attitudes*, ch.3, at 66-68.

[99] *Ibid.* The same data has been replicated in laboratory-based studies examining the same set of constructs.

[100] *Ibid.*

implicit measures.[101] Greenwald et al.[102] and Rudman et al.[103] both confirm the tendency towards cognitive consistency, whereby attitudes, stereotypes, self-concept and self-esteem are closely interrelated and carry predictive value. These findings affirm what we understand from implicit framework theory and social identity theory, namely, that the tendency to evaluate a perceived in-group as positive is higher and positively correlated with one's own levels of self-esteem and self-concept.[104] The nomological validity of the test is of predictive value in terms of relating theoretically predictable variables.[105] For example, Nozek et al found that where female respondents have a strong explicit self-identification with their gender group and a strong implicit association between females and liberal arts, they were likelier to display an implicit preference towards liberal arts.[106] This was equally true for the racial social grouping and in-group identification and positive implicit association.[107] Thus, groups evaluating groups that they perceive themselves as belonging to are more likely to return favourable associational metrics relative to those who they perceive as 'out-groups'. However, this does depend on respondents having a high sense of self-esteem or self-concept in terms of their identification with their in-group. If they do not, then the pattern does not bear out.

Although the IAT as a test has been used to measure implicit associations towards a wide range of constructs using the paired constructs methodology which have yielded significant findings for attitudes towards and the impact of variables such as race, age, gender, and other social group status in educational, health, courtroom, and workplace contexts, among many others, the settings in which these variables have been tested are largely outside of Asia. That is not, however, to say that this in and of itself, casts doubts as to the validity of the outcomes or the patterns demonstrated by these studies. However, there remain questions of significant importance around the prevalence and manifestation of patterns of unconscious bias in Asia given its distinct cultural, legal, political and social contexts. More critically, there is also the need to determine the effectiveness of responses or interventions designed to mitigate such implicit biases. Most of the research pertaining to the role and impact of interventions to address unconscious bias have also largely been conducted in countries outside of Asia, which are predominantly characterised as 'Western'.[108]

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[101] *Ibid.*

[102] Greenwald, A. G., et al., (2002) 'A unified theory of implicit attitudes, stereotypes, self- esteem, and self-concept' *Psychological Review*, vol.109, 3–25.

[103] Rudman, L. A., Greenwald, A. G., & McGhee, D. E. (2001). Implicit self-concept and evaluative implicit gender stereotypes: Self and ingroup share desirable traits. *Personality and Social Psychology Bulletin, 27*, 1164–1178.

[104] Lane et al., above*.,* at 70. This has also been described as nomological validity.

[105] Nosek, B. A., Banaji, M. R., & Greenwald, A. G. (2002). Math = male, me = female, therefore math is not equal to me. *Journal of Personality and Social Psychology, 83*, 44–59.

[106] *Ibid.*

[107] Lane et al., *supra.,* note 37, at 72. *See also*, Cunningham, W. A., Nezlek, J., & Banaji, M. R. (2004). Implicit and explicit ethnocentrism: Revisiting the ideologies of prejudice. *Personality and Social Psychology Bulletin, 30*, 1332–1346.

[108] Countries characterised as 'the West' typically include jurisdictions which have strong liberal constitutional democratic traditions, many of which have been colonising nations historically and tend to be left-leaning. On the other hand, the 'West' is juxtaposed to countries of 'the East' which include states in Asia, Africa and the broader Pacific region, barring Australia and New Zealand which are seen as part of the 'West'. These characterisations have been widely debated and criticised for their inaccuracy, the broad generalisations they represent and the fallacy of the

There are virtually no studies examining the manifestation and impact of unconscious bias in Asia. To date, there has been only one recent comparative study investigating implicit racial biases among preschoolers aged 3 to 5 years in China and Cameroon.[109] The research, which set out to explore the manifestation of implicit bias within the nearly 500 strong comparative sample of young children, found that high levels of bias were pervasive among both groups and social status of the racial groups did not impact the level of implicit bias of the children towards their out-groups (unlike equivalent findings among adults whose implicit biases are affected by social group status).[110] Moreover, the study found that children display higher levels of explicit bias unlike their adult counterparts whose lower levels of explicit bias tend to be the result of social desirability bias.[111] Significantly, this study demonstrates the early emergence and entrenchment of unconscious bias and the need for more effective education strategies to counter such biases from taking root.[112] This study is very specific in terms of its group of respondents and leaves wide open many fields and respondent groups in Asia, among whom the manifestations of unconscious bias are little, if at all, understood.

There is one study which examined the differences between the responses of Anglo and Asian participants in Australia.[113] The research team administered the IAT twice with an interceding intervention to test the effect, if any, on respondents' IAT scores when exposed to positive out-group exemplars. The intervention appeared to reduce implicit bias scores among the Asian but not Anglo respondents.[114] This suggests that such a brief exposure to positive out-group examplars is insufficient in reducing implicit bias among all groups and that interventions may need to rely on more concrete measures that can reduce prejudice. Moreover, the findings further bear out the importance of recognising the need for 'long-term effortful

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presumed homogeneity of cultures, politics or social circumstances underlying such labels. However, for the purposes of discussion here, the terms are deployed as a point of geographical referencing to make a general point about the importance of origination, understanding and context.

[109] Qian, M.K., et al., (2016) 'Implicit Racial Biases in Preschool Children and Adults from Asia and Africa' *Child Development*, vol.87(1), 285-296.

[110] One of the methodological limitations of this study could be whether preschoolers were able to follow the instructions regarding the computer-based congruity and incongruity tests they were administered. However, the researchers were of the view that the computer-based IAT used by Dasgupta and Greenwald was well suited for such a young group given that the children were required to learn only one set of associations at a time. They were to correlate one of two responses (touch the smiley face or frowning face) when they see a face of a particular colour on screen (Chinese or Black) for the congruent and incongruent pairings separately. The touchscreen responses to the visual cues meant that the task was a simple one of associations. The rest could be calculated based on response times and errors for congruent and incongruent pairings. However, there remains the question of whether the lengthier response time or propensity for errors associated with the incongruent pairings could be interpreted as indicative of implicit bias or the challenging nature of the task for a group this young. Reading the response times associated with performing incongruent associations as indicators of biases would necessarily be problematic if there was a chance that some of the children did not know what they were supposed to do. Given the age of the children involved, there may be doubts raised around the validity of these findings based on whether they were in fact biased or more reflective of the state of the children's understanding of instructions and their ability to comply with them.

[111] This refers to respondents' tendency to tailor their responses to questions in a manner that they believe would be viewed as more acceptable by others around them.

[112] *Ibid* 293.

[113] McGrane, J. and White, F., (2007) 'Differences in Anglo and Asian Australians' explicit and implicit prejudice and the attenuation of their implicit in-group bias' *Asian Journal of Social Psychology*, vol.10(3), 204-210.

[114] *Ibid* 208.

processes' in reducing implicit biases.[115] However, while helpful in denoting the distinctness of the impact of this intervention on different groups, this study was situated in a context largely foreign to Asia and thus, examined responses of individuals, of Asian or Anglo background, accustomed to life in Australia (the study targeted students of introductory psychology at the University of Sydney who had been living in Australia since the age of 5 or earlier).

Thus, there remains a critical gap in terms of the availability of a comparable understanding of these issues as they manifest in the context of Asia. To this end, it is important to bear in mind the importance of context specific research and testing of interventions in an embedded context to realise their potential for driving change. Various researchers have emphasised the value of context in properly understanding research findings and determining their applicability to diverse settings. Phillips et al notes that, contextual factors are rarely recorded, analysed, or included in research reports.[116] For this reason, attempts to replicate or translate research into practice often fails due to a knowledge gap around the contextual factors that are instrumental for in-depth interpretation, understanding and the synthesis of findings across studies.[117] Shenton examined the core strategies to safeguard trustworthiness within qualitative research and reaffirmed the need for adequate elaboration of context underlying fieldwork in order for readers to consider the replicability of the study, the transferrability of the results to a particular context and whether the findings and recommendations which emerge from them can justifiably be applied to alternative settings.[118] As Van Maanen aptly articulates, work examining how the effects of intervention may be mediated by context is indispensable in research on methodologies of community intervention trials.[119] In designating the field a new frontier, Van Maanen writes, "When making sense of field data, the researcher cannot simply accumulate information without regard to what each bit of information represents in terms of its possible contextual meanings."[120] Context is a core feature of qualitative research which has a significant bearing on the process and outcomes. Studies reveal the diversity of outcomes which can result from locating and understanding findings in their distinct context[121] and ensure the viability of any interventions as a result.

In unconscious bias research, context is particularly important. Research on the variability of IAT scores and the effectiveness of interventions to reduce implicit bias demonstrates the role and relevance of context among various other factors such as demographic data and social group to name just two. Understanding the context is vital to render findings practically transferrable to real life settings and to influence on the

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[115] *Ibid* 205.

[116] Phillips, K.A., et al., (1998) 'Understanding the context of healthcare utilization: assessing environmental and provider-related variables in the behavioral model of utilization' *Health Services Research*, vol.33, 571-596

[117] McCormack at al., Getting evidence into practice: the meaning of 'context', *Journal of Advanced Nursing*, 38(1), 94–104 (2002), who found that the uptake of evidence-based change and its implementation are significantly impacted by key factors in health care practice.

[118] Shenton, A.K., (2004) 'Strategies for Ensuring Trustworthiness in Qualitative Research Projects' *Education for Information*, vol.22(2), 63-75.

[119] Van Maanen, J., (1979) 'The Fact of Fiction in Organizational Ethnography' *Administrative Science Quarterly*, vol.24(4), 539-550.

[120] *Ibid* 548.

[121] Bryman, A., (1996) 'Leadership in Organizations' in Clegg, S.R., Hardy, C., and Nord, W.R. (eds.), *Managing Organizations: Current Issues*, ch.2.

ground changes. In particular, because IAT research studies examine the activation of responses in terms of response time and congruence of particular pairings in assessing implicit associations, they are concerned with participant responses to particular stimuli, which in turn depends on how participants construe that set of stimuli in a given context. More crucially, recognising that the pairings used in IAT studies are necessarily designed to factor in a degree of predictive congruence or incongruence among different participant groups, the participants' actual construal of an object or target in any given context will impact the activation of the automated response.[122] This is what is evaluated then for the purposes of constituting an IAT score. Apart from contextualising the stimuli, the context within which the attitude is evaluated (school, university, workplace, laboratory) likewise has a bearing on the attitudinal assessment.[123] All of these are relevant to understanding the research findings - the influence of categories deployed for the pairings, the way in which groups of words or images have been ordered, what other categories and pairings are included in the block IAT tests, how the tests are ordered relative to one another. Additionally, the situational context of the test is influential, too. For example, where the test is being administered, the room setting, the group diversity and dynamics, the identity and familiarity of the administrator of the tests, are some relevant factors which impact receptivity towards particular stimuli on the tests or any interventions.

Given the significance of context, this project engages in the first such study of its kind examining the manifestation of unconscious bias in an Asian context. Asia has a distinct historical trajectory in terms of its political, social and legal systems, which are vastly diverse. Moreover, large jurisdictions and correspondingly large population groups as well as migratory flows brought on by colonialism and globalisation, have meant that even within specific countries, there are often multi-ethnic, mutlicultural, multireligious and multilingual communities residing side by side. For many Asian countries, their colonial past has meant that 'Western norms' had long been imposed through the common law system or the introduction of the civil codes at the behest of the countries which colonised them.[124] Asian countries have long incorporated and adapted these norms to operate in their distinct local contexts. Their legal systems are further characterised by a hybridity that brings together these 'foreign' legal cultures, the laws of custom and religion into a complex, yet functional whole.[125]

Against the backdrop of this richness of cultures and traditions, and perhaps in one sense in response to the Western power blocs, Asian states began to converse as a regionally significant unit or bloc, discussing their

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[122] *See Fazio 1986, Smith et al. 1996, Fazio & Dunton 1997*

[123] See Fazio, R.H. and Williams, C.J., (1986) 'Attitude accessibility as a moderator of the attitude-perception and behavior relations: An investigation of the 1984 presidential election' *Journal of Personality and Social Psychology*, vol.51(3), 505-514, Smith, E.R., et al., (1996) 'Accessible attitudes influence categorization of multiply categorizable objects' *Journal of Personality and Social Psychology*, vol.71(5), 888-898, and Fazio, R.H. and Dunton, B.C., (1997) 'Categorization by race: The impact of automatic and controlled components of racial prejudice' *Journal of Experimental Social Psychology*, vol.33(5), 451-470.

[124] The Hong Kong legal system is one example of this.

[125] See Merry, S.E., (1988) 'Legal Pluralism' *Law & Society Review*, vol.22(5), 869-896 for an overview of examples of legal pluralism in Asia and elsewhere.

aspirations and coming together, for example, under the Association for South East Asian Nations (ASEAN). In the early 1990s, political leaders in Asia rallied around Singapore's former Prime Minister, Lee Kwan Yew and then Prime Minister of Malaysia, Mahathir Mohammad to endorse their articulation of the notion of Asian Values. [126] Essentially, there was a call for the recognition of a distinct set of values which were common to Asia by virtue of their distinctive political ideologies, history and cultures relative to what was seen as the 'West' and its ideologies. In particular, Asian values were packaged as the region's response to what was seen as the widespread exportation of the liberal democratic model of governance. The central argument was that Asian Values, which were predicated on common cultural ideals which emphasised the collective rather than the individual, the public good rather than the pursuit of private interest and filial piety within the family and in terms of loyalty to the state, prioritised responsibilities over rights. As such, the rights-oriented framework which put the individual at the centre made these values ideologically incompatible given its liberal democratic orientation which suited Western political contexts better because it fit well with their value framework, which placed emphasis on individual rights. [127] There was a concern, however, that this represented political backsliding by Asian leaders in terms of ensuring human rights protections for their peoples and those residing within their territories. International human rights norms had gained universal acceptance and as such, were enshrined in international treaties. Numerous nations had signed and ratified these instruments. [128] For critics, Asian Values rhetoric was seen as threatening as it offered a rationale to dilute these commitments and allow Asian leaders in power to maintain an authoritarian stronghold in the name of cultural preservation. [129]

The governments in Asia adopted the 1993 Bangkok Declaration on Human Rights to signify their stance on the notion of human rights as embedded within their distinct Asian contexts, which was debated further at the Vienna World Conference on Human Rights later that year. [130] As Western states emphasised the universality of human rights and rejected the notion that they could be contingent and thereby, relative depending on cultural context, some interpreted the West's response as shaped by the threat of the rising Asian economic tigers. Afterall, the success of the emergent Asian economies in the 1990s was heralded by

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[126] These views culminated in the Bangkok Declaration, adopted by Asian states in the lead-up to the World Conference on Human Rights in 1993.

[127] See, for example, Singapore's statement on Shared Values, published by the Singaporean government in 1991 which expresses the epitome of these views: 'A major difference between Asian and Western values is the balance each strikes between the individual and the community...On the whole, Asian societies emphasise the interests of the community, while Western societies stress the rights of the individual.

[128] It remains a matter of dispute whether these ideals were indeed 'universally accepted' given that at the time when the treaties were being drafted, many nations remained colonies. *See*, Donnelly, J., (1984) 'Cultural Relativism and Universal Human Rights,' *Human Rights Quarterly*, vol. 6(4), 400-419; Donnelly, J., (2013) Universal Human Rights in Theory and Practice. 3rd Edition, Cornell University Press; and Goodhart, M., (2003) 'Origins and Universality in the Human Rights Debates: Cultural Essentialism and the Challenge of Globalization,' *Human Rights Quarterly*, vol. 25(4), 935-964.

[129] See, for example, Ghai, Y., (1993) 'Asian Perspectives on Human Rights' *Hong Kong Law Journal*, vol.23, 342, Chan, J., (1997) 'Hong Kong, Singapore, and "Asian Values": An Alternative View' *Journal of Democracy*, vol.8, 35-48, and Kausikan, B., (1997) 'Hong Kong, Singapore, and Asian Values: Governance That Works' *Journal of Democracy*, vol.8, 24-34 for an overview of arguments for and against the Asian Value rhetoric.

[130] Bangkok Declaration (1993), available at: https://www.ru.nl/publish/pages/688605/bangkok-eng.pdf.

Asian leaders as indicative of the distinctness of the 'Asian Way' and proof that the Asian Values framework was vital to and undergirded the success of the rising Asian economies. However, once the Asian financial crises of the late 1990s took hold, the Asian Values debate receded into the background.[131] Indeed, if the current geopolitical climate is any indicator, 'values' are now conveniently invoked whenever there is a desire to keep the 'West' from interfering in Asia, a narrative that is regularly deployed by some nations when it suits them.[132]

Despite this, however, the reality is that different countries around the world (including the West) and in Asia continue to grapple with the implementation of their human rights commitments in a political environment which sees racial, religious and gender-based discrimination continue unabated. To a large extent, these contestations over the 'universality' of values and the need for flexibility to implement them in light of economic, social and cultural development needs of nation states have only impeded progress in this realm. Given the continued oppression of marginalised communities, it is a vital and long overdue endeavor to consider *how Asia responds* to unconscious bias. Set against the (ongoing) legacies of racial, caste and religious politics in Asia, how do the commitments to the norms of equality and non-discrimination and equal respect for human dignity translate into real terms here? What does it take and what does it mean to do equality consciously in the Asian context?

Hong Kong is an Asian city of great research significance with a unique political and cultural background. On the one hand, Confucian and Chinese cultural norms and values are deeply ingrained; on the other hand, during the British colonial period, Hong Kong's system and the mindset of its population were deeply influenced by western culture. This is borne out when we examine the nature of public discourse in Hong Kong, which can be ferociously progressive in some respects (90% of the public polled believe discrimination on the basis of sexual orientation should be legislated against), yet atrociously backward in others (for example, the influence wielded by parents over their children not only in terms of filial expectations of compliance but as a matter of right, with some groups asserting 'parental rights' over their children. Such rights are often juxtaposed and in resistance to the notion of children's rights). Seen as the West's gateway into China, heralded as Asia's World City and lauded as Asia's Financial Centre, Hong Kong is a city which sits at a literal intersection with a highly mobile population and a crossroads of cultures, ideas and values. For a city with a very small landmass and known for its population density, Hong Kong is seen as the melting pot of the East. Its prime status as the freest economy in the world where businesses thrive is celebrated globally. Myriad multinational companies including banks, accountancy and law firms and internet giants operate in the city. As such, Hong Kong has, for much of its recent history, seen a large inflow of expatriates who find in this city a temporary home and workplace.

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[131] Gred, L., (2003) 'Asian values revisited' *Asia Europe Journal*, vol.1, 25-42.
[132] I am grateful to Dr. Stacilee Ford for inspiring this point.

Social identity theory suggests that different people living in the same social environment are more likely to be biased against each other compared to the more homogenous environments. Apart from limited studies on Hong Kong identity conducted in the last two decades (since the 1997 resumption of PRC sovreignty of Hong Kong)[133] and some preliminary findings on the propensity of young adolescents in an intergroup context to exhibit inclusive behaviour (exhibiting preferences for ingroup members over outgroup member and engaging in decision-making that puts outgroup members at a relative disadvantage), little is known about how implicit bias manifests in Hong Kong in various sectors.[134] Recent studies are, however, starting to illuminate some of the connections between bias and already marginalised groups and communities.[135] The research thus far has focused mainly on explicit biases on grounds of race, gender, and religion, often manifesting in the form of discrimination.

Hong Kong's population composition as of 2016 is still fairly homogenous with Chinese constituting the largest group (92%) and 8% who were minorities of various backgrounds. The largest of the minority groups were Filipinos (2.5%), Indonesians (2.1%), and South Asians (1.0%). Caucasians comprised 0.8% of the population. Moreover, Chinese populations included Hong Kong natives (60.7%), overseas Chinese and mainland Chinese/Macanese/Taiwanese (31%). [136] Due to the high degree of education and internationalisation of Hong Kong, the society's awareness of equality and non-discrimination norms are well developed. Generally, overt prejudice is mitigated by social desirability bias; therefore, we see less of it in the form of explicit bias. As a result, implicit bias has become a more representative window through which researchers can view the realities underlying individual attitudes towards different social groups.

In light of the aforementioned, Hong Kong can serve as a microcosmic lens through which we attempt to understand the interplay between culture and human rights generally but more specifically, *how* the idea of equality without distinction on any of the legally protected grounds (under international human rights law) can be achieved in an Asian cosmopolitan context which has a long tradition of integrating different norms. With its political, legal and cultural history and its evolving value frameworks as a result of its nexus between East and West, Hong Kong presents as an ideal place for the study of unconscious bias.

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[133] Lam, S., Chiu, C., Lau, I. Y., Chan, W. and Yim, P. (2006) 'Managing intergroup attitudes among Hong Kong adolescents: Effects of social category inclusiveness and time pressure', *Asian Journal of Social Psychology*, vol.9(1), 1-11 and Lau, I.., Lam, S., Chiu, C., and Hong, Y. (2004) 'Social identity of Hong Kong adolescents: Intergroup perception and orientation in political transition', *Hong Kong Journal of Social Science*, vol.26, 25-41.
[134] Lau, H. and Stotzer, R., (2011) 'Employment discrimination based on sexual orientation: A Hong Kong study', Employee Responsibilities and Rights Journal, vol.23(1), 17-35.
[135] See Kapai, P., (2015) *The Status of Ethnic Minorities in Hong Kong 1997-2014*, The Zubin Foundation and The Centre for Comparative and Public Law and Kapai, P., (2018) *#HongKonger: Ethnic Minority Youth Aspirations, Challenges and Identity*, The Zubin Foundation and The Centre for Comparative and Public Law. Numerous studies commissioned by the EOC illustrate the prevalence of discrimination in respect of the four groups protected under Hong Kong's anti-discrimination laws under the EOC's mandate affecting equal opportunities in employment, access to goods and services and impacting experiences the education sector. These are available at: http://www.eoc.org.hk/eoc/graphicsfolder/inforcenter/research/default.aspx.
[136] 2016 Population By-Census, (2007) 'Main Tables', available at: https://www.bycensus2016.gov.hk/en/bc-mt.html.

Hong Kong and regionally-based data can prove to be of particular significance given that international research and training materials have been grounded in contexts outside of Asia for the most part and are based entirely on the experiences of life informed by the political, social and legal cultures in the West and its attendant contexts (this is vastly diverse too as this work spans Europe, the United States of America and Australia). Although Hong Kong is a modern city and its legal system and social pulse represents a hybrid of East and West, it is critical to evaluate whether the research and training modules are relevant and effectively adaptable for transferability in the East Asian context. Therefore, this project aims to consolidate existing knowledge of unconscious bias whilst developing a more locally-grounded perspective to understand unconscious bias and how it might be addressed through intervention in Hong Kong and to identify and articulate the implications of this work for the broader Asian context. Geographical proximity, shared value frameworks (such as Confucianism) as well as similarities between cultural contexts might present unique insights as to whether the findings might resonate in these contexts and carry implications for their applicability elsewhere in the region, for example, in Singapore, Japan, South Korea and Mainland China. This work would also serve as a useful reference point for further examining unconscious bias in other parts of Asia that are rooted in diverse contextual and value frameworks which differently influence workplace, educational and government practices.

At this critical juncture, it is vital to have on hand research-based data that enables a thorough mapping of the triggers for automated prejudice as it manifests in Asia and to help us better understand the processes for cultivating equality across societies. With this foundational work in the Asian context, practitioners committed to pushing past diversity and inclusion as mere rhetoric can begin to thread together data from other contexts to better frame strategies for effective intervention here on out. Moreover, with an increasingly globalising context across educational, corporate, non-profit and social settings, these research findings may provide the necessary insights to achieve key changes at the institutional level because the data speaks to a context thus far unaddressed insofar as the prevalence of unconscious bias in Asian jurisdictions is concerned.

Drawing together what we now understand from social identity theory, implicit theory frameworks, unconscious bias research and intersectionality as theory and praxis[137], it is essential to reexamine the role of law and policy in effectuating regulatory mechanisms which eradicate discrimination and bias at the institutional, community and individual levels. However, these diverse disciplinary domains have seldom been meaningfully engaged in a cross- or inter- disciplinary dialogue to explore how social identity theory, implicit theory frameworks and intersectionality theory complement each other to enhance our understanding of bias and to address it more rigorously through the implementation of equality-related values and norms. An interdisciplinary and Asia-centered understanding can help develop approaches

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[137] Cho, S., Crenshaw, K., McCall, L., (2013) 'Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis' *Signs*, vol.38(4), 785-810.

towards education, law reform and accountability with greater prospects for success in striving closer to the constitutional guarantees of equality and non-discrimination in recognition of everyone's inherent dignity. This research helps situate conversations about bias, equality, and other human rights in Asia into their proper context while reframing the discourse on unconscious bias and discrimination globally by including insights from an Asian context.

The Women's Studies Research Centre and the Centre for Comparative and Public Law at the University of Hong Kong set out to conduct this exploratory study on unconscious bias in various contexts (schools, universities and the corporate sector in Hong Kong) with a view to understanding the implications of existing literature in this context, assess its relevance and the effectiveness of interventions on unconscious bias for Hong Kong. The vision is for this work to serve as the foundation for designing suitable research instruments for use with diverse sample groups in a variety of contexts to examine various forms of unconscious bias and to develop evidence-based interventions targeting such bias and to facilitate the implementation of bespoke training to achieve desired outcomes.

OBJECTIVES

This project aims to understand the prevalence and propensity of unconscious bias towards marginalised or minority groups in Hong Kong. More specifically, the project seeks to identify and measure the various manifestations of unconscious bias in relation to specific characteristics (gender and race) and domains (education and workplace). The project also sets out to test whether interventions have any impact on the reduction of unconscious bias.

To this end, the objectives of this research project are:

(1) To conduct a literature review of:
  a) existing research on unconscious bias[138] in terms of its prevalence, pervasiveness and domains of primary and secondary impact;
  b) tools to assess implicit bias; and
  c) the effectiveness of interventions in diverse contexts from across jurisdictions, focusing in particular, on Asia.
(2) To develop research instruments to test for implicit bias suitable for the context of Hong Kong in specific domains (schools, universities, corporate sector);
(3) To develop intervention material to target unconscious bias in the settings identified in (2);
(4) To collect data to determine:
  a) whether unconscious bias is pervasive in Hong Kong;
  b) the manifestations of unconscious bias in relation to the specific grounds tested (gender and race);
  c) the extent of the unconscious bias manifested in relation to gender and race;
  d) whether there are any distinguishing features of unconscious bias among respondents based on their gender and social groups or other related identity markers or experience;
  e) whether interventions reduce or eliminate unconscious bias; and if so, which unconscious biases and respondents are susceptible to successful reduction or elimination; and
(5) To understand the role of unconscious bias in the implementation of equality standards institutionally and more broadly in society and the implications of this;
(6) To draw conclusions from the research findings and formulate recommendations for further action.

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[138] As discussed in the Introduction, unconscious bias has been varyingly referred to as implicit bias. For the purposes of this study, both terms are used interchangeably.

EXPECTED OUTCOMES AND SOCIAL IMPACT

(1) This exploratory study will evaluate the relevance of existing international research in the field and the receptivity to it in the Asian context with a view to developing a contextualised framework for understanding how unconcscious bias operates in Hong Kong.
(2) The research findings will establish a preliminary baseline for understanding the state of unconscious bias in different domains towards specific target groups in Hong Kong.
(3) This study will test and evaluate the potential and impact of a specifically designed intervention program on reducing or eliminating unconscious bias in a limited context.
(4) The pilot research project can serve as a foundational building block for further research into ascertaining whether and how negative unconscious biases can be prevented from taking hold in the first place.
(5) The literature review and focus groups will lay the groundwork for a cross-disciplinary and cross-sector framework for understanding the data, and conducting future research with an broader scope.
(6) The project findings will yield a template for designing workshops and curricula with targeted cross-sector impact on NGOs, schools and higher education bodies, and corporate entities.
(7) This pioneering study will create tangible tools to deepen the development of gender and diversity awareness and equity enhancement in a complex and challenging glocal (global and local) climate.

This proposed exploratory study will be the first phase of a long-term endeavor to develop a better understanding of unconscious bias in Hong Kong, and in Asia more broadly. It aims to develop evidence-based curricula (EBC) and training (EBT) grounded firmly in research to augment bias reduction, prevention and elimination in a range of settings. In this pilot phase, the aim is to set the groundwork for evidence-based strategies for consciously promoting equality in the future. The data obtained will help give shape to a larger body of work which would contribute significantly to the development of an inclusive and diverse society with equal opportunities for all. This preliminary groundwork should also assist in securing additional funding for more extensive research in the field with a view to developing concrete strategies for research-based action in enhancing equity across institutions in our society.

METHODOLOGY

As the first study of its kind conducted in Hong Kong, with a view towards achieving the articulated objectives of obtaining research data that could serve as the foundation for future work in the field in Asia and beyond, it was essential to ground the methodology firmly in terms of international best practices in the field of unconscious bias research. As noted in the Introduction to this Report, implicit bias has been widely and extensively studied in various domains but the extant literature predominantly emanates from research conducted in the United States of America, Australia, Canada, or the United Kingdom[139] or covers corporations with a multinational presence. Moreover, numerous interventions have been developed to assess and isolate factors which impact implicit bias and to test the effects and implications of such interventions in different contexts. A variety of research instruments have been developed, critiqued and validated in furthering this work. The research findings from these studies have also been the subject of extensive analysis and meta-analyses. There is also emerging literature challenging whether unconscious bias training works,[140] including among corporations that have been doing diversity and inclusion training.[141] Correspondingly however, research has also been conducted to test various interventions to determine *what actually works*.[142] This research has served as the basis for the development of the intervention used for this purpose of this research study. It is worth noting, however, that cultural context has not been studied thus

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[139] Although there have been a very small number of studies from other jurisdictions including a study conducted in Italy looking at non-verbal cues of racial bias using machines (see, Palazzi, A., et al., (2016) 'Spotting Prejudice with Nonverbal Behaviours' *Proceedings of the 2016 ACM International Joint Conference on Pervasive Ubiquitous Computing*, available at: https://dl.acm.org/citation.cfm?id=2971703), a cross-cultural study done in Cameroon and China (see Qian, M.K., et al., (2016) 'Implicit Racial Biases in Preschool Children and Adults from Asia and Africa' *Child Development*, vol.87(1), 285-296) and a study on nonverbal communication in relation to cross-cultural encounters in cyberspace (see Hasler, B.S., et al., (2019) 'Real-time Translation of Nonverbal Communication in Cross-Cultural Online Encounters', available at: https://www.researchgate.net/publication/266068150_Real-time_Translation_of_Nonverbal_Communication_in_Cross-Cultural_Online_Encounters).

[140] See, for example, Epstein, S., (1994) 'Integration of the cognitive and the psychosynamic unconscious' *The American Psychologist*, vol.49(8), 709-724, Smith, E.R. and DeCoster, J., (2000) 'Dual-Process Models in Social and Cognitive Psychology: Conceptual Integration and Links to Underlying Memory Systems' *Personality and Social Psychology Review*, vol.4(2), 108-131. and Strack, F. and Deutsch, R., (2004) 'Reflective and impulsive determinants of social behavior' *Personality and Social Psychology Review*, vol.8(3), 220-247.

[141] See, for example, Noon, M., 'Pointless Diversity Training: Unconscious Bias, New Racism and Agency' *Work, Employment and Society*, vol.32, 198-209 and Dobbin, F. and Kalev, A., (2016) 'Why Diversity Programs Fail' *Harvard Business Review*, available at: https://hbr.org/2016/07/why-diversity-programs-fail?referral=03759&cm_vc=rr_item_page.bottom. However, there are other entities that have seen success with the specific strategies they have adopted, for example, Google, the Royal Bank of Canada, and Roche Diagnostics. For details of their interventions, see McCormack, H., (2015) *The Real Effects of Unconscious Bias in the Workplace*, Kenan-Flagler Business School Executive Development, University of North Carolina, available at: http://www.kenan-flagler.unc.edu/~/media/Files/documents/executive-development/unc-white-paper-the-real-effects-of-unconscious-bias-in-the-workplace-Final. See also, strategies adopted by Chubb and PricewaterhouseCoopers, available at: https://www.pwc.com/us/en/about-us/blind-spots.html.

[142] For example, Project Implicit has examined the shifts in patterns of implicit bias towards various groups and has reported that in the past ten years, the rates of implicit bias against racial groups have not changed. See Devine, P.G., et al, (2012) 'Long-term reduction in implicit race bias: A prejudice habit-breaking intervention' *Journal of Experimental Social Psychology*, vol.48(6), 1267-1278.

far as a factor in determining whether the instruments developed have cross-cultural applicability or effectiveness.[143]

While race matters in most countries, it does not matter in the same way and does not implicate or impact the same racial communities in the ways demonstrated by these studies. Also important to note is that the majority of the studies on unconscious bias present findings in relation to the United States of America, which has a very particular historical and socio-political context pertaining to race. This is to be read against the back-drop of the US Civil Rights Movement of the 20th century and the more recent politicization of race, in relation to recent US presidential campaigns, policing of race and the Black Lives Matter movement, and the ongoing anti-immigrant rhetoric and executive-led policies which dominates the political landscape in North America. Taken together, what a lot of the studies measure in terms of the implicit bias relative to people of White, African American, Latin/a/x, Asian and Pacific Islander backgrounds provides insights about a very unique situational context which is unparalleled in other jurisdictions. Racial discourse in the US has often been bifurcated and critics have regularly pointed out that the spectrum of race extends beyond Black and White.

The same applies to the interventions that have been developed and tested within these contexts. Their impact, while relevant and important, for now speak to the specific political and social climate set in the US and may be of limited applicability in other political and to go further than that, cultural contexts, where race and gender experience life on the margins but in different ways.

More significantly, the effect of interventions are attenuated by the surrounding sociopolitical context as well as the broader cultural context where there may be varying levels of access to stereotype-negating or stereotype-reinforcing exemplars. For example, in the US, despite the widespread prejudice against people of African American background, there are various high-profile examples of well-respected African American leaders, sports and celebrity personalities and innovators, all of whom serve as counter-exemplars for negative stereotypes. These examples are widely known and have a high profile in the US whereas in the Asian context and particularly, within the context of Hong Kong, such stereotype-negating counter-exemplars are a rarity. More significantly, even where such exemplars are available, they seldom gain visibility in regular media spaces.[144] If anything, recent research systematically documents the extensive negative

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[143] This is distinct to the research studies that have sought to examine the prevalence of implicit racial bias and how it responds to a racial trigger and what seems to impact its 'mitigation'. For example, studies have examined whether the presence of a person of African American or Caucasian background in the context of an activity enhances or reduces the likelihood of implicit racial bias against African Americans and whether such bias works the same way with respect to both categories of people. These studies have also tested for effects among respondents of various backgrounds, including Asian Americans, White Americans and African Americans, for example. The underlying contexts within which these studies have been conducted, however, remain distinctly non-Asian.

[144] Although some newspapers have worked with different NGOs to run a series, for example, the *Hong Kong Economic Journal*, on Hong Kong's ethnic minorities in 2015.

discourse in Hong Kong news media, which creates and perpetuates a narrative linking ethnic minorities[145], refugees[146] and their countries of heritage with criminality, lawlessness and backwardness. The regularity with which such linkages are made and the rising populist politics globally have led Hong Kong politicians and other prominent personalities to deploy these tropes with increasing frequency to fuel a sense of fear among members of the public,[147] especially close to election time. Their rhetoric is deliberately designed to invoke certain images that fuel anxieties about a sense of impending threat these groups represent. In light of the research demonstrating the significant impact of the media on stereotypes of out-groups, any intervention would necessarily need to be responsive to and keen to counteract the negative effect of misrepresentation. As such, it may take a different type of intervention to achieve a change in perceptions. Moreover, the intervention's longer-term effects and whether it creates lasting impact in relation to entrenched biases in an Asian setting are equally important questions warranting exploration in greater depth.

In order to ground the study in research frameworks and instruments that have been extensively used, tested and validated for their reliability in terms of test-retest functions (which are at the core of implicit bias research) and interventions that achieve bias reduction or eradication, a thorough literature review was conducted to parse the most current and relevant research findings in the field. Based on the literature review, the research instruments were designed and piloted, revised and then readied for use for the data collection phase, which adopted a quantitative approach. The data was interpreted using formulas developed in these earlier studies to calculate implicit bias based on the scores derived in relation to the research instruments used here (as adapted) for the purposes of data collection. Additionally, the findings were interpreted in light of research findings from other jurisdictions presented in the literature review (on which the hypotheses for the study have been based) and within the two frameworks for analysis identified below.

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[145] *See* Puja Kapai, When Universal Values Are Lost, Amnesty International Hong Kong, June 2017; Puja Kapai and Wilson Li, Discourse Analysis of Media Representations of Refugee and asylum seekers, June 2017; Puja Kapai and Hilary Ko, Discourse Analysis of LegCo Submissions for the CAT Hearings for Hong Kong's Third Report to the UN CAT Committee; and Hong Kong Unison, A cynical appeal to xenophobia: Hong Kong's 'fake refugee problem' is fake in itself, *Hong Kong Free Press*, 15 May 2016, available at: https://www.hongkongfp.com/2016/05/15/a-cynical-appeal-to-xenophobia-hong-kongs-fake-refugee-problem-is-fake-in-itself/.

[146] Joint Statement "Stop Discrimination: Community Calls for Calm on Refugee Debate", 11 April 2016, available at: http://www.justicecentre.org.hk/framework/uploads/2013/08/JOINT-STATEMENT-ENG.pdf, attracting over 90 organisational and 70 individual signatories including leading lawyers, scholars and NGOs, from Hong Kong and those based overseas.

[147] Leung, C. and Ngo, J., "Hong Kong could quit torture convention, says CY", South China Morning Post, 14 January 2016, available at: http://www.scmp.com/news/hong-kong/politics/article/1901085/hong-kong-could-quit-torture-convention-says-cy.

RESEARCH DESIGN

The first part of the project involved an extensive literature review of unconscious bias research carried out in various jurisdictions. This included looking at research from a wide range of fields, including but not limited to cognitive psychology, education and educational psychology, social psychology, law, gender studies and human resources. The literature examined included research on stereotype and social identity and in particular, its more recent iterations within various disciplinary frameworks. It also covered theoretical underpinnings of the notion of bias and research illuminating its operative realms and areas of predominant impact. The literature further included relevant law and policy in the Hong Kong context and research on the practical impact of these measures on addressing unconscious bias. In particular, literature examining the effectiveness of various approaches to addressing bias was also reviewed. While the findings from the literature review have been extensively presented in the Introduction section of this Report, they have also been integrated into the relevant sections elsewhere in the report, to provide insights on and to justify the development of the project's objectives, hypotheses and methodology.

Drawing on this extensive review and the insights gleaned from it, the next stage of the project involved selecting the appropriate research instruments for the purposes of testing the research hypotheses. Moreover, given the wide array of research instruments that have been developed internationally and validated, the instruments most suited to the design of this study given its specificity of objectives were selected and adapted for the context of Hong Kong to test the relevant variables. The literature was vast and made clear that each study provided unique but narrow insights pertaining to a very specific variable or domain or target in the field of unconscious bias. With the benefit of such a rich repository of literature to guide this study, the instruments and design for the front-line research component of the project sought to combine some of the key findings to deliver unique insights into the workings of unconscious bias here in Hong Kong.

The second part of the project assessed various stakeholders' levels of unconscious bias on Hong Kong school and university campuses and in selected Hong Kong workplaces as well as the impact of the interceding intervention on groups in terms of implicit bias. The stakeholders included management-level personnel, employees, university and secondary school students.[148] The respondents drawn from these two settings were asked to complete various tasks[149] and their responses formed the basis for the quantitative data generated as part of the study.[150]

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[148] For details regarding the selection of the research sample, please see the section on Research Sampling below.
[149] For additional details on the tasks, the instruments used and the order in which these were administered to the different groups, please see the section below on Research Instruments.
[150] For sampling and recruitment, see the section below on Research Sampling.

RESEARCH SAMPLING

Given the limited period of funding and resources, this pilot study targeted two groups of respondents: students and corporate staff. This sample was selected for two key reasons. The first is that there is growing research that demonstrates the early onset of unconscious bias. Notably, several studies have found such attitudes to be prevalent among children, including pre-schoolers as young as 3 years old[151] and primary[152] and secondary school[153] as well as university students.[154] Crucially, such biases negatively impact the learning environment of children and students from a formative age potentially compounding the risk that these biases become entrenched among perpetrators and more deeply internalised among its targets. This can have both short- and long-term consequences particularly given the impact of stereotypes and repeated exposure to microaggressions[155] and other acts of prejudice, which are detrimental to the development of a healthy sense of self and grounded self-confidence.[156]

Apart from these individual costs to the targets themselves, in terms of the environmental cost in an educational setting, the consequences are far more troubling. Young people rely on social cues to determine their friendship circles and academic partners for group work. This has a significant bearing on the day-to-day experiences of young people who experience bias. Learning takes place across the course of a lifetime. However, when educational contexts where some of the first friendships are formed, and where students require a safe and nurturing environment, are threatened with bias, these environments quickly turn toxic. Oftentimes, teachers, administrators and principals also exhibit similar prejudices towards particular student groups,[157] albeit generally unwittingly. The fact that at that an early age, students spend the better part of their waking hours at school or on school-related activities, this forms a major part of their world and worldview of others as well as themselves. Exposure to entrenched biases and high levels of toxicity that

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[151] Qian, M.K., et al., (2016) 'Implicit Racial Biases in Preschool Children and Adults from Asia and Africa' *Child Development*, vol.87(1), 285-296.
[152] Bécares, L. and Priest, N., (2015) 'Understanding the Influence of Race/Ethnicity, Gender, and Class on Inequalities in Academic and Non-Academic Outcomes among Eighth-Grade Students: Findings from an Intersectionality Approach' *PLOS One*.
[153] Codiroli Mcmaster, N., (2015) *Inequalities in students' choice of STEM subjects: An exploration of intersectional relationships,* CLS Working Paper 2015/16.
[154] Codiroli Mcmaster, N., (2017) 'Women are less likely to study STEM subjects. But disadvantaged women are even less so' *LSE Impact Blog*, available at: https://blogs.lse.ac.uk/impactofsocialsciences/2017/07/20/women-are-less-likely-to-study-stem-subjects-but-disadvantaged-women-are-even-less-so/.
[155] Craig, M.A. and Richeson, J.A., (2016) 'Stigma-Based Solidarity: Understanding the Psychological Foundations of Conflict and Coalition Among Members of Different Stigmatized Groups' *Current Directions in Psychological Science*, vol.25, 21-27.
[156] Sue, D.W., (2010) *Microaggressions in Everyday Life: Race, Gender, and Sexual Orientation*.
[157] US studies have found that pre-school teachers judge black students more harshly when they exhibit similar behaviour: Gilliam, W.S., et al., (2016) *Do Early Educators' Implicit Biases Regarding Sex and Race Relate to Behavior Expectations and Recommendations of Preschool Expulsions and Suspensions?*, Yale Child Study Center. HK studies show that ethnic minority students receive punishment more frequently and harshly than ethnic Chinese students: Ku, H., Chan, K,, and Sandhu, K.K, (2005) *A Resarch Report on the Education of South Asian Ethnic Minorities Group in Hong Kong*, Centre for Social Policy Studies, cited in Kapai, P., (2015) 'The Education of Ethnic Minorities' in *Status of Ethnic Minorities in Hong Kong 1997-2014,* The Zubin Foundation and The Centre for Comparative and Public Law, ch.3.

have become a rite of passage in high schools and university life beckon the need for serious and prompt action to counteract this scourge. These findings reinforce the urgency of understanding the prevalence of unconscious bias early in the lives of children and young people and to develop appropriate interventions in the form of curricula or programs to counteract it effectively.

Secondly, similar findings have affirmed the widespread prevalence of unconscious bias within the corporate setting, affecting access to employment opportunities including interviews,[158] performance evaluations[159], pay parity,[160] performance reviews,[161] mentorship opportunities, promotion, and leadership roles,[162] among other things. Implicit ethnic and gender biases have been found to be predictive of hiring practices.

More broadly, however, Rudman and Ashmore's work foreshadows the propensity of respondents with higher implicit bias scores to interact negatively with minority groups.[163] The hidden nature of such biases and their detrimental impact in terms of singling out historically marginalised groups for further disadvantage likewise requires urgent attention. This is particularly so in a climate where businesses are routinely branding themselves as equal opportunity employers that are committed to inclusive work environments that value diversity. These standards have gradually started to find their way into corporate codes of conduct and policy material, oftentimes, as a result of legal enactments in the countries where the entities are headquartered. However, the findings from earlier research studies reveal we still have a long way to go as the data metrics do not reflect the degree of diversity and inclusion successes business slogans or human resource departments tout.

In Hong Kong, while there have been some efforts within the corporate sector to institute 'diversity training', the content and impact of the training remains understudied and evaluated. Moreover, local businesses, particularly small and medium enterprises, appear to be trailing in these global standards of best practice in the corporate setting. It is for these reasons that these two target groups and contexts were selected for this initial study. Since the research seeks to articulate patterns particular to the Asian context, given resource and time constraints, the sample was predominantly limited to those who were of Chinese background, the dominant racial group in Hong Kong as this would serve as a preliminary benchmark to illuminate attitudes and other patterns in alternative Chinese population contexts around Asia. This was also important in order

[158] Bertrand, M. and Mullainathan, S., (2004) 'Are Emily and Greg more Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination' *The American Economic Review*, vol.94(4), 991-1013.

[159] University of Florida Human Resource Services, 'Identifying and Avoiding Interview Biases', available at: http://training.hr.ufl.edu/resources/LeadershipToolkit/transcripts/Identifying_and_Avoiding_Interview_Biases.pdf.

[160] Wood, R., (2014) 'Unconscious bias and its impact on the gender salary gap' *The Conversation*, available at: https://theconversation.com/unconscious-bias-and-its-impact-on-the-gender-salary-gap-32324.

[161] Jones, B., Smith, K., and Rock, D., (2018) '3 Biases That Hijack Performance Reviews, and How to Address Them' *Harvard Business Review*, available at: https://hbr.org/2018/06/3-biases-that-hijack-performance-reviews-and-how-to-address-them.

[162] World Economic Forum, *The Global Gender Gap Report 2018*, available at: https://www.weforum.org/reports/the-global-gender-gap-report-2018.

[163] Rudman, L.A. and Ashmore, R.D., (2007) 'Discrimination and the Implicit Association Test' *Group Processes & Intergroup Relations*, vol.10(3), 359-372.

to control certain variables in the study. However, in one of the social groups that were targeted, given the nature of the setting, there were a small number of non-Chinese participants included in the sample.

The sample was recruited on the basis of these two broad social groupings, students and corporates. However, the student group was further sub-divided into upper secondary school students and university students to present some variation in data in relation to the school- and university-based contexts to elicit any distinctions. Each social group (including the subgroup), was divided further into two groups, one control and one experimental.

A total of seven focus groups were conducted between September 2018 and January 2019 with three social groups: secondary school students (one control group and one intervention group), university students (two control groups, one intervention group), and corporate employees (one control group, one intervention group). Participants were recruited through different means. To recruit secondary school student participants, the research team reached out to various public sector secondary schools and one responded, consenting to involve its Form 4 students in the research. The letter of invitation was addressed to the school principals who were advised of the purpose of the study, and its relevance and significance for Hong Kong. However, in order to maintain parity with research participants belonging to the other social groupings and to obtain authentic data for the study, a minor deception was introduced as to the purpose and objectives of the study. All student respondents were advised that the research sought to understand memory recall and response times for particular tasks across different groups and to examine whether an intervention could help improve memory and response times.[164]

To recruit university student participants, the research team publicised the research study via the university bulk mail system which delivers emails to all student accounts and posters on campus, providing coffee shop coupons as incentive. The research team also approached university staff to help publicise the call for research participants or to ask them if students enrolled in their courses could be invited to participate in the study as a cohort. Some university-based respondents agreed to participate by responding to the contact information on the posters and the emails sent, whereas the bulk of university-based respondents came from students enrolled in three elective courses from diverse disciplines. Their instructors agreed to have the research administered during their classes. The university cohort from the courses concerned had enrolled in classes where gender, inclusion and diversity were going to be covered as part of the curriculum. To

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[164] Although deception was a part of the research methodology, prior approval for its use was obtained from HKU's Human Research Ethics Committee (HREC) on the basis that if participants were explicitly alerted as to the purpose of the study in advance, it would likely undermine the strength of the findings insofar as the aim was to measure *implicit bias*. Moreover, setting out the purpose of the study at the outset would also limit the potential for examining the diverse dimensions that were encapsulated in the research design through the use of the deception. All participants were fully debriefed and offered an opportunity to participate in the intervention at some stage (whether or not they were part of the Intervention group during the trial). The HREC was satisfied that the impact of the deception would be minimal and any discomfort experienced would not exceed that usually encountered in our day-to-day exchanges. Moreover, it was of the view that the debriefing tools coupled with the intervention would adequately address the concerns raised by the use of the deception.

mitigate any potential for such material to prime the respondents, the research tasks were carried out during the first and second classes before any of the curriculum was covered in any of the classes concerned. This helped address, to some extent, any potential for the 'priming' effect of the course material. However, the fact that these respondents were a self-selected sample having enrolled in the type of courses where these issues were to be discussed may provide an explanation for particular patterns which might emerge from the data.

To recruit corporate employee participants, the research team reached out to various companies through professional contacts within their network. One entity responded favourably and agreed to have their staff participate in the project. They were incentivised by their employer allowing them to take time off work to participate. The blocs of respondents from specific entities helped standardise the internal context within the organisation to some extent, which may or may not have contributed to attitudes and patterns. To the extent that they had there was at least a measure of consistency intra-group. This was also beneficial from a standpoint of analysing the institutional context within which the findings pertaining to each social subgroup were being interpreted. If there was any institutional-level policy, curriculum or other document that covered the topics which were addressed in the research tasks, these could be of interpretive value.

The distribution of groups is summarised in the following table:

	Intervention group	Control group	TOTAL
Public secondary school	1	1	2
University	1	2	3
Corporate sector	1	1	2
TOTAL	3	4	7

A total of 112 participants were recruited for this study (high school: 26; university: 75; corporate: 11). Apart from the tasks completed by the high-school sample which took place at the respondents' school premises, all tasks were conducted on the campus of The University of Hong Kong.

A pre-pilot test was conducted with seven participants from the university respondent group to validate the research instruments and design. They were divided into one control group and one intervention group.

The control and intervention groups within each social subgroup were presented with the same research tasks but in a different order. This differentiation was designed specifically to test the impact, if any, and the effectiveness of the guided intervention in a focus group setting among the intervention group. In other respects, the groups were treated identically and were asked to complete the same tasks. For each of the subgroups in terms of control or experimental, a gender balance was maintained where possible. However,

this was difficult to achieve with one of the social groups given that the school which agreed to let its students participate is an all-girls school, rendering the sample gender-skewed in that particular group. This somewhat limited the prospects for determining the impact of gender as a variable on the tasks concerned but the data was still relevant when the data from all control groups across social groupings were compared with data from all experimental groups across social groupings. Moreover, the data still provided useful insights into the baseline statistics for the prevalence of unconscious bias across different social groupings as well as the impact of the iterative process of performing tasks related to a study on unconscious bias.

RESEARCH INSTRUMENTS

In developing and finalising the research design and instruments, the project relied on two distinct frameworks. Greenwald and Banaji (1995)[165] argue that an expansion of the use of implicit social cognition (ISC) measurements as a foundation for behavioural realism is vital to understanding the formation, cause and effect of implicit bias in a more scientific, evidence-based manner as implicit bias is difficult to capture through methodologies which rely on self-reporting such as interviews or surveys. In the last two decades, a significant number of measures or scales have been developed and widely used to test implicit bias, for example, the Brief Implicit Association Test (BIAT), Evaluative Movement Assessment (EMA), Linguistic Intergroup Bias (LIB), Name-Letter Effect (NLE), Single-Target Implicit Association Test (ST-IAT), Sorting Paired Features (SPF), Stereotypic Explanatory Bias (SEB), Stimulus-Response Compatibility Task (SRCT), and the most widely known of these, the Implicit Association Test (IAT).[166]

According to the literature, priming measures and the IAT are two of the most commonly used methods examining the prevalence of implicit bias. Whereas priming measures test respondents' automatic associations for specific concepts or social categories, the IAT tests how strong the association is between two sets of concepts. The IAT is an implicit measure because it is based on inferences of group-valence (opinions of groups) and group-trait associations (attributes or characteristics assigned as typical) drawn from the performance of tasks (IAT) which are influenced by these associations without the knowledge of the respondents that they are so influenced.[167] The responses to the IAT are deemed automatic because the time constraints and other conditions (complexity of instructions in terms of marking congruent or incongruent pairings for varying sub-tests) imposed pertaining to the task completion dilutes the level of control or manipulation that respondents might have and dilutes the prospects of intentional completion of

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[165] Greenwald, A. and Banaji, M., (1995) 'Implicit social cognition: attitudes, self-esteem, and stereotypes' *Psychological Review*, vol.102(1), 4-27.

[166] For more instruments, *see* Nosek, B., Hawkins, C. and Frazier, R., (2011) 'Implicit social cognition: From measures to mechanisms' *Trends in Cognitive Sciences*, vol.15(4), 152-159.

[167] Greenwald, A.G., McGhee, D.E., and Schwartz, J.L.K., (1998) 'Measuring individual differences in implicit cognition: The implicit association test' *Journal of Personality and Social Psychology*, vol.74(6), 1464-1480.

tasks in a particular manner.[168] In this sense, the responses are considered automated. This mitigates the possibility of social desirability effect although it is possible for respondents to become aware of what is being examined while they are performing the task.[169]

Both priming and IAT measures use temporal response times as the measure of implicit bias. While the effect of self-reported measures of implicit bias tends to be diluted in terms of size due to social desirability bias, priming and IAT measures are able to examine people's unconscious bias indirectly, using automatic reactions and the time taken by respondents to react as proxies for indications of implicit bias. Previously, evaluative semantic priming was the more popular assessment tool for detecting implicit bias. However, Greenwald found that when comparing effect sizes between implicit biases detected, the IAT renders readings almost twice those of the priming measure (in terms of the Cohen's differential value).[170] In addition, priming measures have very limited test-retest reliability due to the nature of the test's design.[171] Increasingly, research studies have used the IAT as the research instrument providing abundant corresponding data.

The IAT measure shows stronger predictive validity than self-reported methods especially in relation to socially sensitive themes.[172] Participants may think one way and respond in another in order to manage desirable impressions in methods testing explicit bias.[173] IAT measure has shown strong predictive validity in varied domains, such as attitude[174] and self-esteem.[175] Its evaluative associations concerning the categories

[168] Steffens, M. C. (2004), Is the Implicit Association Test Immune to Faking? *Experimental Psychology*, 51, 2004, 165-179.

[169] Dasgupta, N., et al., (2000) 'Automatic Preference for White Americans: Eliminating the Familiarity Explanation' *Journal of Experimental Social Psychology,* vol.36(3), 316-328.

[170] Greenwald, A.G., McGhee, D.E., and Schwartz, J.L.K., (1998) 'Measuring individual differences in implicit cognition: The implicit association test' *Journal of Personality and Social Psychology*, vol.74(6), 1464-1480.

[171] Bargh, J. A., & Chartrand, T. L., (2000) 'The mind in the middle: A practical guide to priming and automaticity research' in Reis, H.T., and Judd, C.M., (eds) *Handbook of research methods in social and personality psychology,* 253-285.

[172] A study with a 32-sample pairing involving criteria measuring Black-White interracial behaviours found predictive validity of IAT measures to far exceed that of the self-reporting measures. See Greenwald, A.G., et al., (2009) 'Understanding and Using the Implicit Association Test: III. Meta-Analysis of Predictive Validity' *Journal of Personality and Social Psychology*, vol. 97(1), 17– 41. However, in a separate study engaged in a meta-analysis of studies looking at the predictive validity of the IAT and explicit measures of bias across two domains of intergroup bias (interethnic and interracial) and six criterion categories (interpersonal behavior, person perception, policy preference, microbehavior, response time, and brain activity) measuring stereotype and attitudinal bias using 2 IATs and 3 explicit bias measures, the IAT was found to be of weak predictive validity except in relation to the brain activity criterion . See Oswald, F.L., et al., (2013) 'Predicting ethnic and racial discrimination: A meta-analysis of IAT criterion studies' *Journal of Personality and Social Psychology*, vol.105(2), 171-192. However, Carlsson and Agerstrom were skeptical of whether the Oswald et al.'s methodology fit the concept of discrimination, thereby limiting its potential for undermining the IAT's predictive validity. See Carlsson, R. and Agerstrom, J., (2015) *A closer look at the discrimination outcomes in the IAT literature*, Linnaeus Univrsity Labour Market and Discrimination Studies Centre, available at: http://www.diva-portal.org/smash/get/diva2:911362/FULLTEXT01.pdf. Given the widespread use and impact of the IAT as well as its test-retest reliability, and the fact that there is no data that conclusively determines that the IAT is of weak predictive value for now, the choice of using the IAT as the research instrument is justifiable for all the other advantages outlined above.

[173] Greenwald et al. (2009), above.

[174] McConnell, A.R. and Leibold, J.M., (2001) 'Relations among the Implicit Association Test, Discriminatory Behavior, and Explicit Measures of Racial Attitudes' *Journal of Experimental Social Psychology*, vol.37, 435-442.

[175] Bosson, J.K., Swann, W.B., and Pennebaker, J.W., 'Stalking the Perfect Measure of Implicit Self-Esteem: The Blind and the Elephant Revisited' *Journal of Personality and Social Psychology*, vol.79(4), 631-43 where among many measures used to test explicit and implicit self-esteem, the IAT had the highest predictive value.

juxtaposed within each pairing also means that the IAT is of greater value than other measures in terms of predicting behaviour in terms of support for public[176] or legal[177] policies. Strong predictive validity measures of the IAT have earned a stamp of reliability in domains of legal and policy making, used by professors[178], judges[179], policy-makers and elected officials, enabling their use to further evidence-based intergroup regulation[180], law reform and public policy outcomes.[181] Greenwald *et al* posit that implicit associations are social cognitive constructs which influence concept-attribute association.[182] Concept-attribute association thus doubles as a signifier of actual implicit bias and has implications for various domains of decision-making, group interaction, public policy and legal regulation. Despite some recent studies questioning its predictive validity in terms of discrimination, it remains a valid predictor of implicit bias as outlined above. Moreover, since the IAT is designed to examine people's automatic associations between two sets of concepts, intervention or manipulation by individuals is fairly limited.[183] Respondents would be unlikely to perceive that the object of the exercise was to test their implicit bias levels and therefore, there is little influence of the social desirability effect. Additionally, the IAT measure consists of two conditions, compatible and incompatible. The IAT uses the difference in response times between these two groups to calculate the final score, which ignores the influence of personal response time differentials over the final scores. Finally, the IAT has been found to have a well-performing discriminant validity.[184]

For all of these reasons, this project used the IAT model (adapted to the local context) to discern the patterns of bias that manifest in cross-sector settings, to examine their inter-relationship, if any, and to discern unique data trends pertaining to the Hong Kong cultural and social context. More specifically, the instruments adapted for use and those newly developed used behavioural realism (Kang and Banaji, 2006)[185] to examine

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[176] Fazio, R.H. and Olson, M.A., (2003) 'Implicit Measures in Social Cognition Research: Their Meaning and Use' *Annual Review of Psychology*, vol.54, 297-327, 316. *See also*, Levinson, J.D. and Smith, R.J., (eds.) (2012) *Implicit Racial Bias Across the Law*.

[177] Kang, J., et al., 'Implicit Bias in the Courtroom', (2012) *UCLA Law Review*, vol.59, 1124-1186.

[178] Kang, J., (2005) 'Trojan Horses of Race' *Harvard Law Review*, vol.118, 1489-1593.

[179] Bennett, M.W., (2010) 'Unraveling the Gordian Knot of Implicit Bias in Jury Selection: The Problems of Judge-Dominated Voir Dire, the Failed Promise of Batson, and Proposed Solutions' *Harvard Law & Policy Review*, vol.4, 149-171.

[180] Shin, P.S., (2011) 'Liability for Unconscious Discrimination? A Thought Experiment in the Theory of Employment Discrimination Law' *Hastings Law Journal*, vol.62(1), 67-101.

[181] Page, A. and Pitts, M.J., (2009) 'Poll Workers, Election Administration, and the Problem of Implicit Bias' *Michigan Journal of Race & Law*, vol.15(1), 1-56.

[182] Greenwald, A.G., et al., (2002) 'A Unified Theory of Implicit Attitudes, Stereotypes, Self-Esteem, and Self-Concept' *Psychological Review*, vol.109(1), 3-25.

[183] Dasgupta, N., et al., (2000) 'Automatic Preference for White Americans: Eliminating the Familiarity Explanation' *Journal of Experimental Social Psychology*, vol.36, 316-328.

[184] Greenwald, A.G., McGhee, D.E., and Schwartz, J.L.K., (1998) 'Measuring individual differences in implicit cognition: The implicit association test' *Journal of Personality and Social Psychology*, vol.74(6), 1464-1480 and Greenwald, A.G. and Farnham, S.D., (2000) 'Using the Implicit Association Test to Measure Self-Esteem and Self-Concept' *Journal of Personality and Social Psychology*, vol.79(6), 1022-1038.

[185] Kang, J. and Banaji, M., (2006) 'Fair measures: A behavioural realist revision of affirmative action' *California Law Review*, vol.94, 1063-1118.

implicit bias at the individual level but also, to test the pervasiveness of implicit bias against particular groups.[186]

In order to fulfil the objectives noted above, the project complemented the behavioural realism assessment framework with an analytical framework grounded in intersectionality to inform the research design.[187] Intersectionality, a term coined by Kimberle Crenshaw in 1989,[188] signifies the indispensability of adopting a multidimensional perspective to understand overlapping identities and their interrelationship with the social systems and structures around them, and to study the simultaneous and interactive influence of various social categories such as gender, race and ethnicity. Whist it is an emerging concept in terms of its application in relation to legal provisions and equality law frameworks in particular, its significance lies in its ability to capture the lived realities of marginalized communities who experience multiple axes of discrimination. At the same time, these identity groups are uniquely discriminated against on account of their particular overlapping identity markers. Focusing on the dynamics of identity in a given social, political, legal and structural context has important implications for unconscious bias research outcomes and tools. For this reason, the project adopted and intersectional lens to frame the research instruments and interpretive tools to unpack the findings.

In all, we used four instruments to collect the necessary data and to assist in its interpretation. They were:

(1) THE IAT

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186 *See ibid.,* at 1065.
187 Cho, S., Crenshaw, K. and McCall, L., (2013) 'Toward a field of intersectionality studies: Theory, applications and praxis', *Signs: Journal of Women in Culture and Society*, vol.38(4), 785-810 and Kapai, P., (2015) *Delivering on the Promise of Equal Protection under the Law: Understanding the Experiences and Help-seeking Behaviours of Ethnic Minority and Immigrant Victims of Domestic Violence in Hong Kong and the United Kingdom*, The Centre for Comparative and Public Law.
188 Crenshaw, K., (1989) 'Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics' *The University of Chicago Legal Forum* vol.140, 139-167.

An adapted set of 4 IATs comprising 7 blocks of tests each were designed for use for the purposes of this research (Appendix I). Two IATs pertained to implicit bias in relation to Gender and the other two pertained to Race. They were as follows:

(a) Gender-Science

(b) Gender-Career

(c) Race (Chinese-South Asian)

(d) Race (Hong Kong-Mainland)

Given the extensive validation and widespread use of the instrument, this research adopted the Implicit Association Test (IAT), as introduced by Greenwald et al in 1998 to measure the extent and nature of participants' unconscious bias and the effects of intervention tools on such bias.[189] The IAT hypothesises that stronger associations (congruence) between concepts make their categorisation within a shared response category easier and lead to quicker response times in the sections of the test. The main advantage of the IAT is that it may resist masking as a result of self-presentation strategies leading subjects to provide answers under the influence of social desirability bias. The IAT reveals attitudes and other automatic associations that respondents may prefer not to express[190] or may themselves be unaware of.

There have been some questions raised about the test-retest reliability of the IAT generally. Steffens & Buchner used an IAT which was an immediate replication of a just-measured implicit attitude to assess test-retest reliability.[191] The test-retest correlations yielded ranged from 0.50 to 0.62, whereas Greenwald's own study obtained an average test-retest reliability score of 0.56 for IATs covering a wide range of topics spanning several studies.[192] A test-retest reliability score smaller than 0.6 is considered to be poor. There are necessarily some constraints in measuring test-retest reliability given the impact of practice effect on the scores. However, as indicated above, there are other advantages to using the IAT, which are of significant value in the context of this study given that it is the first time the IAT was adapted for use in this way in Hong Kong. To enable basic comparability with findings from other jurisdictions, given the vast body of data accumulated under the IAT measures, at this initial stage of research into unconscious bias in Asia, it is important to use a stable measure that has been tried and tested extensively elsewhere and has established its flexibility and adaptability.

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[189] Greenwald, A.G., McGhee, D.E., and Schwartz, J.L.K., (1998) 'Measuring individual differences in implicit cognition: The implicit association test' *Journal of Personality and Social Psychology*, vol.74(6), 1464-1480.

[190] *Ibid.*, 1465.

[191] Steffens, M.C. and Buchner, A., (2003) 'Implicit Association Test: Separating transsituationally stable and variable components of attitudes toward gay men' *Experimental Psychology*, vol.50(1), 33-48.

[192] Nosek, B. A., Greenwald, A. G., and Banaji, M. R., (2007) 'The implicit association test at age 7: A methodological and conceptual review' in Bargh, J.A. (ed.), *Social psychology and the unconscious: The automaticity of higher mental processes*, 265–292.

To facilitate the administration of the test in a group setting and to facilitate concurrent test administration, the IAT was adapted into a paper-based instrument with the response categories and boxes in print form as part of a set of worksheets rather than the traditionally and more widely-used digital variant displayed and answered on a computer on a web-paged platform.[193] While the paper-based IAT shows a similar but weaker mean effect than the computer-based IAT, its test-retest reliability is comparable with the computer-based IAT.[194] For the purposes of our study, the paper-based IAT enhanced the prospects of administering the test simultaneously to different groups as well as enabling its administration to a large group of participants at the same time. This made the test more accessible across a range of settings where the tests were administered without being constrained by respondents' lacking computer access. This was particularly important for the purposes of the school- and university-based group-tests.

In terms of choosing between verbal or picture stimuli for the paper IAT, the verbal version seems to be more effective than the one with picture stimuli.[195] The IAT test was divided into four parts: the Gender-Science Task, the Gender-Career Task, the Racial Group Task, and the Mainland-Hong Kong Task. The first two tests formed part of the Gender IAT and the second two were classified as the Race IAT. Both tested for stereotypes and attitudinal biases. During the IAT, participants were given 20 seconds to categorise as many targets as possible to the right column or the left column from top to bottom. The instructions pertaining to each Task were read out loud to the participants to ensure parity of understanding among respondents. After reading the instructions aloud, the administrator of the test would indicate start and stop times by announcing 'Start' and 'Stop' respectively at the end of 20 seconds.

WHY GENDER & RACE

Given the numerous grounds on which unconscious and explicit bias have been found to be pervasive in the research conducted overseas, there were several choices that needed to be made regarding the targets or categories of unconscious bias research for the purposes of this study. Locating the discourse on bias in Asia has been challenging for a number of reasons, not least due to the wide disparities in terms of human rights commitments and their implementation at the domestic level but also, as a result of cultural nuances which are often used to justify various forms of discrimination. A review of the metrics pertaining to the circumstances of minorities and other protected classes (in international human rights law, for example, these include gender, racial, linguistic, religious, national, and sexual minorities or those at risk on grounds

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[193] Albertson, B., (2011) 'Religious Appeals and Implicit Attitudes' *University of Texas at Austin Political Psychology*, vol.32(1), 109-130.
[194] Lemm, K. et al., (2008) 'Assessing implicit cognitions with a paper-format implicit association test' in *The Psychology of Modern Prejudice*, ch.6.
[195] Lemm et al (2008)

of immigration status, political opinion, birthplace, age, etc.) in Asia instantly reveals that gender and race represent two of the most marginalised protected classes.

Regionally, the data pertaining to gender-based violence[196], the participation of women in the workplace[197], leadership positions occupied by women in the public[198] and private sector[199], feticide[200], the prevalence of child marriage[201], sexual and reproductive rights[202], the situation of racial minorities with respect to educational attainment,[203] employment[204], poverty[205], victimisation as a result of violence[206] or hate speech[207], and their visibility in terms of leadership positions and political representation[208], suggest that attitudes towards these two groups in particular, need to be better understood in terms of everyday sexisms and everyday racisms. Moreover, unconscious bias studies conducted thus far have highlighted that despite the progress made in the past century in terms of advancements in human rights protections, women and racial

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[196] Carvalho, R., (2019) 'Hong Kong and Singapore, Asia's heavyweights, must lead the way in empowering women and promoting equality: UN director, *South China Morning Post*, available at: https://www.scmp.com/news/asia/east-asia/article/2189096/hong-kong-and-singapore-asias-heavyweights-must-lead-way.

[197] *Ibid.*

[198] *Ibid.*

[199] Deloitte, (2018) *Women in the boardroom: A global perspective Fifth Edition*, Global Centre for Corporate Governance, available at: https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/risk/deloitte-cn-ra-ccg-e1-women-in-the-boardroom-a-global-perspective-fifth-edition.pdf.

[200] Anand, G. and Woo, J., (2015) 'Asia Struggles for a Solution to Its "Missing Women" Problem' *The Wall Street Journal*, available at: https://www.wsj.com/articles/asia-struggles-for-a-solution-to-its-missing-women-problem-1448545813.

[201] Plan International, (2018) *Time to Act! Accelerating Efforts to End Child, Early and Forced Marriage in Asia*, available at: https://plan-international.org/publications/time-to-act-child-marriage-asia.

[202] Guttmacher Institute, (2014) *Investing in Sexual and Reproductive Health in China*, United Nations Population Fund, available at: https://www.unfpa.org/sites/default/files/resource-pdf/383%20AIU3%20ASIA_ENG%2011.19.14%20FINAL.pdf.

[203] Kapai, P., (2015) 'The Education of Ethnic Minorities' in *Status of Ethnic Minorities in Hong Kong 1997-2014*, The Zubin Foundation and the Centre for Comparative and Public Law, ch.3.

[204] Kapai, P., (2015) 'The Employment of Ethnic Minorities' in *Status of Ethnic Minorities in Hong Kong 1997-2014*, The Zubin Foundation and the Centre for Comparative and Public Law, ch.4.

[205] Kapai, P., (2015) 'Poverty and Social Welfare' in *Status of Ethnic Minorities in Hong Kong 1997-2014*, The Zubin Foundation and the Centre for Comparative and Public Law, ch.5.

[206] Kapai, P., (2015) 'The Rights of Ethnic Minorities Under the Law: Equality and Non-Discrimination' in *Status of Ethnic Minorities in Hong Kong 1997-2014*, The Zubin Foundation and the Centre for Comparative and Public Law.

[207] Mozur, P., (2018) 'A Genocide Incited on Facebook, With Posts From Myanmar's Military' *The New York Times*, available at: https://www.nytimes.com/2018/10/15/technology/myanmar-facebook-genocide.html.

[208] UN Women, 'Facts and figures: Leadership and political participation', available at: http://www.unwomen.org/en/what-we-do/leadership-and-political-participation/facts-and-figures.

minorities continue to be at a disadvantage in various settings including education[209], employment[210], policing and racial profiling[211] juror-based verdicts[212], and healthcare.[213]

The statistical insights in relation to the situation of women and girls[214] and racial minorities[215] in Hong Kong likewise suggests that gender and race are frequent targets of bias. Given the implications of pervasive implicit bias on grounds of gender and race and the large number of people affected by such biases in their everyday lives, these two categories are of paramount importance. Implicit bias negatively affects women and racial minorities' prospects for upward social mobility and their sense of self-worth and self-concept, excludes them from access to equal opportunity, and denies them equal treatment and respect for their dignity. Such biases form in early life and will only become more entrenched over time. Furthermore, research demonstrates that discrimination and bias are far more pervasive in contexts where gender and race are both implicated in the victim's apparent or actual identity[216], reinforcing the importance of examining these two variables to understand intersectional discrimination. In Hong Kong, there have been only a handful of studies outlining the pervasiveness of intersectional discrimination on grounds of gender and race in a limited number of contexts.[217]

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[209] Gilliam, W.S., et al., (2016) *Do Early Educators' Implicit Biases Regarding Sex and Race Relate to Behavior Expectations and Recommendations of Preschool Expulsions and Suspensions?*, Yale Child Study Center.

[210] Bertrand, M. and Mullainathan, S., (2004) 'Are Emily and Greg more Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination' *The American Economic Review*, vol.94(4), 991-1013.

[211] Godsil, R.D. and Richardson, L.S., (2017) 'Racial Anxiety' *Iowa Law Review*, vol.102, 2235-2263.

[212] Kang, J., et al., (2012) 'Implicit Bias in the Courtroom' *UCLA Law Review*, vol.59, 1124-1186.

[213] Blair, I.V., (2013) 'Clinicians' Implicit Ethnic/Racial Bias and Perceptions of Care Among Black and Latino Patients' *Ann. Fam. Med.*, vol.11, 43-52.

[214] Centre for Chinese Family Studies, (2018) *A Study on Family Status Discrimination in the Workplace in Hong Kong*, The Equal Opportunities Commission; Gender Research Centre, (2012) *Exploratory Study on Gender Stereotyping and Its Impacts on Male Gender*, The Equal Opportunities Commission; Gray, S., (2019) 'Hong Kong's Female Talent Pipeline Study key findings launch on IWD2019' *Meraki*; Women's Commission, (2018) *Hong Kong Women in Figures 2017*.

[215] Kapai, P., (2015) *Status of Ethnic Minorities in Hong Kong 1997-2014*, The Zubin Foundation and The Centre for Comparative and Public Law; Kapai, P., (2018) *#HongKonger: Ethnic Minority Youth Aspirations, Challengrs and Identity*, The Zubin Foundation and The Centre for Comparative and Public Law; HKSAR Census and Statistics Department, (2018) *Hong Kong Poverty Situation: Report on Ethnic Minorities 2016*; Mercado Solutions Associates, (2016) *Study on Discrimination against Ethnic Minorities in the Provision of Goods, Services and Facilities, and Disposal and Management of Premises*, The Equal Opportunities Commission.

[216] Howard, E., (2011) 'Multiple discrimination in law' *Think Equal, Symposium on Multiple Discrimination, National Commission for the Promotion of Equality, Malta*; Codiroli Mcmaster, N., (2015) 'Inequalities in students' choice of STEM subjects: An exploration of intersectional relationships' *CLS Working Paper 2015/16*; Ng, E., (2017) 'Asia's world city? Hong Kong ethnic minorities feel targeted by police stop and search actions' *Hong Kong Free Press*, available at: https://www.hongkongfp.com/2017/10/08/asias-world-city-hong-kong-ethnic-minorities-feel-targeted-police-stop-search-actions/.

[217] Kapai, P., (2015) 'The Employment of Ethnic Minorities' in *Status of Ethnic Minorities in Hong Kong 1997-2014,* The Zubin Foundation and The Centre for Comparative and Public Law; Kapai, P., (2016) 'Bringing Intersectionality Home: Delivering Contextualised Justice in response to Gender-Based Violence in Hong Kong' in Barrow, A. and Chia, J.L., (eds.) *Gender, Violence and the State in Asia*, 148-166; Kapai, P., (2015) *Delivering on the Promise of Equal Protection under the Law: Understanding the Experiences and Help-seeking Behaviours of Ethnic Minority and Immigrant Victims of Domestic Violence in Hong Kong and the United Kingdom*, The Centre for Comparative and Public Law.

THE IAT AND ITS ADAPTATION

The test designed by Greenwald et al. is structured into seven blocks of the IAT. Essentially, participants are required to assign a stimuli to a pair of target categories as quickly as they can. Combining a particular pair of target categories (Family-Career) with a purportedly associated set of attributes (Male-Female) in an association-compatible and association incompatible manner (Family-Female; Career-Male vs Family-Male; Career-Female), an associative strength between the relative constructs is derived by looking at the response latencies between association-compatible and association-incompatible assignments. Looking at the mean response latencies, the difference is an indicator of the degree of associative strength corresponding to the two paired concepts.

A pair of target concepts are selected (in this study, Family-Career; Humanities-Sciences; Chinese-South Asian; Hong Kong-Mainlanders) and a pair of attribute concepts are selected (Good/Bad; Male/Female).[218] At the top of the columns, the attribute concepts are inserted, whereas the left and right columns have the paired target concepts jumbled within them. For example, for the Family-Career IAT, Part I of the test invites participants to speedily classify words associated with Family into the appropriate attribute categories by ticking them per the instructions specifying when they should tick the left column (e.g. Male) and when they should tick the right (e.g. Female) column. Part 2 repeats the same process but this time with the other set of pairings (Career-Male/Female). Part 3 combines the two tasks whereby participants are instructed to tick the left column when presented with a word associated with Career/Female and the right when a word associated with Family/Male appears (abbreviated as the Career + Female or Family + Male). Part 4 does the same but provides additional sets of words to categorise in the same groupings. Part 5 duplicates the Part 2 task but in reverse order. Likewise, Parts 6 and 7 reverse the earlier combined pairings of Parts 3 and 4: Career + Male now share the left column response, and Family + Female share the right column response. Based on existing attitudes and stereotypes around women and family, the nexus between these two was anticipated to be strongly correlated and therefore, more likely to elicit speedier response times, on average when the categories they are asked to pair up are congruent (Female-Family) compared with Parts 3 & 4 and Parts 6 & 7 which inverse these 'natural' pairings.

The latency differential in terms of the time taken to respond to particular pairings of concept and attribute (Female + Family or Male + Career) compared with the times for other pairings (Male + Family or Female + Career) is the measure of the relative strength between the associations made for the first pairing as opposed to the second set. If the first set produces more rapid responses relative to the second set, the conclusion would be that there are stronger associations between females and family and males and career

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[218] *See* Nosek, B.A., Banaji, M.R., and Greenwald, A.G., (2002) 'Harvesting implicit group attitudes and beliefs from a demonstration web site' *Group Dynamics: Theory, Research, and Practice*, vol.6(1), 101-115, testing attitudes in terms of gender towards specific disciplines including science, mathematics, liberal arts and also career relative to family.

than when these pairings are reversed. Moreover, when we see that male associations reveal a preference for these sets of pairings whereas females trend towards the inverse pairing, we can conclude that this reflects the impact of social group on implicit associations. These values are also predictive of likely behaviour then, in this case, perhaps excluding women of a particular family status from particular roles and responsibilities or opportunities in the workplace. This would provide a measure through which to better understand implicit social cognitions by looking at the strength of associations in particular directions, the impact of experience or social group category on the magnitude of the associations, and how these associations influence behaviour and judgment in real terms.[219]

There has been some concern about the order of IAT block presentations in terms of whether Parts 3 & 4 and 6 & 7 present the congruent or incongruent associations first. According to Lemm et al.,[220] the order of the IAT blocks did not seem to have any significant effect in the paper-version. Moreover, the practice trials provided in Part 5, which is the second half of IAT blocks helps reduce (or even eliminate) the effects of pair-ordering, if present.[221] In the present study, we included a trial block at the mid-point of the IAT block presentation as a practice round.

For the purposes of this set of IAT tests, the specific **hypotheses** are as follows:

(1) The more responses in one condition (e.g. "female" and "family" sharing the same response) relative to the responses in the other (e.g. "male" and "career" sharing the same response), the stronger association between these two concepts ("female" and "family"), unveiling unconscious biases about particular groups and their 'proper' roles (I.e. "male" and "career").

(2) The slower the response time, the higher the levels of implicit bias. For the purposes of this test, where 20 seconds are allotted for the completion of each Part (block) of the IAT, the lower the completion rate, the higher the levels of implicit bias.

(3) The larger the number of errors connecting words with their corresponding categories, the higher levels of implicit bias. A corollary of this is that in spite of a high completion rate, lower levels of accuracy are indicative of higher levels of implicit bias.

Test-Retest Impact of IAT on Implicit Bias (Practice Effect):

(4) Taking two IATs spaced out over the course of a week itself raises awareness about unconscious bias, thereby influencing test scores for both the Control and Intervention groups at the next sitting (the hypothesis being that test-taking known to be aimed at highlighting unconscious biases will

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[219] Greenwald et al., (1998) above 63-64.

[220] Lemm et al., (2008) above.

[221] Nosek, B.A., Greenwald, A.G., and Banaji, M.R., (2005) 'Understanding and using the Implicit Association Test: II. Method variables and construct validity' *Personality and Social Psychology Bulletin*, vol.31(2), 166-180.

likely lead to improved IAT scores, signalling a *reduction* of implicit bias). Even without the Intervention, the Control Group scores would reflect a reduction in implicit bias in the retest scores.

Impact of Being Placed in Control Group vs Intervention Group:

(5) The Intervention Group's IAT scores will reflect a reduction in implicit bias scores.

(6) The Intervention Group's IAT scores will reflect a greater degree of bias reduction among its participants compared to the Control Group participants. i.e. the overall rates of reduction in implicit bias scores would be higher in the Intervention Group when compared with the Control Group.

(7) Magnitude of change between IAT1 and IAT2 scores will be lower in the Control Group compared with the Intervention Group.

(8) Magnitude of change between IAT1 and IAT2 scores will be lower for the Race-IATs than Gender-IATs in both Control and Intervention Groups.

Participants' Gender Will Impact Implicit Bias Scores:

(9) Participants' gender will significantly impact implicit bias among all trial groups (Control / Intervention) and social groups (High School, University and Corporate Employees) in the Gender IAT.

(10) Gender has no impact on magnitude of change in bias scores.

(11) Female participants across all groups will reflect a lower bias score on the Gender IATs (Gender-Career; Gender-Science); Male participants across all groups will reflect higher bias score on the same tests.

(12) All groups (Control / Intervention) regardless of gender will reflect higher bias scores on the Race-IATs (Chinese-South Asian; Hong Kong-Mainland) than the Gender-IATs (Gender-Career; Gender-Science).

Participants' Social Grouping Will Impact Implicit Bias Scores:

(13) All groups (Control / Intervention) regardless of social grouping will reflect higher levels of bias on the Race-IATs (Chinese-South Asian; Hong Kong-Mainland) than the Gender-IATs (Gender-Career; Gender-Science).

(14) Participants' social grouping (High school, University and Corporate Employees) will influence degree of bias with University participants reflecting the lowest bias levels for both Gender and Race IATs out of the three social groups.[222]

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[222] Surveys conducted in Hong Kong have generally revealed age to be a significant indicator of attitudes towards gender equality and diversity. The findings reflect that participants who were younger were committed to values pertaining to gender equality and gender role stereotypes in the realm of work and politics and more generally accepting of minority groups whereas older respondents tended to hold more conservative attitudes in these aspects. *See* Puja Kapai, *Future Directions in Hong Kong's Governance*, Centre for Comparative and Public Law (April 2018), available at:

Correlation Between Implicit Bias and Explicit Self-Reported Measures and Indicators

(15) Self-reported measures correspond with IAT measures given the spontaneity of the task except in socially sensitive issues (such as race) where there appears to be lower correspondence.

(16) IAT is of predictive value in relation to the Behavioural Tasks for both Gender and Race based tasks.

Trial Group Impacts Outcomes on Behavioural Tasks

(17) Intervention Groups show reduced bias on Behavioural Tasks compared with Control Groups.

Strength of Social Network Relationships With Particular Groups Impact IAT Scores, Magnitude of Change Bias Reduction

(18) Strength of social network relationships with particular groups will impact IAT scores, magnitude of change and bias reduction. In general, strong relationships would mitigate levels of bias against members of the groups concerned whereas no access or generally weak social networks with these groups will reflect a degree of bias towards them.[223]

(2) THE INTERVENTION

Drawing on the extensive literature review under this study, various insights into IAT trials and interventions to address unconscious bias in diverse settings were used to inform the design of the focus groups and interventions as well as the debriefing exercise.

This research study adopted a habits-based approach to address unconscious biases. This involved a step-by-step design and ordering, which was as follows: (1) presenting scientific understandings of the workings of the human mind, how the brain performs various functions, the faculties and capacities involved in decision making, attitude formation, and stereotypes; (2) presenting fact-based information on the differential patterns pertaining to educational outcomes, professional disciplines, opportunities for access to employment and leadership among social groups; (3) checking our biases by identifying them and acknowledging them; (4) developing situational explanations of stereotype- confirming patterns rather than jumping to trait-based conclusions; (5) presenting studies to highlight the malleability of bias and the

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https://www.law.hku.hk/ccpl/newspost/former-ccpl-director-puja-kapai-shares-findings-of-her-study-future-directions-in-hong-kongs-governance-with-chief-secretary-matthew-cheung-and-legco-members/.

[223] This hypothesis is based on social identity theory literature pertaining to categorisations of individuals into 'in-groups' and 'out-groups'.

different sources that influence its formation; (6) recommending the formation of key habits that keep biases in check, including exposure to outgroup, developing media literacy, and seeking out information to correct stereotypes; and (7) presenting counter-stereotypic exemplars.

This habits-based approach is based on the 'habit-breaking intervention' model developed by Devine et al, which likens biases to 'deeply entrenched habits developed through socialization experiences'.[224] To have the motivation to break these habits, two things are required: awareness of the biases and concern about the consequences of these biases.[225] Using this model, Devine et al designed a training session which provided participants with feedback on their levels of bias as well as introducing strategies for reduction of implicit bias. One example was to increase contact with counter-stereotypic others so that the interaction would provide opportunities for individuation, perspective-taking, introduce material which facilitated counter-stereotypic imaging and stereotype replacement. [226] The study, which used the Black-White Implicit Association Test to measure implicit race bias before and after the intervention, found that Devine's habit-breaking training produced compelling and enduring reductions in implicit bias.[227] This study's success corresponds with Dasgupta and Greenwald's earlier study which found that exposure to counter-stereotypic models (admired Black exemplars and disliked White exemplars) significantly weakened automatic pro-White attitudes, although it did not affect explicit racial attitudes. Dasgupta and Greenwald thus suggested that balanced media representations in the long run might be able to shift implicit prejudice and stereotypes.[228] Olson and Fazio came to the same conclusion in a similar study.[229] Importantly, studies in non-clinical settings conducted by Devine et al. have confirmed the effectiveness of the habit-breaking intervention model: after their intervention sessions were trialled in the 6 STEM-focused schools at the University of Wisconsin-Madison, the proportion of women hired by the intervention departments increased by 18 per cent while the proportion of women hired by control departments remained stable over time.[230]

In addition to replacing stereotypes, Ramasubramanian has found that implicit bias may be reduced by improving media literacy. In their study, participants in the test group were assigned to watch a video that encouraged them to question and be critical of media coverage, and then to either read a stereotypical or a counter-stereotypical news story about African Americans and Indians. It was found that viewing only either

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[224] Devine, P.G., et al., (2012) 'Long-term reduction in implicit race bias: A prejudice habit-breaking intervention' *Journal of Experimental Social Psychology*, vol.48, 1267-1278, 1268.

[225] *Ibid* 1268.

[226] *Ibid* 1270.

[227] *Ibid* 1276.

[228] Dasgupta, N. and Greenwald, A.G., (2001) 'On the Malleability of Automatic Attitudes: Combating Automatic Prejudice With Images of Admired and Disliked Individuals' *Journal of Personality and Social Psychology*, vol.81, 800-814.

[229] Olson, M.A. and Fazio, R.H., (2006) 'Reducing Automatically Activated Racial Prejudice Through Implicit Evaluative Conditioning' *Personality and Social Psychology Bulletin*, vol.32, 421-433.

[230] Devine, P.G., et al., (2017) 'A Gender Bias Habit-Breaking Intervention Led to Increased Hiring of Female Faculty in STEMM Departments' *J. Exp. Soc. Psychol.*, vol.73, 211-215.

the critical-thinking video or the counter-stereotypical story was not enough to reduce implicit bias. However, viewing both was likely to reduce stereotype activation. This is because, when participants receive training in critical media engagement skills, they become more likely to proactively seek stereotype-disconfirming information in the media, which in turn leads to a reduction in the activation of stereotypes at the implicit level.[231]

Despite overwhelming evidence that unconscious bias intervention based on habit-breaking is effective in at least reducing, if not eradicating, unconscious bias,[232] some studies continue to challenge the effectiveness of unconscious bias training. However, rather than critiquing the effectiveness of particular training methods that have been clinically proven effective, these studies are in fact criticising the general trend of businesses jumping on the bandwagon of adopting trainings without careful planning and execution to create the necessary material and conditions to ensure meaningful impact and change in unconscious biases. Businesses appeared to be engaging in bias work simply to legitimise their otherwise discriminatory structures and practices.[233] As Atewologun et al's meta-analysis of eleven studies on unconscious bias training concludes, implicit biases can indeed be reduced by such intervention in the long-run, 'when a sophisticated, habit-breaking design that is long-term and includes awareness-raising and bias mitigation strategies is used.'

The intervention material developed for the purposes of the experimental focus groups (intervention group) and for debriefing the control groups was used to guide an interactive discussion around these issues and to help participants engage in critical reflection around their own biases but also, more broadly, to understand the structural and substantive conditions which create and risk the perpetuation of negative biases towards outgroups. They also explored the recommended habit-breaking design interventions and reflected on their effectiveness in producing counter-stereotypic material.

(3) THE QUESTIONNAIRE

A questionnaire was designed to obtain basic demographic data but also included questions about social groupings to determine in-groups and out-groups, attitudinal questions pertaining to gender, science, career and family as well as experiences in the household context in terms of upbringing, role models and mentors (Appendix II). These responses were intended to serve a self-reporting function but also to provide context

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[231] Ramasubramanian, S., (2007) 'Media-based Strategies to Reduce Racial Stereotypes Activated by News Stories' *Journalism & Mass Communication Quarterly*, vol.84, 249-264.

[232] Atewologun, D., et al., (2018) 'Unconscious bias training: An assessment of the evidence for effectiveness', *Equality and Human Rights Commission Research Report 113*.

[233] See, for example, Noon, M., 'Pointless Diversity Training: Unconscious Bias, New Racism and Agency' *Work, Employment and Society*, vol.32, 198-209 and Dobbin, F. and Kalev, A., (2016) 'Why Diversity Programs Fail' *Harvard Business Review*, available at: https://hbr.org/2016/07/why-diversity-programs-fail?referral=03759&cm_vc=rr_item_page.bottom.

for individual task performance and to explore the potential impact of independent variables including demographic or other conditions, which might have been influenced task performance.

(4) BEHAVIOURAL TASKS

We designed Post-IAT Behavioural Tasks to determine whether and the extent to which IAT scores were of predictive value in terms of actual behaviour in a laboratory setting.

In terms of the behavioural tasks, there were three tasks (Appendix III). In the first, participants were invited to complete a multiple choice questionnaire to identify fictitious awardees in Olympics and Chess competitions and the Nobel Prize Laureates for Physics and Literature using the names provided as multiple choice categories. The names provided were a spread of Hong Kong and Mainland Chinese, South Asian and Caucasian names and male and female names, which were randomly ordered. This served as a Gender and Race Behavioural Task.

Next, participants were given a job description followed by two nearly identical profiles of candidtes for the position, one male and one female. Both candidates had children and a child soon-to-be born. Participants were asked to identify the person they would hire and to provide three considerations which informed their decision. This served as the Gender-Career Task. Lastly, there was a task with two profiles of candidates running for election to a university's student union. They had nearly identical qualifications and experiences with the only difference being their names. One was a discernibly Mainland Chinese name while the other was a Hong Kong name. Participants had to select a candidate for the position.

The Behavioural Tasks were administered to all groups, control and intervention, after their completion of the second IAT but before the debriefing for the Control Group (CG). In this sense, they also served to measure any differentials between the Intervention Groups (IGs) and the CGs to the extent that the former was exposed to the Intervention. For both groups, however, there is the likelihood that having sat the IAT twice by that point, they would have perceived that the tests were designed to test their responses on socially sensitive issues. This might be of explanatory value in determining whether the anticipated reductions in implicit biases demonstrated by the completion of this task were the result of social desirability effects, the intervention or the impact of taking the IAT twice or any two or all three of these.

RESEARCH PROCEDURES

First, all participants were asked to take the first IAT regardless of their allocation to the Intervention Group (IG) or Control Group (CG) with a view to ascertaining the baseline data across the social subgroups (secondary schools, universities and the corporate sector). Next, the IGs were invited to participate in a focus group discussion session with a facilitator immediately after the first IAT. This was where the Intervention was administered. The discussion was predicated on the presentation of research relating to unconscious bias in their field, social and professional contexts and the primary targets. The facilitator guided the discussion and reflective thinking process to enable respondents to contemplate the issues, and comment on the causes and approaches to reducing these trends. Interactive questions testing various presumptions about attributes and perceptions of equality in different settings were utilised where appropriate and attempts were made to keep everyone engaged as far as possible. At this point, there is no equivalent activity directed at the CGs. Third, all the participants were invited to take the second IAT at a one-week interval since the first one.

All participants were asked to complete the post-IAT Questionnaire and the Behavioural Task activity. All participants were debriefed as to the actual objectives of the study and what it was designed to measure. Participants were divided into control and intervention groups in order to gauge the effects of the Intervention, but both groups were scheduled to participate in the session by the time they had completed all research tasks. The CGs were invited to participate in the intervention and focus group discussion to further the objective of public education in this important field but also, to ensure that all respondents could benefit from the Intervention (assuming it was effective in addressing implicit bias).[234] This was utilised as an opportunity to raise awareness about the pervasiveness of unconscious bias and to introduce effective ideas about how to tackle it based on the step-by-step approach.

Participants in the Intervention Group participated in the debriefing-focus group session after taking the first IAT and before they took the second IAT while participants in the Control Group participated in the debriefing and Intervention-based focus group session after both runs of the IAT. Each IAT session lasted about half an hour and each debriefing-focus group session lasted about one hour and 15 minutes.

In terms of the order of taking the IAT and the self-reported bias measures through the Questionnaire, previous studies have shown that there are minimal effects in terms of task ordering in different

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[234] Lemm, K. et al., (2008) 'Assessing implicit cognitions with a paper-format implicit association test' in *The Psychology of Modern Prejudice*, ch.6.

measurement contexts. Moreover, there does not appear to be any indication that completing the IAT before the self-reporting measures renders respondents reactive or assimilationist in their self-reported responses.[235]

SCORING

The scoring structure selected for measuring unconscious bias in the present study is *product: square root of difference*, which has been demonstrated as an effective approach in earlier studies using these instruments. The precise formula used, which was elaborated by Lemm, is as follows:

'This approach includes both difference score and ratio information. In this case, the square root of the difference between the number of items completed between the two blocks is multiplied by the ratio of items completed. It is calculated as (X/Y)*Square Root of (X-Y), where X is the greater of A or B, and Y is the smaller of A or B. If B is greater than A, then resulting values are multiplied by -1 to retain the directionality of the IAT effect.'[236]

'A' represents the number of correct answers produced in compatible conditions. 'B' represents the number of correct answers produced in incompatible conditions. 'X' represents the greater of 'A' or 'B' while Y represents the smaller of 'A' or 'B'.

Participants will be given 20 seconds to categorise as many targets as possible to a right column or a left column from top to bottom. Since the dependent variable in the paper version is different from the computer-version of the IAT, the traditional recommended scoring procedures are inapplicable for the purposes of this research. Instead, the number of correct classifications compared between two different conditions (e.g. Women/Family + Men/Career with Women/Career + Men/Family) are the main measurements of associational strength.

We work on the assumption that the data represent an attitudinal score for implicit bias in which blocks A1 and B1 denote the pairings A+good and B+good, respectively. A1 represents the targets paired with compatible conditions (good) while B1 denotes targets paired with 'good' in incompatible conditions. The assumption is that higher numbers reflect a stronger implicit preference for A over B.

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[235] Nosek, B.A., Greenwald, A.G., and Banaji, M.R. (2005) above. *See also*, Hofmann et al., (2005) 'A Meta-Analysis on the Correlation Between the Implicit Association Test and Explicit Self-Report Measures' *Personality and Social Psychology Bulletin*, Vol. 31(10) 1369-1385.
[236] Lemm, K, et al. (2008) above at 7.

The association between the concept and attribute is described as slight, medium, and strong in levels which corresponds to the "conventional criteria for small, medium, and large effect sizes of Cohen's(1977) d measure"[237], which is based on behavioural science research.

$$d = t / \sqrt{df}$$

Reading Cohen's d measure correlations:

d = .2 small effect   d = .5 medium effect   d = .8 large effect

LIMITATIONS

Although the IAT is a widely used measure of unconscious bias, literature has also shown that it has certain limitations. Fazio and Olson, for example, argue that 'extrapersonal associations' may challenge the utility of the IAT, as it tests people's reactions to certain categories instead of the exemplars themselves, these reactions may reflect conscious knowledge of how certain groups are portrayed historically in society or in the media instead of an automatically activated response to the object. For example, it is possible that some individuals may possess and perceive strong associations between the category 'blacks' and negativity not because of their implicit biases but because they recognise that blacks have been historically portrayed negatively by American society.[238] Alternatively, it could be a function of their own low self-concept or self-esteem, leading black respondents to display negative reactions towards blacks on the IAT.[239] Moreover, extrapersonal knowledge may help respondents speed up their responses in terms of mapping congruent categories in accordance with such knowledge.[240]

Moreover, despite claims that the design of the IAT may minimise the effects of social-desirability bias, there are still concerns about the effects of other factors external to unconscious bias on the test results, such as familiarity to group identifiers[241] and empathy.[242] Some studies have also questioned the utility of the IAT in

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[237] Greenwald, A.G., Nosek, B.A., and Banaji, M.R., (2003) 'Understanding and Using the Implicit Association Test: I. An Improved Scoring System' *Journal of Personality and Social Psychology*, vol.85(2), 197-216.

[238] Fazio, R.H. and Olson, M.A., (2003) 'Implicit Measures in Social Cognition Research: Their Meaning and Use' *Annual Review of Psychology*, vol.54, 297-327, 316.

[239] Nosek, B.A., Banaji, M.R., and Greenwald, A.G., (2002) 'Harvesting implicit group attitudes and beliefs from a demonstration web site' *Group Dynamics: Theory, Research, Practice*, vol.6(1), 101-115.

[240] Fazio, R.H. and Olson, M.A., (2003) 'Implicit Measures in Social Cognition Research: Their Meaning and Use' *Annual Review of Psychology*, vol.54, 297-327, 316.

[241] Kinoshita, S. and Peek-O'Leary, M., (2005) 'Does the compatibility effect in the race Implicit Association Test reflect familiarity or effect'*Psychon. Bull Rev.*, vol.12(3), 442-452 and Brendl, C.M., Markman, A.B., and Messner, C., (2001) 'How Do Indirect Measures of Evaluation Work? Evaluating the Inference of Prejudice in the Implicit Association Test' *Journal of Personality and Social Psychology*, vol.81(5), 760-773.

[242] Uhlmann, E.L., Brescoll, V.L., and Paluck, E.L., (2006) 'Are members of low status groups perceived as bad, or badly off? Egalitarian negative associations and automatic prejudice' *Journal of Experimental Social Psychology*, vol.42, 491-499.

testing implicit rather than explicit biases.[243] Finally, there are also questions about how findings made in a lab condition may be translated and applied to a realistic workplace environment.[244]

In terms of the authenticity of the test results, there is always some concern that participants may be familiar with the IAT or have taken an alternative version before and could be gaming the test in this instance. Likewise, given that some of the students recruited were from courses where their instructors had signed them up, it may be possible that they experienced IAT fatigue given the seven blocks for each IAT test (a total of 4) and the repetitive nature of the exercise one week apart. Moreover, there may be some inaccuracies in terms of how erroneous results were identified for isolation and exclusion. It is sometimes difficult to determine which ones were determined as errors but amounted to false accusations and which ones were misidentification of implicit bias. The two polar extremes are sometimes difficult to balance when confronted with outlier data.[245]

Needless to say, however, there is always the inherent limitation of findings from research on cognitive decision-making which occur in laboratory settings. While the findings do enhance our understanding of people's decision-making, experimental designs in the laboratory necessarily reveal an incomplete picture due to the structured and rigid social and organisational context underlying the judgment-making process or the choices participants in a study are presented with.[96] The circumstances are invariably somewhat engineered and are not occurring in their natural setting. However, the rich insights we do gain from such research far outweigh these inherent limitations of design.

In terms of the predictive value of the IAT measure in identifying propensity towards discrimination, the laboratory-like setting makes it difficult to apply these findings within a real life setting[246] such as the workplace or classrooms.

There have also been questions surrounding that value of the IAT measure and whether it does indeed test what it purports to and what the score ultimately means.[247] For example, it is impossible to be sure that the IAT is simply testing implicit bias on its own. It may well be capturing implicit and explicit bias.[248] Other research has cast doubt as to whether implicit evaluations are necessarily 'unconscious', finding that respondents are conscious of their implicit attitudes.[249] Other research counters this claim and complicates

[243] Fazio, R.H. and Olson, M.A., (2003), above.
[244] Tetlock, P.E. and Mitchell, G., (2009) 'Implicit Bias and Accountability Systems: What Must Organizations Do to Prevent Discrimination?' *Research in Organizational Behavior*, vol.29, 3-38.
[245] Mitchell, D.B., (2006) 'Nonconscious Priming After 17 Years: Invulnerable Implicit Memory?' *Psychological Science*, vol.17(11), 925-929.
[246] *Ibid.*
[247] Blanton, H. and Jaccard, J., (2008) 'Unconscious Racism: A Concept in Pursuit of a Measure' *Annual Review of Sociology*, vol.34, 277-297, urges 'inferential caution' until the measures are progressed towards a more scientific metric.
[248] Fazio, R.H. and Olson, M.A., (2002) 'Implicit measures in social cognition research: their meaning and use' *Annual Review of Psychology*, vol.54, 297-327.
[249] Hahn, A. and Gawronski, B., (2014) 'Do implicit evaluations reflect unconscious attitudes?' *Behavioral and Brain Sciences*, vol.37, 28-29 and Hahn, A., et al., (2014) 'Awareness of implicit attitudes' *Journal of Experimental Psychology: General*, vol.143(3), 1369-1392.

the assertion to present a more nuanced analysis of what is inferentially implicit and the level of consciousness inferable from implicit evaluation scores.[250] Furthermore, it is possible that IAT scores reflect empathy instead of negative associations.[251] Moreover, the degree of familiarity a particular test-taker has with a group's social or prevalent identifiers may also influence IAT outcomes.[252] On the other hand, a lack of familiarity with the concepts and categories that are the targets of the test may breed nervousness due to the social desirability effect and may cause participants to worry that their responses may reflect racism or other undesirable traits, influencing the results.[253] The influence of pre-IAT conditioning in terms of exposure to information and social experiences have been borne out by research. Positive information about category labels result in 'positive' evaluations of the category in IAT terms. These factors and their role to some extent will be discernible from responses to the Questionnaire administered after the IAT tasks.[254]

Finally, one of the most interesting questions about the IAT score has been whether it measures associations harboured by an individual person or those reflected by the culture within which the individual resides.[255] However, numerous studies have affirmed that the individual differences which the IAT captures signifies that the associations are reflective of the individual's personal attitude as opposed to those of the culture.[256]

The small sample size and skewed gender representation in the high school group may mean that some of the results will need to be interpreted with caution or alternatively, may not enable a correlation between gender and other variables in respect to all instruments. The other significant factor in the high school setting which was uncontrolled for was the possibility that students from the Intervention group shared insights from their trial with the Control group participants. This was not a likelihood for the university social group or the corporate employee group given that the participants for the control and intervention groups were drawn from disparate classes or arms of the entity, minimising the chance of this happening. Nonetheless,

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[250] Gawronski et al., (2006) 'Are "implicit" attitudes unconscious?' *Consciousness and Cognition,* vol.15, 485–499, available at: http://www.bertramgawronski.com/documents/GHW2006CC.pdf.

[251] Uhlmann, E.L., Brescoll, V.L., and Paluck, E.L., (2006) 'Are members of low status groups perceived as bad, or badly off? Egalitarian negative associations and automatic prejudice' *Journal of Experimental Social Psychology*, vol.42, 491-499.

[252] Kinoshita, S. and Peek-O'Leary, M., (2005) 'Does the compatibility effect in the race Implicit Association Test reflect familiarity or affect?'; Brendl, C.M., Markman A.B., and Messner, C., (2001) 'How Do Indirect Measures of Evaluation Work? Evaluating the Inference of Prejudice in the Implicit Association Test' *Journal of Personality and Social Psychology*, vol.81(5), 760-773; Arkes, H.R. and Tetlock, P.E., 'Attributions of Implicit Prejudice, or "Would Jesse Jackson 'Fail' the Implicit Association Test?" *Psychological Inquiry*, vol.15(4), 257-278.

[253] Frantz, C.M. et al., (2004) 'A threat in the computer: the race implicit association test as stereotype threat experience' *Personality and Social Psychology Bulletin*, vol.30(12), 1611-1624.

[254] Fazio, R.H. and Olson, M.A., (2003) above.

[255] Karpinski, A. and Hilton, J.L., (2001) 'Attitudes and the Implicit Association Test' *Journal of Personality and Social Psychology*, vol.81, 774-788; Olson, M.A. and Fazio, R.H., (2004) 'Reducing the influence of extrapersonal associations on the Implicit Association Test: personalizing the IAT' *Journal on Personality and Social Psychology*, vol.86(5), 653-667; Arkes, H.R. and Tetlock, P.E. (2004) 'Attributions of Implicit Prejudice, or "Would Jesse Jackson 'Fail' the Implicit Association Test?"' *Psychological Inquiry*, vol.15, 257-278; and Arkes, H.R. and Tetlock, P.E., (2004) 'The Implicit Prejudice Exchange: Islands of Consensus in a Sea of Controversy: Response' *Psychological Inquiry*, vol.15, 311-321.

[256] Banaji, M.R., Nosek, B.A., and Greenwald, A.G., (2004) 'No place for nostalgia in science: A response to Arkes and Tetlock' *Psychological Inquiry*, vol.15, 279-289; Nosek, B.A. and Hansen, J.J., (2008) 'The associations in our heads belong to us: Searching for attitudes and knowledge in implicit evaluation' *Cognition and Emotion*, vol.22, 553-594; Nosek, R.A. and Hansen, J.J.m (2008) 'Personalizing the Implicit Association Test increases explicit evaluation of the target concepts' *European Journal of Psychological Assessment*, vol.24(4), 226-236.

the pilot nature of this study mitigates some of these sampling irregularities since the objective of the research is to investigate some of the core themes which emerge in the area of unconscious bias in relation to a small group before this can be further developed, and fine-tuned for a wider scale study. In this sense, the relative influence of these factors on the outcomes of the study are negligible. Moreover, since the IAT as a measure has been established as one which does not easily lend itself to being manipulated by deliberate responses given the speed and accuracy of responses required, this further guards against the risks of manipulation of the outcomes.

RESULTS AND DATA ANALYSIS

SCORING

In terms of the interpretation of scores, the score obtained by applying the formula indicated above yields an integer (positive or negative). This is referred to as the **Bias score**. The higher the positive integer value (0+, i.e. upwards of 0), the more biased one is (**Direction of Bias**). The closer the score moves towards zero, the *less biased* one is. Getting to '0' means there is no bias (negative or positive). This means a '0' error rate (accuracy) and no implicit associations if one is working quickly enough. A negative score reflects *positive bias* (in a way that is good). For example, if men are strongly associated with science while women with humanities, if the score is above zero, the respondents are implicitly biased on the basis of gender in the Gender-Science IAT.

In determining the **magnitude of change** between IAT1 and IAT2 and whether this was significant for each test, we subtracted the first IAT score from the second IAT score (IAT2-IAT1) and separated the values by Control and Intervention Groups. The difference between IAT1 and IAT2 was averaged out across respondents within each group. Because IAT2 scores are expected to be lower than IAT1 scores, the formula should yield a negative score on the hypothesis that the Intervention groups would improve in their IAT2 performance but also, the Control groups should improve by virtue of the test-retest practice effect. A negative score therefore reflects a positive rate of change and the higher the negative value, the greater the magnitude of change whereas a lower negative value or 0 value reflect low magnitude of change to no change whatsoever.

DETAILED RESEARCH FINDINGS

Hypothesis 1: *The more responses in one condition (e.g. "female" and "family" sharing the same response) relative to the responses in the other (e.g. "female" and "career" sharing the same response), the stronger association between these two concepts ("female" and "family"), unveiling unconscious biases about particular groups and their 'proper' roles (I.e. "male" and "career").*

Hypothesis 2: *The slower the response time, the higher the levels of implicit bias.*

Hypothesis 3: *The larger the number of errors connecting words with their corresponding categories, the higher levels of implicit bias. Conversely, the lower the level of accuracy, the higher the level of implicit bias.*

The first three hypotheses essentially provide a set of working presumptions for the use of the validated but adapted versions of the 4 IATs for this study. They provide the necessary indicators from which to infer implicit association scores to help measure rates and magnitude of change in implicit bias. These hypotheses are therefore, taken as proven.

COMPARING DIFFERENTIALS BETWEEN IAT1 AND IAT2

Hypothesis 4: *Taking two IATs over the course of a week itself raises awareness about unconscious bias. Test-taking known to be aimed at highlighting unconscious biases will likely lead to improved IAT scores, signalling a reduction of implicit bias.*

The data was pooled together into a single group putting all respondents together from both the Control and the Intervention Groups. The data was tested to determine whether the IAT2 scores differed significantly from IAT1 scores. The results show that although IAT2 scores were lower overall, the finding was not statistically significant ($p = 0.48$) (Table 1). However, this shows that taking the IAT twice in and of itself may already have the effect of reducing implicit bias scores.

Table 1: Mean and standard errors of the IAT1 and IAT2 scores across the entire data set

Variable	Mean Score
IAT1 score	2.08
IAT2 score:	1.77

COMPARING DIFFERENTIALS BETWEEN CONTROL AND INTERVENTION GROUPS

Hypothesis 5: *The Intervention Group's IAT scores will reflect a reduction in implicit bias.*

Hypothesis 6: *The Intervention Group's IAT scores will reflect a greater degree of bias reduction among its participants compared to the Control Group participants.*

Hypothesis 7: *Magnitude of change between IAT1 and IAT2 scores will be lower in the Control Group compared with the Intervention Group.*

Hypothesis 8: *Magnitude of change between IAT1 and IAT2 scores will be lower for the Race-IATs than Gender-IATs in both Control and Intervention Groups.*

First, the results were analysed to ascertain whether there were any differences in the IAT1 score between the Control and Intervention groups (pre-Intervention) for each of the IAT tests (Gender-Science, Gender-

Career, Chinese-South Asian, Hong Kong-Mainland) (Figure 1). This was useful for the purposes of establishing a baseline score for both groups across all social groups (high school and university students and corporate employees). The results show that there were no significant differences between the two groups (Control and Intervention) for any of the four IAT1s.

Figure 1:

IAT1: Lowest and Highest Bias Levels: Control and Intervention Groups

Lowest   **Highest**

Gender-Career   **Gender-Science**   **Hong Kong-Mainland**   **Chinese-South Asian**
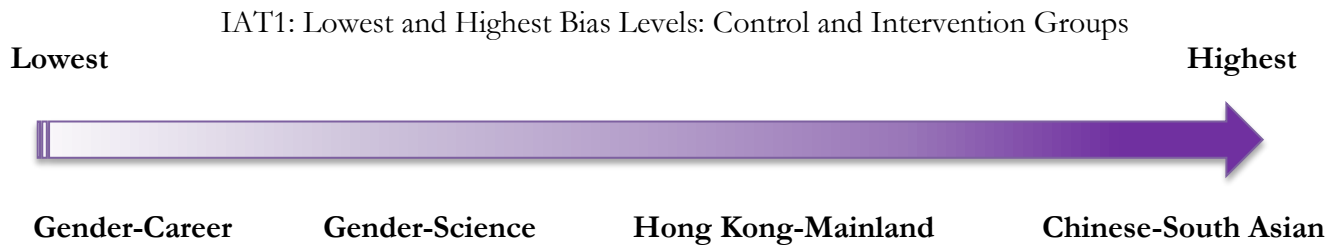
Next, we looked at whether the first and second IAT test scores differed significantly in respect to the Control and Intervention groups. The purpose of this was to determine whether the Intervention Task had any impact on implicit bias among participants in that trial and whether this impact was significant. This required looking at the scores for IAT1 and IAT2 for each sub-group (Control and Intervention) across each of the IAT tests (Gender-Science, Gender-Career, Chinese-South Asian and Hong Kong-Mainland).

Figure 2: Mean Scores Across all IAT Categories for Control and Intervention Groups

Mean scores across all IAT tasks (Control and Intervention Groups)

Legend: ■ Control IAT1 ■ Control IAT2 ■ Intervention IAT1 ■ Intervention IAT2

Category	Control IAT1	Control IAT2	Intervention IAT1	Intervention IAT2
Gender-Science	2.39	1.89	2.15	1.13
Gender-Career	1.72	1.44	1.92	1.31
Chinese-South Asian	3.20	2.77	3.39	2.11
Hong Kong-Mainland	3.41	2.15	2.76	2.26
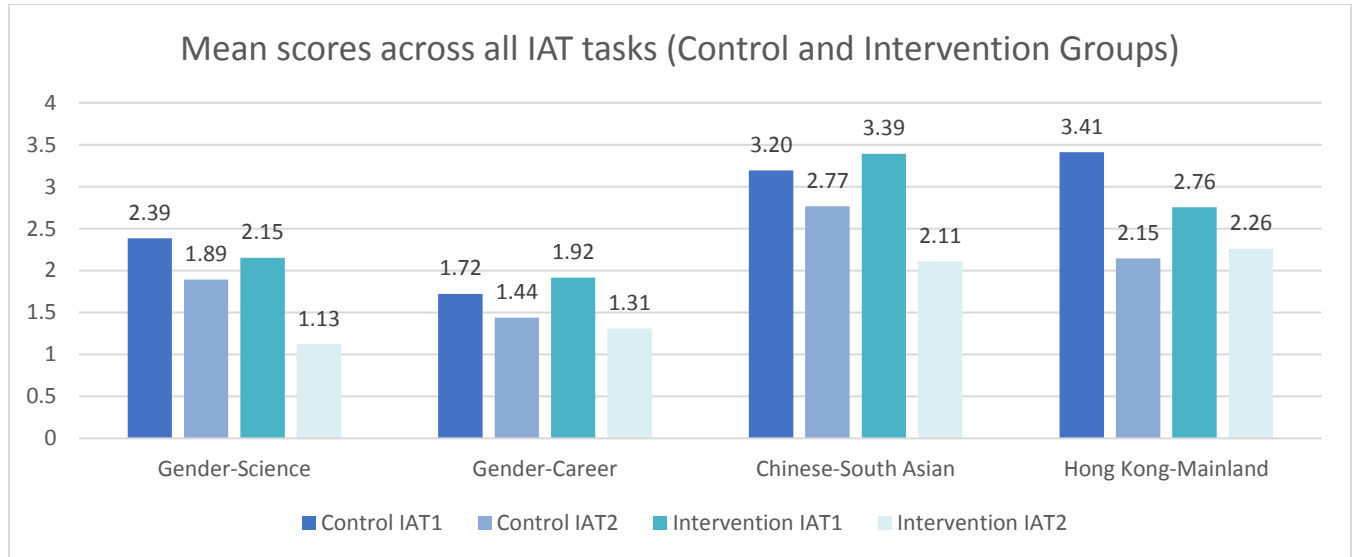
Overall, all groups (Control and Intervention) scored lower on IAT2 reflecting that their net positions had improved in terms of bias reduction across all categories. The bars show that the groups are most biased in the Hong Kong-Mainland category for the Control Group IAT1 and least biased in the Gender-Science category in the Intervention group in IAT2. In the Control groups, they are least biased in the Gender-Career and most biased in the Chinese-South Asian categories in IAT2 (from Figure 2). Looked at closely however, the bias levels remain disproportionately higher in the Race IATs than the Gender IATs. The highest rates of implicit bias show up within both Race IATs with the Hong Kong-Mainland IAT at a mean score of 3.38 for its Control Group and for the Chinese-South Asian Intervention Group. The Chinese-South Asian Control Group is not far behind with a mean score of 3.30 (Table 2). This suggests that bias levels are worse for Racial categories than Gender but there is implicit bias towards both categories in the first iteration of the test performance (i.e. IAT1). The graph also shows that all groups are most biased in the Chinese-South Asian category followed by the Hong Kong-Mainland category.

Table 2: Difference in IAT1 scores between Control and Intervention Groups (Independent Samples t-test)

	C/I	N	Mean
IAT1(GS)	CG	31	2.55
	IG	45	2.067
IAT1(GC)	CG	32	1.81
	IG	49	2.40
IAT1(CSA)	CG	34	3.30
	IG	47	3.37
IAT1(HKM)	CG	33	3.38
	IG	51	2.77

*This table shows that there was no significant difference in IAT1 scores between intervention and control groups.

The results show that in the Gender-Science IAT, IAT1 and IAT2 scores were not significantly different in the Control group. Looking at Gender-Science IAT scores in the Intervention group, there was a marginally significant difference between IAT1 and IAT2 (p=0.087), with scores edging towards zero (increasingly unbiased) post-Intervention. This is to be contrasted with the Gender-Career IAT where IAT1 and IAT2 scores did not differ significantly for both the Control and Intervention Groups.

For the Chinese-South Asian IAT, the scores for the Control group were not significantly different between IAT1 and IAT2 but they were strongly significant in terms of the difference in the Intervention group (p = 0.003). Moreover, since the scores of IAT2 tended in the direction of zero, this indicated that respondents who had participated in the Intervention became less biased after the intervention. Overall, this suggests that for both the Gender (Science) and Race (Chinese-South Asian) IATs, the Intervention had a marginally significant and strongly significant impact respectively, in terms of bias reduction.

For the Hong Kong-Mainland test, the scores of the Control group improved between IAT1 and IAT2 (from 3.41 to 2.15) reflecting a significant change (p=0.022). This reflects that taking the IAT twice has the effect of reducing implicit bias scores in and of itself. Even without the Intervention, it can be a useful tool for addressing bias. This was the general pattern in both the Control and Intervention groups across all 4 IATs. IAT2 scores were lower than IAT1 scores overall for each test for each group and trending closer towards 0, reflecting reduced implicit bias. However, these reductions were not statistically significant due to the large intragroup variations present in the sample.

There was also no significant difference between the scores for Hong Kong-Mainland IAT1 and IAT2 in the Intervention group although there was an overall reduction of bias. This means there was no significant

improvement in the scores after the Intervention for the Hong Kong-Mainland IAT. This result is more difficult to interpret. It could mean that there was more variation within this group compared to other groups. Alternatively, it is possible that since the Intervention did not address specific examples of implicit bias towards Mainlanders nor engage in any counter-stereotyping activities and reflection, this could explain the lack of a significant change whereas when compared to the significant change in scores for the Intervention group in the Chinese-South Asian a IAT, the Intervention significantly impacted the scores for the Intervention group. This difference may be explained by the fact that the Intervention specifically highlighted facts relating to the categories concerned, included counter-stereotypic exemplars and interactive activities pertaining to South Asians. This demonstrates the significance of the Intervention design and demonstrates the validity and applicability of the approach adapted from Devine et al. and signals the need for appropriate tailoring to context for viability.

Third, we examined the magnitude of change between IAT1 and IAT2. The magnitude of change assesses the overall degree of change between the two tests and how far the scores moved in any direction. The magnitude of change in scores between IAT1 and IAT2 did not differ significantly between the Control and Intervention groups across all 4 IATs (Figure 3). This suggests that the intervention had no effect on the magnitude of change between the first and second IAT scores although the overall trend shows that Intervention groups experienced a greater magnitude of change for all IAT2s except in the HK-Mainland one where the Control group's magnitude of change is higher. A negative score here would not tell you where the groups are in terms of bias (Table 3) because it would be relative to where each group stood on IAT1 scores which serves as the baseline value or starting point. These baseline scores varied from group to group.

Figure 3

IAT2: Control and Intervention Group Differentials

Lowest   **Highest**

Gender-Science IG   **Hong Kong-Mainland IG**
Gender-Career CG   **Chinese-South Asian CG**
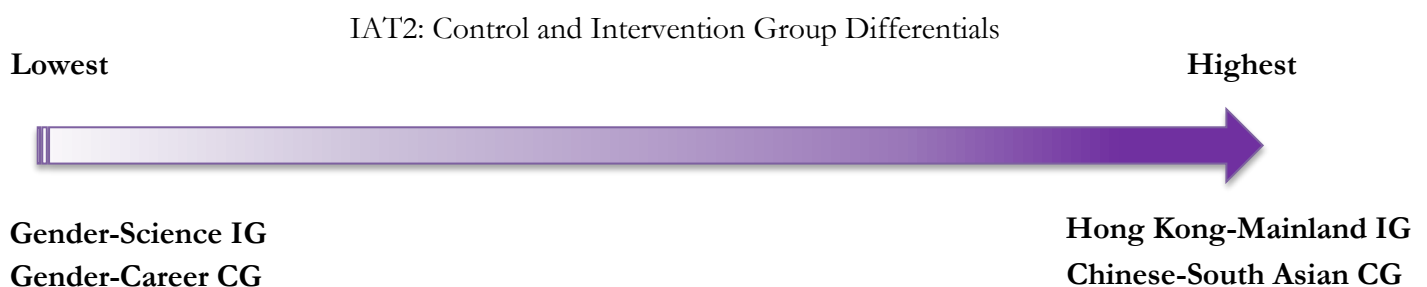
Table 3: Independent Samples T-test

	C/I	N	Mean	Sig. (2-tailed)
IAT1-IAT2(GS)	Control	25	-0.49	.520
	Int	37	-1.03	
IAT1-IAT2(GC)	Control	25	-0.28	.600
	Int	37	-0.61	
IAT1-IAT2(CSA)	Control	25	-0.43	.208
	Int	37	-1.28	
IAT1-IAT2(HKM)	Control	25	-1.26	.319
	Int	37	-0.50	

We then considered whether the groups became less biased after the Intervention. For this, we would look at whether IAT2 scores were closer to zero (unbiased / less biased) than IAT1 scores. This was calculated by taking the absolute value of each IAT score, then subtracting the first score from the second score (IAT2-IAT1). The results tell us how much closer to zero each group moved whereas the sign (-/+) tells us whether they got closer to zero (-) or farther from zero (+).

Based on the results, the Intervention significantly decreased bias (IAT2 scores were closer to zero than IAT1 scores) only in the Gender-Science IAT. For the Gender-Science IAT, the magnitude of change towards zero was higher in the Intervention group (-1.28) than the Control group (-0.06) to a significant degree ($p = 0.033$) (Figure 4). The negative value indicates a tendency towards becoming less biased thus the Intervention group became much less biased compared to the Control group for this test. This indicates that the Intervention worked very well for this IAT for this Intervention group.

For the Gender-Career test, the participants who received the Intervention were less biased, but not significantly (although this could be read as "marginally significant": $p = 0.09$) (Figure 4). This suggests that the results are trending towards significant but not significant at the .05 level. This is probably due to low sample size in terms of the available valid data to determine the change in position between the Control and Intervention groups. Given the exploratory nature of this study, these marginally significant differences are also worth bearing in mind; namely, that the Intervention has a significant impact or the potential for impact on bias reduction. Moreover, this may also suggest that some biases are more entrenched and therefore, harder to tackle (Gender-Career being one of them). This is useful to enable reflection on the Intervention materials and how they may be revised to target this type of bias more effectively. There was no significant difference for either of the other two IATs for the Intervention or Control group (Figure 5). This might suggest that racial biases are more intractable than gender biases in general.

Figure 4: Mean Bias Scores Across IAT Tasks (Control and Intervention Groups)
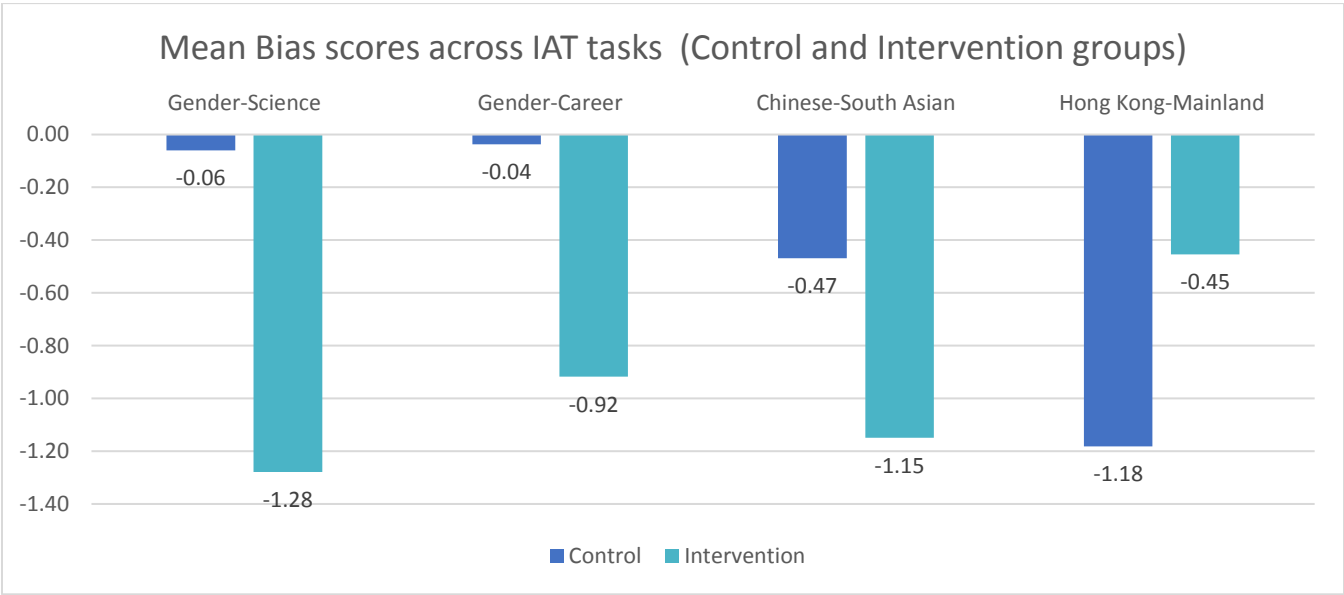
Figure 5
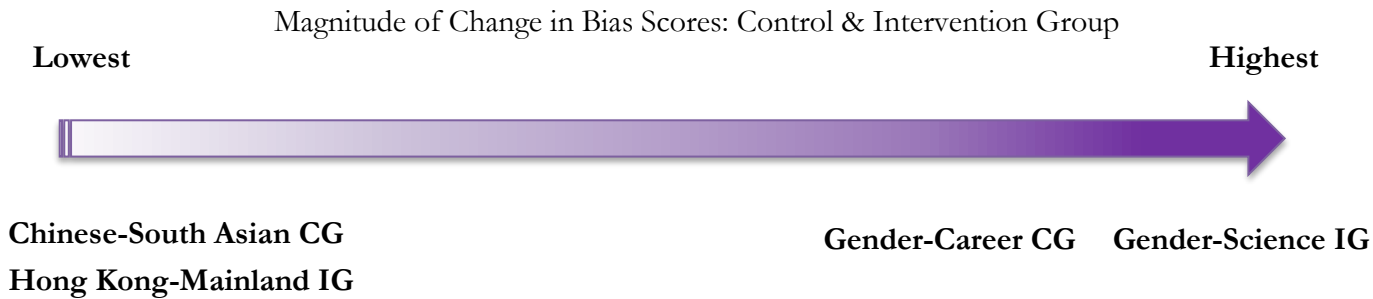
Comparing Differentials Between Males and Females as a Group

Hypothesis 9: *Participants' gender will significantly impact implicit bias among both trial groups and social groups in the Gender IAT.*

Hypothesis 10: *Gender has no impact on magnitude of change in bias scores.*

Hypothesis 11:. *Female participants across all groups will reflect a lower bias score on the Gender IATs than male participants.*

Hypothesis 12: *All groups regardless of gender will reflect high implicit bias scores on the Race-IATs.*

The next part of the analysis examined whether gender as a variable significantly influenced the differentials between male and female respondents irrespective of whether they were in the Control or Intervention Groups. For the purposes of looking at this question, to establish a baseline for IAT1 scores, we looked at the implicit bias levels represented in IAT1 by testing all the Control and Intervention groups together and isolated gender as the independent variable. We ran an all paired-t test which compares two means to see if the average for two groups are significantly different. The results show there was no significant difference in the IAT1 scores between male and female participants for any of the IATs (Figure 6). The raw numbers, however, suggest that females were much more biased on IAT1 in terms of their baseline scores although the difference was not statistically significant based on the test scores. This may be due to the gender imbalance in the sample size which is female heavy.

Figure 6: IAT1 Scores Across IAT Tasks (Gender)

IAT1 scores by gender across all IAT categories

Category	Female	Male
Gender-Science	2.4	1.59
Gender-Career	2.29	1.58
Chinese-South Asian	3.45	2.88
HK-Mainland	3.19	2.29
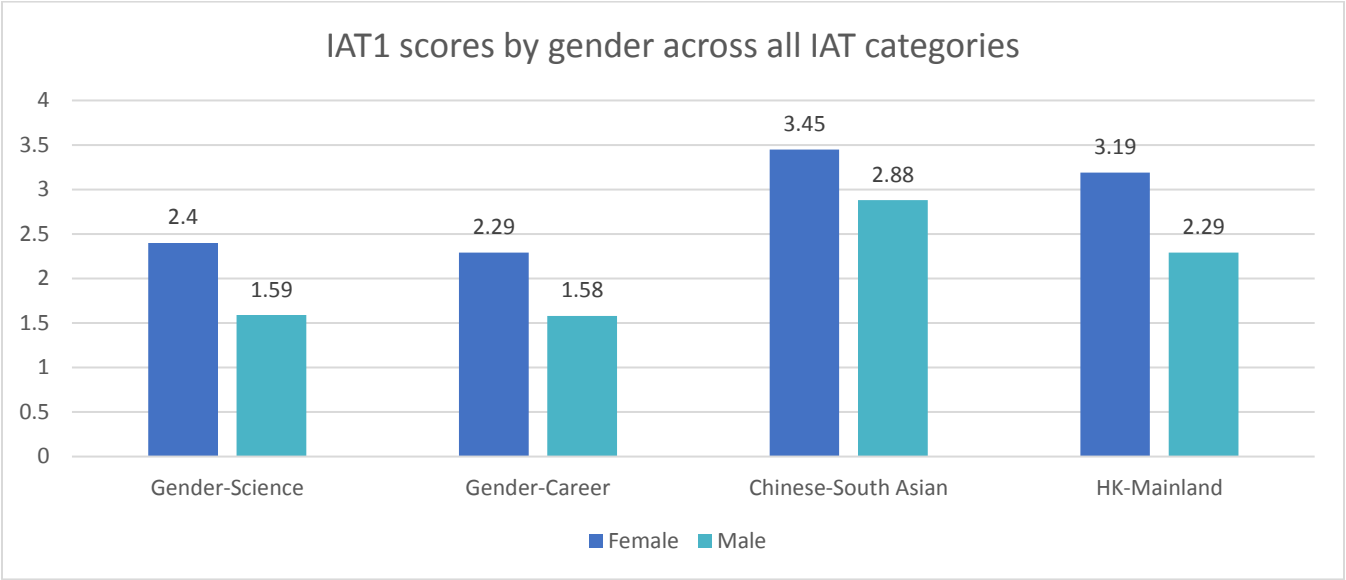
Figure 7: IAT1 and IAT2 Mean Scores Across IAT Tasks (Female)

IAT1 and IAT2 mean scores across all IAT categories (Female)

Category	IAT1	IAT2
Gender-Science	2.40	1.90
Gender-Career	2.29	1.74
Chinese-South Asian	3.45	2.70
Hong Kong-Mainland	3.19	2.20
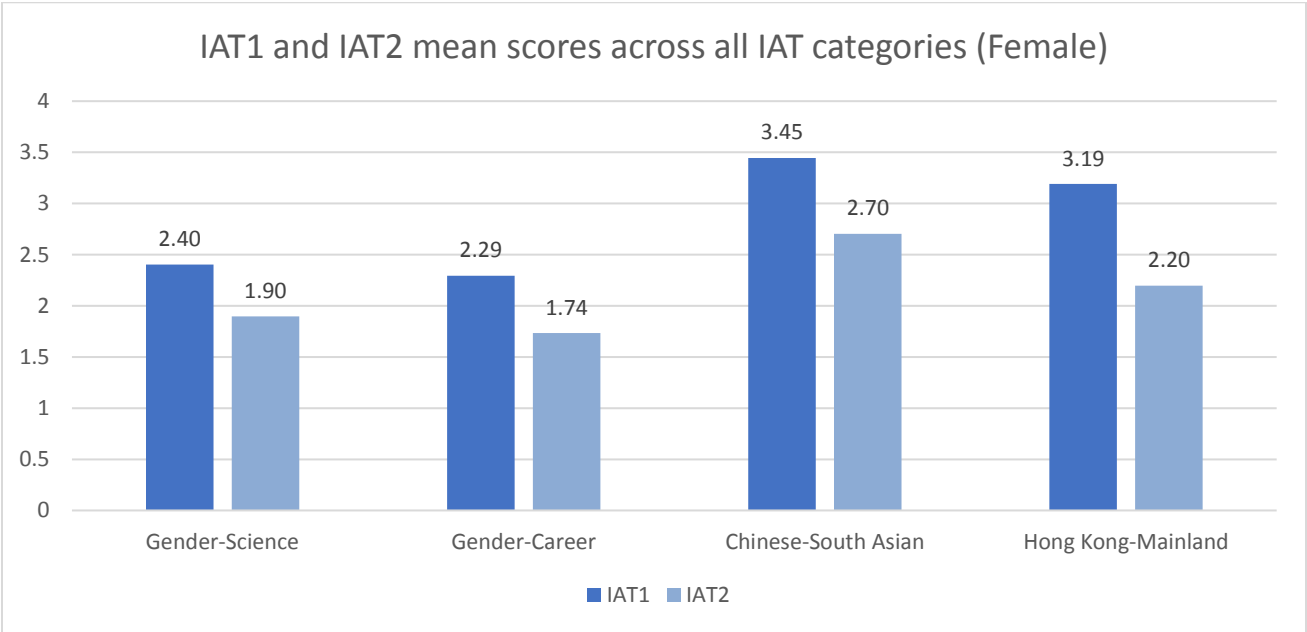
Figure 8: IAT1 and IAT2 Mean Scores Across IAT Tasks (Male)

IAT1 and IAT2 mean scores across all IAT categories (Male)
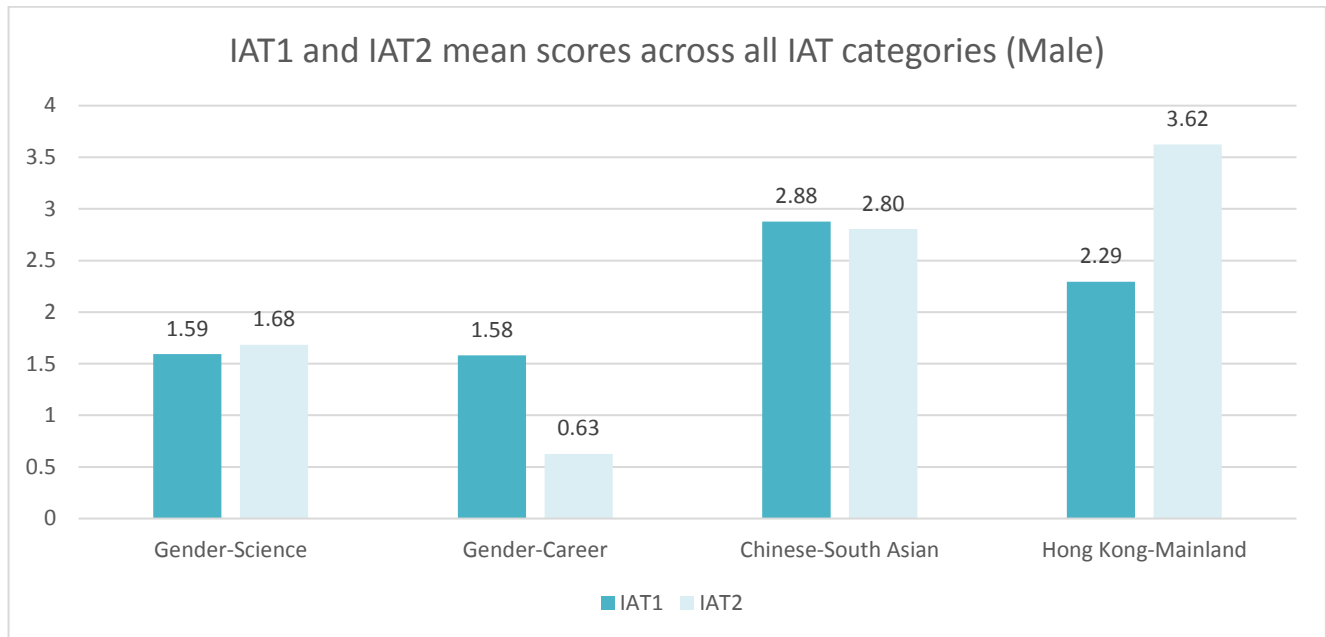
We then looked at whether respondents became less biased over the course of the IAT test-taking task (i.e. did IAT2 scores move closer to zero compared with IAT1 scores) and whether there was a discernible gender difference.

In terms of the difference in magnitude of bias reduction between males and females, there was no significant difference in any of the IATs except for the Hong Kong-Mainland IAT, where females became significantly less biased (Figure 7) while males became more biased in the IAT2 (p = 0.010) (Figure 8). Males also appeared to become slightly more biased on the Gender-Science IAT2 overall. However, these results ought to be interpreted with caution due to the female-heavy sample and the male sample size being much lower.

The mean value is indicative of the score's movement towards zero '0', tending towards less biased. The results show that in the Gender-Science IAT, female IAT2 scores improved by 0.5 whereas males improved just by 0.06. Thus, females improved more than males. However, this difference was not statistically significant. Moreover, the variation between males appears to be fairly high. The sample size for males was small. The results show females improved by 0.83 whereas males got worse by 0.85 in IAT2 for the Hong Kong-Mainland IAT. In light of the above however, it is necessary to consider the extent to which this is driven by certain environmental factors.

Figure 9:

Overall Bias Reduction: Control & Intervention Group by Gender

Bias Worsened   **Bias Reduced**

Hong Kong-Mainland Male IG   **Hong Kong-Mainland Male CG**   **Gender-Science Male IG**

Chinese-South Asian Male CG

    Gender-Science Female CG   **Gender-Career Female IG**

Gender-Science Male CG   **Gender-Science Female IG**

Gender-Career Male CG   **Gender-Career Male IG**

                                             Hong Kong-Mainland Female IG

                                             Chinese-South Asian Female IG
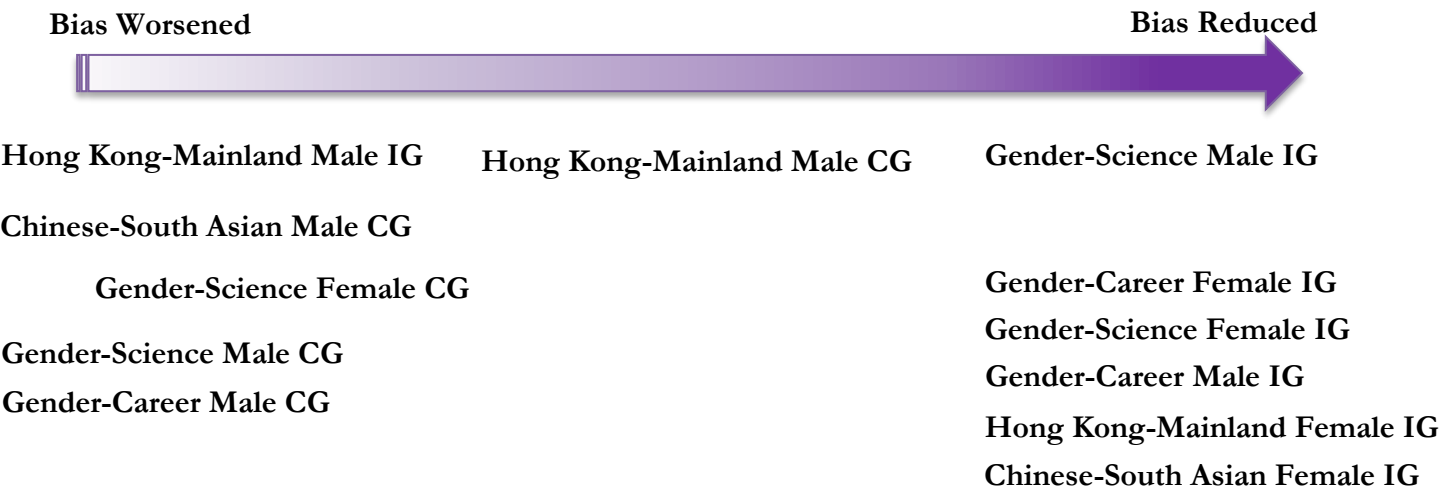
**Figure 10: Mean Bias Scores Across IAT Tasks by Gender
(Control and Intervention Groups)**

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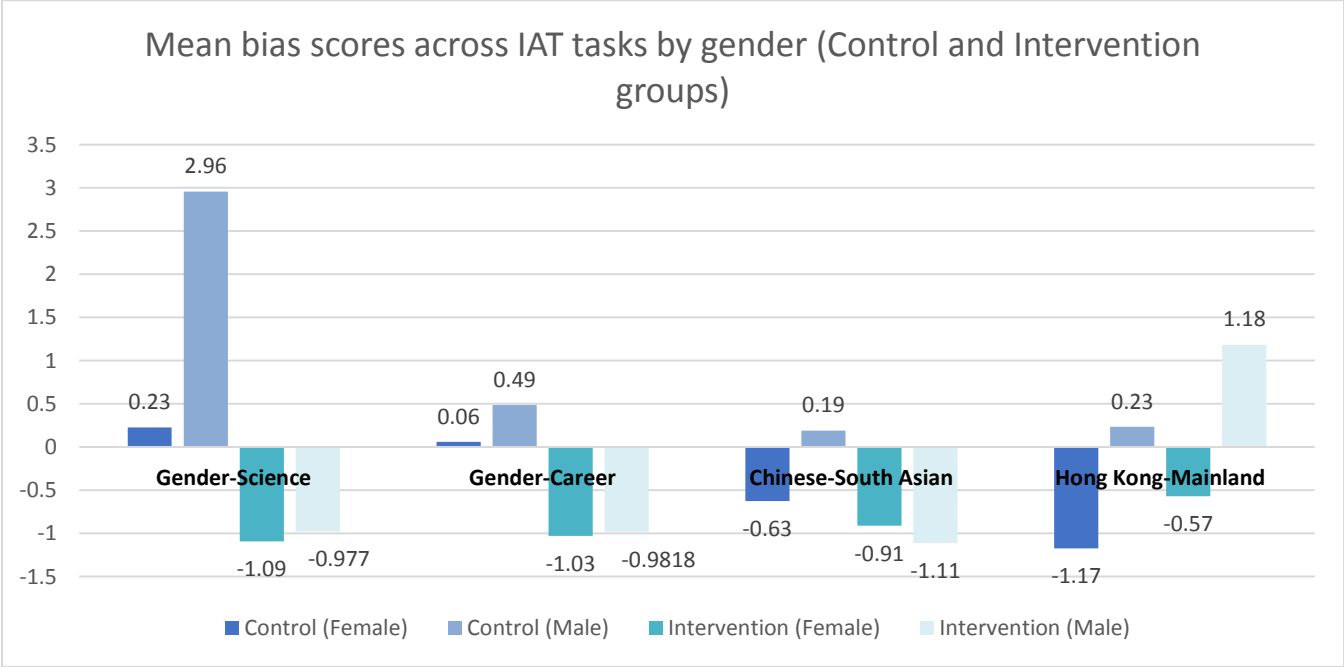
Figure 10 shows the mean bias scores for 4 IAT tasks of both genders and across control and intervention groups. Accounting for differentials between IAT1 and IAT2 scores across Control and Intervention Groups based on gender, the results show that there was a statistically significant improvement in bias scores for the Female Intervention group in the Hong Kong-Mainland IAT ($p = 0.011$). Overall, based on raw scores Females in Intervention groups across all IATs improved their bias scores. All scores improved after the Intervention except Hong Kong-Mainland IAT scores for males, which got worse after the Intervention.

There was a marginally significant difference in the Control group for the Gender-Science IAT ($p = 0.094$) where the bias levels increased in both males and females, which suggests the IAT's test-retest activity has a negative effect on bias reduction, meaning biases are shown to have increased. The increase in male biases (2.95) far exceeds that among females (0.22) for this IAT (Figure 10). In fact, bias got worse among males across Control Groups for all IATs except the Hong Kong-Mainland IAT, which saw a very slight improvement (0.23). None of these differences between males and females were significant however, other than as outlined above.

The deterioration in the bias score (i.e. bias gets worse) is contrary to expectations (Figure 9). However, some other studies have shown that in areas with high levels of historical or socially prevalent bias or where respondents belonging to the 'in-group' experience low self-confidence or self-esteem, it may induce reactive or more biased responses. Alternatively, the results could be a symptom of the empathy they feel for these categories. On the other hand, the fact that there was a very skewed male sample in the Control Group could also explain these results. However, the fact that even for the Hong Kong-Mainland Intervention group with a reasonable sample of males, male scores got worse by IAT2, suggests that there is something here that warrants further exploration in understanding this counter-intuitive effect.

In general, the Intervention appears to have a positive impact in terms of bias reduction for all male and female groups except for an inverse effect in the Hong Kong-Mainland category, with a statistically significant improvement among females in the Intervention group and conversely, a deterioration among the males in the Intervention group (Table 4). Moreover, there is no significant difference on the basis of gender however, these results need to be interpreted cautiously due to the female heavy sample here. In order to develop a better and deeper understanding of gender-based patterns, a more balanced sample is required in future.

**Table 4: Impact of Intervention on Magnitude of Change by Gender
Independent Samples t-test**

	Gender	N	Mean	P-value
Bias(GS)	F	63	-.50	.582
	M	13	-.069	
Bias(GC)	F	67	-.56	.860
	M	14	-.67	
Bias(CSA)	F	66	-.78	.982
	M	15	-.76	
Bias(HKM)	F	67	-.83	.010
	M	17	.85	

*This analysis puts the control and intervention groups together to assess the overall effect of gender.

COMPARING IAT DIFFERENTIALS BY SOCIAL GROUPS

Hypothesis 13: *All trial groups regardless of social grouping will reflect higher levels of bias on the Race-IATs than the Gender-IATs.*

Hypothesis 14: *Participants' social grouping will influence degree of bias with University participants reflecting the lowest bias levels for all IATs out of the three social groups.*

Comparing the IAT1 and IAT2 scores between Social Groups (keeping Control and Intervention group data together) there were no significant differences between the first and second test scores in any of these groups although the Corporate Group suggests a marginally significant difference (High school: p = 0.334; University: p = 0.771; Corporate Employees: p = 0.078) (Table 5).

Table 5: Paired Sample Statistics

			Mean	N
High School	Pair 1	IAT1	1.88	24
		IAT2	1.30	24
University	Pair 1	IAT1	2.14	32
		IAT2	2.36	32
Corporate	Pair 1	IAT1	2.37	10
		IAT2	1.027	10

The results were next analysed for the impact of Social Group and Education Level in terms of Bias. Social Group variation (High school Student, University Student and Corporate Employee) generally did not seem to significantly impact Bias scores; however, the results show that the IAT score differentials were statistically significant in the case of the Hong Kong-Mainland IAT ($p = 0.035$). Moreover, building on this finding, education level also made a significant difference on the Hong Kong-Mainland IAT ($p = 0.060$) (Table 6).

Table 6: Impact of Social Group and Education Level on Bias

	Social Group	Education
Gender-Science	p = 0.452	p = 0.702
Gender-Career	p = 0.636	p = .480
Chinese-South Asian	p = 0.878	p = .647
Hong Kong-Mainland	p = 0.035	p = .060

Figure 11:

IAT1: Lowest and Highest Bias Levels: Social Groups

Lowest   **Highest**

Gender-Career   **Hong Kong-Mainland**
Gender-Science   **Chinese-South Asian**

Figure 12:

IAT1: Social Group Differentials

Lowest   **Highest**

Gender-Science High School Student   **Hong Kong-Mainland High School Student**
Gender-Career High School Student   **Chinese-South Asian Corporate Employee**

                                        Chinese-South Asian University Student

Figure 13:

IAT2: Social Group Differentials

Bias Worsened   **Bias Reduced**

Gender-Science Corporate Employee   **Chinese-South Asian CG**
Hong Kong-Mainland University Student   **Gender-Career CG**

The mean bias scores by Social Group all followed a downward trend comparing the difference between IAT1 and IAT2 showing that overall bias scores went down except for the Gender-Science IAT in which the Corporate Employee group's bias scores went up and for the Hong Kong-Mainland IAT in which the University students' mean bias scores went up (Figure 14). In terms of IAT1, the mean bias scores were highest for the Race IATs across all Social Groups ranging from 3.18 to 4.16, with the Corporate Employee Group and University Student groups exhibiting the highest mean bias scores for the Chinese-South Asian IAT whereas the highest mean score for any IAT1 was 4.16 among High School Group in the Hong Kong-Mainland IAT. In relative terms, the mean bias scores were lowest for the Gender IATs among the High School Group (Figure 14).

Figure 14: Mean IAT1 and IAT2 Scores Across all IAT Tasks by Social Group

Mean IAT1/IAT2 scores across all IAT categories by social group
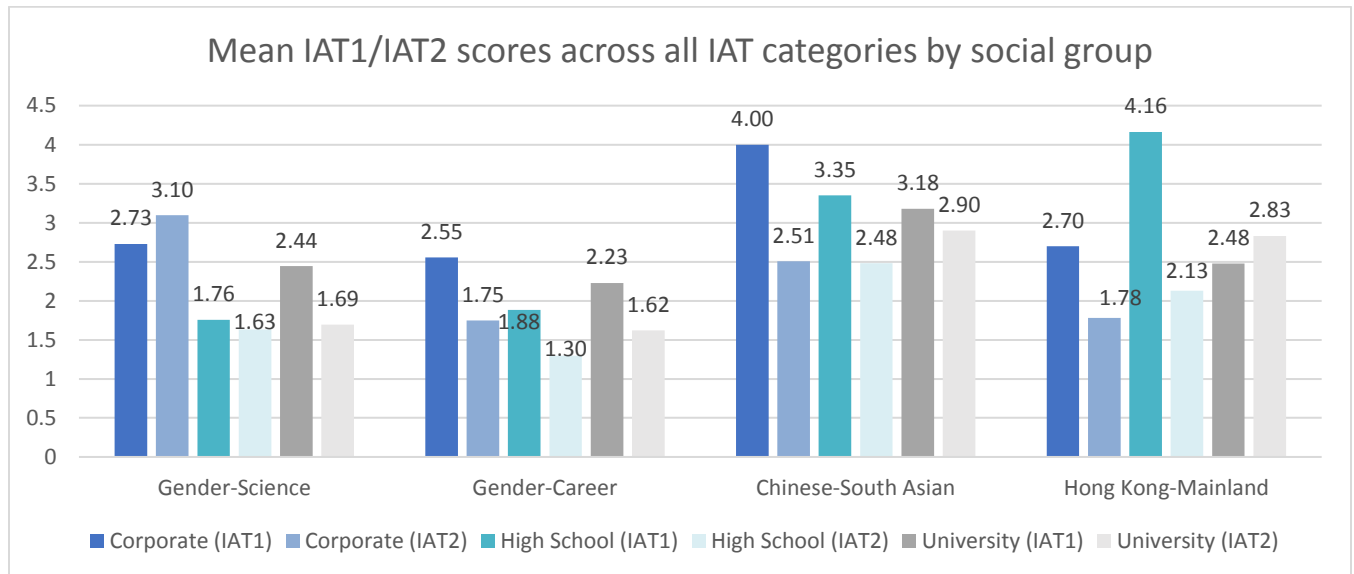
Contextualising IAT Data Against the Questionnaire Data

To better understand the influence of other factors on the IAT scores, the responses to various items on the questionnaire were analysed and interpreted. This serves to compare data from implicit measures with data pertaining to explicit measures.

THERMOMETER MEASURES FOR RACE: CHINESE-SOUTH ASIAN

Hypothesis 15: *Self-reported measures correspond with IAT measures given the spontaneity of the task except in socially sensitive issues (such as race) where there appears to be lower correspondence.*

In a section testing explicit measures of bias, respondents were asked to use a scale of 1 to 10 to report on whether they felt warm or cold towards particular groups with 1 being extremely cold to 10 signalling extreme warmth. They were asked to rate their feelings towards Chinese and South Asian groups.

A Paired Samples t-test was run on the responses, which reflected, as anticipated, a higher mean score for warmth towards Chinese (6.30) than for South Asians (5.95) (Figure 15). The responses to the two sub-

questions were also tested for a correlation coefficient using the Paired Samples Correlations test which returned a 0.552 correlation coefficient at a significance level of $p = 0.000$. The coefficient being closer to 1 suggests that where warmth towards Chinese rises, the sentiment towards South Asians will reflect a similar trend. In terms of the difference between the two values, it was only marginally significant at $p = 0.085$.

Figure 15:

Thermometer Ratings Towards Groups: Overall

Warm   **Cold**

| Chinese | South Asian |
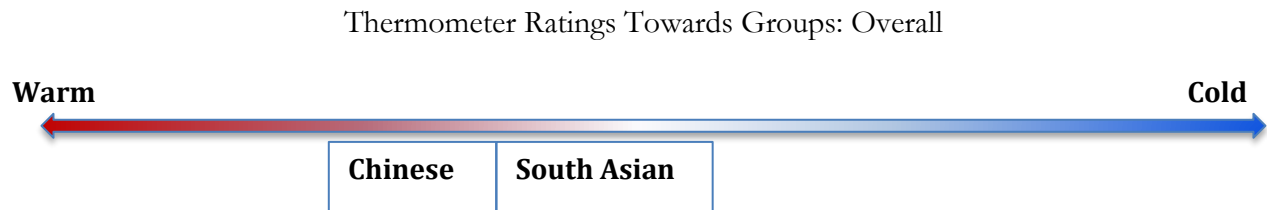
When asked to rate their preference for Chinese and South Asian people on a relative scale of 1 to 7 (the lower the score, the stronger the preference for Chinese whereas the higher the score, the higher the preference for South Asians), the mean score was 3.35, slightly below the neutral mean value of 3.50, demonstrating a slight preference towards Chinese compared with South Asians (Figure 16).

Figure 16:

Relative Scale Depicting Preference of Ingroup and Outgroup: Overall

Preferred   **Not Preferred**

| Chinese | South Asian |
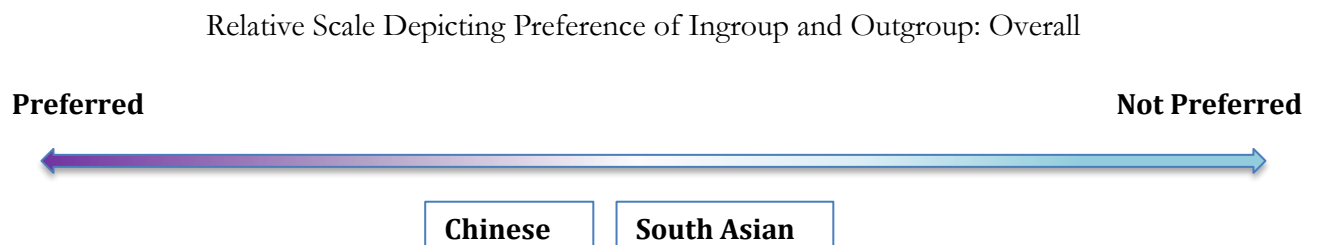
On both questions, there was no significant difference between the responses of the Control and Intervention groups.

Social groupings however did seem to have a significant impact on these ratings. The thermometer ratings were significantly warmer ($p = 0.044$) towards Chinese than South Asians when examined through this variable relative to the thermometer scores tested by gender or trial group (Control / Intervention). Thermometer ratings comparatively were lower towards South Asians but not significantly so, although the High School student ratings were least warm towards South Asians. In general, Corporate Employees' thermometer ratings were warmest overall rating warmth towards Chinese at 7.73 and 6.36 towards South Asians (Figure 17).

Figure 17:

Thermometer Ratings Towards South Asians: By Social Group

Warm   **Least Warm**

| Corporate Employees | University Students | High School Students |

In terms of personal preference towards Chinese versus South Asians, High School students rated the strongest preference (3.00) for Chinese, followed by Corporate Employees (3.27) with University students reflecting a very slight preference for South Asians (3.52) (Figure 18). However, none of these differences were statistically significant.

Figure 18:

Relative Scale Depicting Preference of Ingroup and Outgroup: Social Groups

Preferred Chinese   **Preferred South Asians**

| University Students |

| High School Students |

| Corporate Employees |
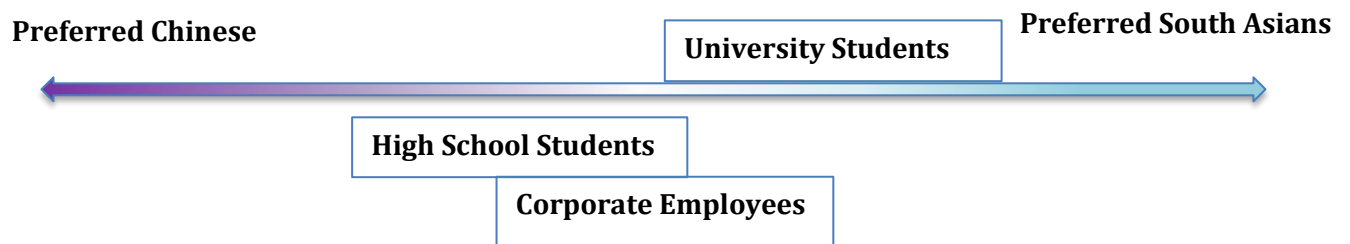
To ascertain whether there were internal or external motivations for their positions towards South Asian groups, respondents were asked to rate on a relative scale of 1 to 7 whether their behaviour was motivated by an internal belief or commitment to non-discrimination or social expectations for political correctness or to avoid disapproval from others. The means scores are lower on the self-motivation/belief items ranging between 2.45 and 3.10 (meaning that they strongly believe in the principle of equality and that it is wrong to stereotype against South Asians) while the scores are much higher on the items indicating external motivations such as political correctness or admonishment, at a mean value of 3.97 (which means they disagree that their motivations are the result of social desirability bias).[257] However, the disagreement with

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[257] Of course, reporting this fact could itself be a reflection of the social desirability bias at play.

the proposition appears to be fairly mild in contrast with their views of the strength of their commitment to equality as their primary motivator.

Social and gender groups followed a similar pattern with the Corporate Employees demonstrating the strongest disagreement with the idea that external motivators such as political correctness or admonishment were key determinants of their actions.

An ANOVA test showed there was no significant difference in terms of the responses between the Control and the Intervention groups, the three Social Groups or Gender groups.

EXPLICIT MEASURES FOR RACE: HONGKONGER-MAINLANDER

The same thermometer ratings were sought for HongKongers and Mainlanders. Overall, the mean ratings for HongKongers were higher for HongKongers than Mainlanders for all groups taken together (Control and Intervention). The mean thermometer scores for HongKongers averaged out at 6.97 while for Mainlanders, they averaged 5.41 (Figure 19), a wider differential (by 1.56) than seen for the Chinese-South Asian thermometer ratings above (0.35). This difference was statistically significant at $p = 0.000$. For the Paired Sample Correlations test, the two thermometer scores were significantly correlated at $p = 0.011$.

Figure 19:

Thermometer Ratings Towards Mainlanders and Hong Kongers: Overall

When asked to rate HongKongers and Mainlanders in terms of preference on a relative scale of 1 to 7 with 1 being strongly prefer HongKongers to 7 indicating a strong preference for Mainlanders, the mean score obtained was 2.45, tending fairly strongly towards HongKongers (Figure 20). Based on the premise that opportunities for exposure to the out-group concerned would influence (positively or negatively, depending on the experience) the thermometer scores, these scores were further correlated with responses on a question asking participants to state whether they had ever met a Mainlander. However, the scores do not reveal any statistically significant correlation between the two sets of responses.

Figure 20:

Relative Scale Depicting Preference of Ingroup and Outgroup: Overall

Preferred   **Not Preferred**

| Hong Konger | Mainlander |
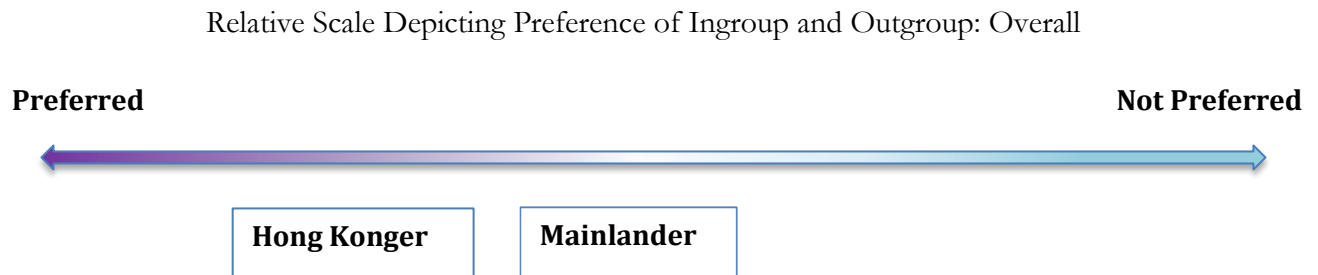
Analysing the scores by trial groups, the overall mean score was warmer towards HongKongers for the Intervention Group (7.11) and the Control Group (7.09) by a very slight margin and much cooler nearing neutral towards Mainlanders for both the Control Group (5.44) and the Intervention Group (5.38 – which was even cooler). On the other hand, preference for HongKongers was marginally higher (2.32) in the Intervention Group while being marginally lower for Mainlanders (2.66) in the Intervention Group compared with the Control Groups. However, these differences were not statistically significant.

In terms of Social Groups, all groups were much warmer towards HongKongers than Mainlanders whereas they exhibited a stronger preference towards HongKongers over Mainlanders (with a differential of 2.4) (Figure 21). The University and Corporate Employee groups were on par (2.37) with a strong preference for HongKongers with the High School group slightly behind them on the spectrum (2.67). High School students, while preferring HongKongers, had a lower warmth score (6.50) relative to the University (7.21) and Corporate Employee Groups (7.82). On expressing their sentiment towards Mainlanders, the University Group scored the lowest at (5.38) followed by the High School student group (5.42) and then the Corporate Employee Group (5.50). All three scores hover in the neutral area of 'neither warm nor cold' and this is striking. However, none of these differences were statistically significant based on social grouping.

Gender was a variable which resulted in statistically significant differences in terms of thermometer scores, with male respondents feeling much warmer towards HongKongers (8.38) relative to Mainlanders (5.47), a difference of 2.19 ($p = 0.001$). In terms of preference, male respondents exhibited a stronger preference towards HongKongers (2.05) than females (2.56) (marginally significant at $p = 0.083$). This interestingly reveals a gender dimension to bias against Mainlanders which was underscored in the Race IAT pertaining to Hong Kong-Mainland.

Figure 21:

Thermometer Ratings Towards Ingroup and Outgroup: By Social Group
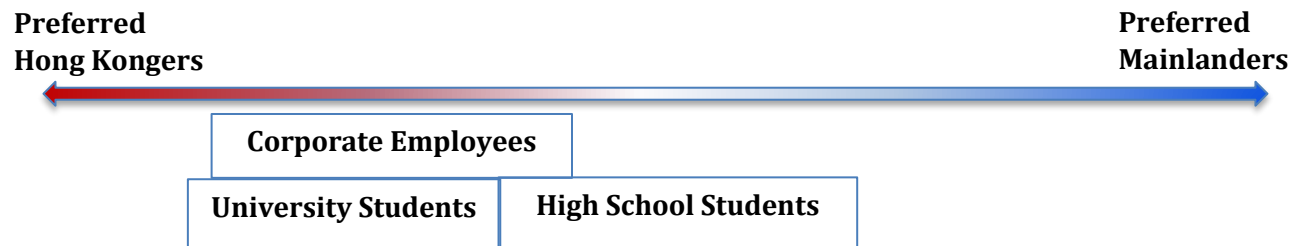
These findings are more or less consistent with the overall findings from the IAT measures that male implicit bias got worse between IATs and post-Intervention on the Hong Kong-Mainland IAT. Education and social group remains an important variable in terms of impact on explicit bias measures in relation to Race, particularly for Mainlanders as an outgroup. In terms of the relatively mild distinctions between in-group and out-group treatment in relation to South Asians, the findings partly confirm Hypothesis 15, reflecting that while there would be correspondence between explicit and implicit measures, it would be low in relation to socially sensitive issues. In this sense, we could say that implicit bias scores significantly pronounce the bias compared with the explicit measures. This is readily explicable in terms of the social desirability bias. Oddly however, while this is true for the Chinese-South Asian outgroup, this trend does not hold true for the Mainlanders as an outgroup, for whom the explicit bias measures reveal significant biases meaning that the IAT findings are not only predictive on this front but also, that social desirability bias does not seem to mitigate the expressions of explicit bias towards Mainlanders as an outgroup. The explicit measures of bias here appear to have confirmed the findings regarding the impact of the Intervention in relation to reducing bias towards Mainlanders among males in particular. Moreover, in terms of Social identity theory, the general trend of a preference towards one's ingroup is affirmed as expected and this finding is also statistically significant in relation to Hong Kongers and Mainlanders in the explicit measures.

The findings also affirm the intractable nature of racial bias and the reality that particular groups are at a greater risk on account of the bias against them being less visible than the actual bias harboured against them (leading to micro-aggressions against them in various settings given the implicit bias findings) or the converse, that they are persistently exposed to overt negative biases.

EXPLICIT MEASURES FOR GENDER: GENDER-SCIENCE

Respondents were asked to rate their liking or dislike towards Liberal Arts and Sciences 5-point scale with 1 representing strong liking and 5 representing strong dislike. Examining mean scores by gender, it was striking that for both trial groups taken as a whole (Control and Intervention), males reflected a mean score of 2.3 in terms of liking towards both Liberal Arts and Sciences whereas females clocked a small difference with a slightly stronger liking (2.2) towards Liberal Arts than males and a slightly stronger dislike (2.4) towards Sciences than males.

To test the strength of respondents' associations of Gender with Sciences and Liberal Arts respectively, respondents were asked to rate on a 7-point scale from strongly male (1) to strongly female (7). The mean scores were lower for Sciences (3.13) than for Liberal Arts (4.47), reflecting a stronger association of males with Sciences than Females with Sciences on the one hand and females with Liberal Arts than males with Liberal Arts on the other. A Paired Samples Correlation test reflected that responses to this second set of ratings (Gender-Science/Gender-Arts associations) were significantly correlated ($p = 0.029$) and a Paired Samples T-test also returned a statistically significant difference based on gender ($p = 0.000$).

Respondents were asked to rate the level of importance of various factors that are often proffered to explain the difference between the proportion of women in science and engineering faculty positions at top research universities relative to men. The lowest mean rating out of 5 was given to the explanation that 'In general, men and women differ in their willingness to devote the time required by such 'high-powered' positions' (2.18) while the highest rating of importance was given to the explanation that 'Directly or indirectly, boys and girls tend to receive different levels of encouragement towards developing interest in the sciences' (3.16). Ratings for both of these explanations were found to be statistically significant overall. Another statement that received very high ratings in terms of importance in explaining the status quo was 'In general, consciously or unconsciously, men are favoured in hiring and promotion processes' (2.91).

When asked what their personal goals were in terms of the importance of being knowledgeable about the Sciences and Liberal Arts respectively, rating their responses on a 5-point scale from extremely important (1) to not at all important (5), the males rated both as not so important (Sciences: 2.75; Liberal Arts: 2.60, reflecting a slightly higher level of important placed on the latter) whereas females rated both as Sciences as more important (2.36) than Liberal Arts (2.72). However, these differentials based on gender were not statistically significant although they do reveal that females valued Sciences more than Liberal Arts when compared with men.

This set of findings in relation to Gender-Science confirms Hypothesis 15 reflecting a correspondence between IAT data and explicit measures. Alternatively, this may also be a function of the social desirability bias effect given these are explicit measures. One could also argue that the findings could reflect a significant improvement in bias scores as a result of the test-retest practice effect of the IAT. However, this is not

borne out by the IAT2 data which suggests that for all male control groups (except Hong Kong-Mainland), bias scores worsened. Therefore, there would be greater variability across this data if the social desirability effect were not in play in respect to the explicit measures. That said however, Gender Science was the IAT with respect to which the bias scores were generally the lowest of all 4 IATs.

EXPLICIT MEASURES FOR GENDER: GENDER-CAREER

Respondents were asked to rate the level of importance they accord to Family and Career respectively, rating their responses on a 5-point scale from extremely important (1) to not at all important (5). The mean rating accorded by males to Family (2.15) was of lower importance than the mean rating males attached to Career (1.95), rating it very important. The mean rating of females towards Family was 2.20 whereas Career was rated at 2.10. This reflects that both males and females attached a stronger level of importance towards Career when compared with Family. The differences between the genders were not statistically significant.

Respondents were asked to indicate their agreement or disagreement with a series of propositions concerning marriage and childbirth and the advancement of career or education. The questions were essentially framed to ascertain degree of acceptability for males and females to put off marriage or childbirth in order to advance their education or careers. The ratings were on a scale of 1 to 7 indicating strong agreement (1) to strong disagreement (7) with the statement. Most of the responses were neutral as to whether males or females could acceptably put off marriage to advance career or education (mean score of 3.3-3.5) although there was still a higher level of disagreeability towards males doing so than females. On the issue of whether they could put off childbirth for the same reason, there was a stronger level of disagreement with the statement that it is acceptable for males (3.18) to do so than for females (2.98) who were in the same position. The difference in responses for this latter question pertaining to females was just marginally statistically significant ($p= 0.051$) with the Control group showing the least disagreement with this statement regarding the acceptability of women postponing childbirth to pursue their further education or careers compared with any of the responses to the other 3 statements to this effect for Control and Intervention groups.

This is indicative of the understanding that childbirth and marriage are not impediments to men's advancement in education or career and therefore, there is no reason to postpone it whereas for women, these life events can and do impact their prospects and therefore, it is more acceptable for women to think they need to postpone these events if they wish to pursue these goals since marriage or childbirth will likely hinder their chances. This is closely aligned with the perceptions that these relationships and responsibilities remain gendered and are understood as such.

Considering the data in light of the social groupings, all groups consider it slightly disagreeable for women to put off marriage and childbirth but even more so for men. University students appear to be the less

differentiating in terms of whether gender makes any difference to the acceptability of decisions to postpone marriage or childbirth to advance education or career with a mean score of 2.65 for men putting off these life events and a slightly lower level of acceptability (but still verging on acceptable) for women (2.72) to do so. On the other hand, High school student groups were in slight disagreement with the acceptability of women putting of childbirth / marriage (3.25) but in even greater disagreement with men doing so for the advancement of career or childbirth (3.67). Finally, Corporate Employees were the most biased in this regard with a mean rating of 4.10 indicating their disagreement with women putting off marriage and childbirth but an even stronger expression of this disagreement emerges for men (4.50) seeking to do so to advance education and career. These differences based on social grouping were found to be statistically significant at $p = 0.025$ in terms of the unacceptability of women doing so and $p = 0.002$ for men doing so. There were no statistically significant differences in terms of the responses of males and females in the sample. Their responses were consistent. This suggests that the findings are strongly significant for both but even more so for the stronger level of disagreement expressed towards men deciding to do so. This indicates entrenched gender stereotypes about gender and family and gender and career.

These findings confirm both Hypothesis 15 regarding the low correspondence with socially sensitive issues and reflect the social desirability bias. However, the findings are in line with the IAT findings indicating that there are differences by social groupings and that the Gender-Career bias is fairly entrenched.

CORRELATING DATA WITH OTHER BACKGROUND FACTORS

Hypothesis 18: *Strength of social network relationships with particular groups will impact IAT scores.*

Responses to a question about strength of social network with groups of particular backgrounds or gender indicate a statistically significant impact on magnitude of change, bias scores, and direction of bias. In general, strong relationships would mitigate levels of bias against members of the groups concerned whereas no access or generally weak social networks with these groups will reflect a degree of bias towards them.

Some demographic factors were found to be statistically significant in terms of the impact on **bias scores**. In general, those respondents raised by Working Mothers were found to have become less biased in IAT2 (Control and Intervention data grouped together) compared with those who were raised by Stay-at-Home Mothers (who also experienced bias reduction to varying degrees). The magnitude of change was higher for the Gender-Science and the Hong Kong-Mainland IAT. However, on the Gender-Career IAT, the findings were reversed whereby those raised by Working Mothers were found to have become significantly more biased compared to those raised by Stay-at-Home Mothers, whose bias scores reflected a considerable reduction ($p = 0.04$) (Figure 22).

In terms of trial groups, Intervention group participants raised by Working Mothers have a significantly higher magnitude of change in bias scores (-2.54) than those who do not have this condition in upbringing (-0.01) in the Gender-Science IAT, p = 0.04. This is also true for the Hong Kong-Mainland IAT where those raised by Working Mothers had a magnitude of change of -1.92 compared with those who were not at 0.44 (IAT2 was worse than IAT1), p = 0.023 (Figure 23).

Members of the Control Group who were raised by Working Mothers also displayed worsening bias scores (1.09) in the Gender-Career IAT compared with those who were not raised by Working Mothers (-.81, reflecting a marginally positive bias score), p = 0.051 (marginally significant) (Figure 24).

Responses to a question about strength of social network with groups of particular ethnic backgrounds indicate a statistically significant impact on magnitude of change, bias scores and direction of bias. Those who shared strong relationships with South Asians for example, were found to have considerably greater magnitude of change (-3.40) and far higher reduction in **bias scores** (-2.35) than those who did not have such a network (Magnitude of Change: -0.08; Bias Score: -0.29) for the Gender-Science IAT (p = 0.004 for magnitude of change and p = 0.03 for **bias scores**) (Figure 22).

On the other hand, those who had no strong social network with Mainland Chinese were found to have higher reduction of bias scores (-1.25) compared with those who did have such a network (0.59, indicating they were still or became more biased) for the Gender-Career IAT (p = 0.002). Similarly, those with a strong social network of Caucasians became more biased in the Chinese-South Asian IAT (0.18 with a very marginal magnitude of change (0.58) but in a direction indicating IAT1 score was better than IAT2 score); whereas those who did not have a strong network with this group had a high magnitude of change score (-1.35), p = 0.011 and a high reduction of bias score (-1.01) in the Gender-Career IAT (p = 0.042) and in the China-South Asian IAT (-1.26), p = 0.43 (Figure 22).

For those in the Intervention Group who indicated a strong social network or relationship with South Asians, they experienced a greater magnitude of change (-3.32) than those who did not have access (-0.38) and this finding was most significant in the Gender-Science IAT (p = 0.042). Those with no strong network with Mainland Chinese, their bias scores improved considerably (-1.72) relative to those who did have such access (0.06, reflecting a worsening of bias scores). This finding was statistically significant in relation to the Gender-Career IAT (p = 0.014) (Figure 23).

Interestingly, those in the Control Groups who had a strong social network or working relationship with boys or men in the Science disciplines experienced high magnitude of change in bias scores (-2.64) than those who did not (-0.04) in the Hong Kong-Mainland IAT, p=0.032. As a corollary, this significantly enhanced their bias reduction with scores trending towards biased in a good way (-2.49) compared with those who did not have such a network (-0.48, bias score marginally reduced just below neutral), p = 0.065 (marginally significant). This network also had an impact in that it resulted in a worsening of their bias score

(1.67) in the Gender-Career IAT compared with those who did not have access to such a network in the same way (-1.21, reflecting bias reduction and considerable improvement towards positive bias), p = 0.002 (Figure 24).

Those with a strong network of girls or women in the Control Group did not see improvement in terms of magnitude of change in bias scores for the Gender-Career IAT (0.41), p = 0.014 whereas those who did not have such a network reflected a significantly large magnitude of change (-4.16). Likewise, this network resulted in the Control Group seeing a slight improvement in the bias score (-0.96) while those without the network became signicificantly more biased (2.25), in the Chinese-South Asian IAT, p = 0.049 (Figure 24).

For Control Group participants with a strong network with South Asians, the magnitude of change in bias scores was -3.46 while those without such a network experienced a marginal change in terms of magnitude (0.42) for the Gender-Science IAT, p = 0.049. Likewise, the bias scores of those with strong ties improved with them signifying positive bias (-2.46) while those without these ties worsening in terms of bias (0.98) in Gender-Science IAT, p = 0.051 (marginally significant) (Figure 24).

On the other hand, those in the Control Group with a strong working relationship with Caucasians, the magnitude of change worsened in terms of IAT2 scores being far worse than IAT1 scores (1.39) whereas those without such a network saw a significant magnitude of change score (-1.51) in the Chinese-South Asian IAT, p = 0.018. Likeiwse, those without the network of Caucasians at close quarters significantly improved their bias reduction (-1.54) while those with such access worsened considerably (0.70), for the Chinese-South Asian IAT, p = 0.039 (Figure 24).

Key:

      a. x-axis: Reduction in bias score (negative value connotates increase in bias)

      b. y-axis: strength of social network (8 = strong, 2 = weak)

      c. Social network with

          i. **C**: Caucasians

        ii. **MC**: Mainland Chinese

      iii. **SA**: South Asians

      iv. **WM**: Working Mothers

       v. **GW**: Girls/Women

      vi. **BMS**: Boys/Men in Science

d. Relevant IAT test:

    i. **Gender-Science**

    ii. **Gender-Career**

    iii. **Chinese-South Asian**

    iv. **Hong Kong-Mainland**

Figure 22:

Figure 23:

Effect of strength of social network with particular groups on bias reduction (Intervention Group)

Strength of social network

Reduction in bias score (negative value connotates increase in bias)

Figure 24:

Effect of strength of social nertwork with particular groups on bias reduction (Control Group)

Strength of social network

Reduction in bias score (negative value connotates increase in bias)

These findings demonstrate on many levels how much social networks and upbringing matter in terms of the influence these wield on our implicit biases as well as the prospects for engineering change through appropriate interventions. Taken as an entire group, respondents raised by Working Mothers were found to have significantly improved scores for IAT2 relative to those raised by a Stay-at-Home Mother. The Intervention Group reflects a further uptick in these scores (to a significant level for Gender-Science IAT and Hong Kong-Mainland IAT) in contrast to the scores for the Control Group, which worsened for those raised by Working Mothers within that group. This suggests gendered upbringing which reinforces stereotypes about housewives and motherhood as designated social roles for women may have a detrimental effect whereas modelling equality through various means, has a positive effect in terms of bias reduction. This finding, however, was reversed for the Gender-Career IAT indicating bias levels increased for those raised by Working Mothers whereas those raised by Stay-At-Home Mothers improved significantly. Higher bias levels in this regard may be indicative of a backlash against mothers with careers or perhaps a pronouncement on the absent mothers who ought to have been home to fulfil their child-rearing responsibilities. The Intervention seems to **_effectively_** address this based on the data.

The second major finding here is that the strength of social networks with particular racial, gender and disciplinary groups is significantly correlated with change in bias scores, magnitude of change as well as whether the Intervention had any impact. For instance, strong networks with South Asians seemed to result in greater magnitude of change and a reduction of bias for example in the Gender-Science IAT. This was reinforced for the Intervention Groups and for the Control Groups. The reverse appears to true for social networks with Mainland Chinese. Those with strong networks with this group were found to have become more biased whereas those with no such network saw their bias scores reduced in respect of the Gender-Career IAT. A similar effect of negative correlation between strength of social network and reduction of bias scores is observable for those with strong networks with Caucasians. The greater the access, the higher the bias in the Chinese-South Asian IAT2; those without such a network had a high reduction of bias and magnitude of change score in the Gender-Career IAT and the Chinese-South Asian IAT. This was true for the Control Groups too.

Strong networks with South Asians advance bias reduction in Gender-Sciences and Gender-Career whereas networks with Mainlanders seem detrimental in terms of impact on bias reduction in Gender-Career while strong working relationships with Caucasians reinforce racial biases against South Asians. It is difficult to pinpoint without additional data what these effects may be attributable to but it may be that there are significant exemplars of strong South Asians who are a positive influence in relation to Gender-Sciences / Gender-Career whereas in terms of Gender-Career, Mainland exemplars may tend to reinforce gender biases given the salience of males in top positions in displines of Science particularly in Hong Kong and China. Strength of network with Caucasians may reinvoke the extant power hierarchy which puts South Asians into a framework which renders them inferior relative to Caucasians. Alternatively, these networks project their

own implicit biases about South Asians onto the respondent groups, resulting in this exacerbation of bias scores. Finally, in one sense, exposure to the men in sciences reinforces the male-science/female-liberal arts stereotype, further entrenching it. On the other hand, it is interesting to note that strong networks with women enhance racial acceptance towards South Asians while exposure to South Asians enhances bias reduction in relation to Gender-Sciences.

Strong working relationships or networks with men in the science disciplines also impacted magnitude of change and bias scores positively in relation to the hong kong-mainland iat compared with those who did not enjoy such a network. The network access however, worsened scores in relation to gender-career iat when compared with those without this network. Flipping the gender script to consider the impact of a strong network of women did not see an improvement in gender-career iat magnitude of change or bias scores whereas those without this network experienced a significantly large improvement in bias scores on this front. For the control group without such access, they became significantly more biased on the chinese-south asian iat while improving gender-science iat scores and magnitude of change for those with access to this network.

CORRELATING DATA WITH POST-IAT BEHAVIOURAL TASKS

Hypothesis 16: *IAT is of predictive value in relation to the Behavioural Tasks for both Gender and Race based tasks.*

For the first task with multiple choice options of people of different ethnic backgrounds as awardees for prominent competitions or prizes, the majority of the participants (37.23%) selected the person with a Caucasian-sounding name for the Men's 10m Air Rifle Olympic Competition, followed by a Mainland Chinese name (26.60%). For the World Class Chess Championship, the Mainland Chinese name was the most popular choice (40.43%) followed by the South Asian name (22.34%). On the other hand, the name most often selected for the Nobel Prize for Physics was male (69.15%) whereas for the Nobel Prize for Literature, a bare majority opted for the female-sounding name (55.32%).

For the job vacancy, the majority of the participants would hire the female for the job (55.32%) whereas for the Student Union election, both candidates were selected an equal number of times (48.94% each).

Hypothesis 17: *Intervention Groups show reduced bias on Behavioural Tasks compared with Control Groups.*

Looking at the data by trial group, the Intervention Group were overwhelmingly more likely to hire the pregnant mother of two than the third-time father-to-be compared with the Control Group which predominantly selected Kelvin for the position. The reasons behind the decision provide interesting insights into the underlying considerations and give us pause for thought as to their relevance. For example, while overall it appears that the groups opted for an option that was not influenced by gendered considerations, if we examined the reasons offered, the Control group frequently indicated reasons that seemed unrelated

to the job qualifications (for example, 'Rachel is pregnant' often featured as a reason for hiring Kelvin). Another observation is that the in-group (female respondents) mostly focused on job qualifications. There were some instances of ingroup institutional favourtism towards the HKU candidate. A fair amount of pregnancy- and family-status-based discrimination is evident from the commentary of the Control Group, which also reflected some fairly gendered language (Rachel's fitness of health given her pregnancy and the intensity of work required, questions about whether she would be abe to cope given the child care responsibilities). Interestingly, none of these gendered constraints applied in terms of considerations impeding Kelvin's appointment despite the fact that he had similar family-status circumstances and parental responsibilities for young children. This connotes that the assumption underlying the Control group's responses is that women are usually responsible for these aspects of family life and therefore, the business interest would lie in greater productivity, value for money and candidate choices that were least disruptive.

In terms of the Multiple Choice questions in relation to Race and Gender, the IAT1 and IAT2 is also of predictive value here although there does not appear to be any statistically significant correlation between the outcomes for the Intervention and Control Groups in relation to these categories. However, the results do suggest a tendency to stereotype by race and gender in relation to sports, phyisics and humanities. One suprising element however, was the 50% split in votes received by both candidates for the student council, highlighting the irrelevance of a racial signifier in the candidates' names by the time of the Behavioural Task activity. This is at odds with the IAT findings as well as the explicit measures.

DISCUSSION

While we stand to learn from the role and impact of the constitutionalisation and legislation of equality and non-discrimination principles in the US, European, South African and Australian contexts, race in Asia has its own genealogy and history. A failure to situate the tools used in light of the historical, political, social, cultural and legal context within which it is intended to work, any intervention is likely to be less than effective. This is one of the central reasons for the lack of traction in effectuating interventions that work to counter unconscious bias thus far. Context is particularly important when dealing with deeply entrenched biases that have moved to the subconscious realm. The failure to address structural issues of racism and sexism necessarily impair the prospects of effective redress going forward.

Given that the socialisation of attitudes, values, and preferences among individuals, which forms the basis of stereotypes and biases, is often based on and informed by familial, cultural, religious, racial or ethnic, national, political and economic contexts, it is vital to take into account the relevant context in investigating the prevalence and manifestation of unconscious bias in a given region or society. Without this critical understanding of context, any intervention is likely to be less than effective. Despite legal and policy measures being in place to tackle racial biases in 'Western' countries and in many countries across Asia, these

challenges continue unabated. Implicit bias is harder to tackle not because it is invisible; but rather, due to a failure to acknowledge it in spite of the overwhelming evidence. We are far from 'post-racial'.[258] In the same vein, gender-based biases have continued to play a subtle but influential role in determining access, inclusion, victimisation and success in the lives of millions of women both historically and presently. Societies however, remain complacent that we have moved past rampant sexism. Extensive research and data exists showing that gender-based bias remains entrenched in our societies – East and West.

However, context does not simply refer to societal context but also sector-specific context in terms of the historical development of a field of study or professional discipline and how it has come to be populated. These findings bear significant implications in a range of fields such as educational and corporate contexts, as studies cited in the Literature Review above have demonstrated. Moreover, these biases are not exclusive to any particular gender or type of person: a 2017 study found that a panel with at least one woman assessor was *less likely* to recommend a female candidate for a tenure track position than an all-male panel.[259] This casts a long shadow over the superficial approaches we presently take to diversity by setting the seemingly low bar of at least one woman on a panel. However, as research demonstrates, this composition is not conducive to countering unconscious biases. In Hong Kong, and most places, any discussion on strategies for inclusion and diversity often begins with a firm commitment to the ideal that "We appoint on merit". However, we would be wise to caution this claim. As Dame Barbara Stocking, president of Murray Edwards College at the University of Cambridge has asked, 'Whose merit?' 'Often people are judged in very particular ways … it's hardly surprising [so few women are in science] when men have been writing the exams for 800 years."[260] The biases are further attenuated in the case of women of colour.[261]

This research investigates the prevalence and manifestation of unconscious bias in Hong Kong in relation to gender and race and the effectiveness of interventions to reduce such bias. It is an important beginning of what must be a long-term commitment to inquiry and action if Hong Kong is to maintain its status as a

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[258] A term denoting that societies have moved past prejudice and discrimination based on grounds of race. The term 'post racial' became popularised when former United States President Barack Obama was elected as the 44th President of the United States of America. The term was used to describe America as having become post racial. However, this was roundly dispelled as a myth in the aftermath of the election of Donald J Trump as President of the United States in 2016. *See* Nesoff, J., (2017) 'The Myth of a Post-Racial Society After the Obama Presidency', *Facing Today: A Facing History Blog,* available at: http://facingtoday.facinghistory.org/the-myth-of-a-post-racial-society-after-the-obama-presidency. President Obama acknowledged that race remained 'a potent and often divisive force' in society while Tim McCarthy, a Harvard historian pointed out the irony of Obama's embodiment of black freedom in the face of his presidency, which continued to be constrained by 21st Century American racism. *See ibid.*.

[259] Stoye, E., 'Women going for professor thwarted by female interviewers' *ChemistryWorld*, available at: https://www.chemistryworld.com/news/women-going-for-professor-thwarted-by-female-interviewers/3007248.article.

[260] Collaborating for gender equality in STEM conference, cited in Chapman, K. and Lalloo, M., 'Science's problem with unconscious bias' *ChemistryWorld*, available at https://www.chemistryworld.com/features/sciences-problem-with-unconscious-bias/3007586.article.

[261] *See ibid* and Codiroli Mcmaster, N., (2015) *Inequalities in students' choice of STEM subjects: An exploration of intersectional relationships,* CLS Working Paper 2015/16 and Codiroli Mcmaster, N., (2017) 'Women are less likely to study STEM subjects. But disadvantaged women are even less so' *LSE Impact Blog,* available at: https://blogs.lse.ac.uk/impactofsocialsciences/2017/07/20/women-are-less-likely-to-study-stem-subjects-but-disadvantaged-women-are-even-less-so/.

world-class city and one which fights for its cosmopolitan soul by taking a proactive approach to meeting its human rights obligations. This requires taking positive steps to doing and achieving equality consciously.

Using the IAT with groups of secondary school and university students and corporate staff in Hong Kong, this study presents clear evidence of implicit biases in relation to gender (Gender-Science and Gender-Career) and race (Hong Kong-Mainland and Chinese-South Asian) in the research sample, with racial biases being stronger than gender-based biases and bias against South Asians being the most prominent in terms of racial prejudice characterising the highest bias levels among the four categories assessed. These trends were exhibited across all three social groups. These findings have significant implications for a range of contexts at the institutional and societal levels but also, more broadly, they offer useful glimpses into the manifestations of such biases in Asia and how they may be examined and addressed in these contexts. Women, racial minorities and mainland Chinese are at a significant disadvantage here as likely targets of unconscious bias. This impacts on their equality of access to opportunities but also has other life-altering consequences in terms of having to live with such biases in the form of everyday micro-aggressions, whether or not they amount to *unlawful* discrimination under the letter of the law. This is a form of psychological harm and can be debilitating for populations routinely subjected to it. Intersectionality theory maps out clearly the magnitude of the consequences of such experiences for those with complex identities.

This research gauged the effectiveness of interventions in reducing different forms of biases towards specific groups and categories by comparing the impact of the intervention on bias scores by evaluating IAT1-IAT2 differentials between the Intervention and Control Groups across social groups. First, it was clear that retaking the test in and of itself appeared to reduce implicit bias for race and gender bias, while the Intervention reduced bias levels in both the Gender-Science and Gender-Career IATs, although not to the same degree in respect of each of these IATs. The Intervention was not found to significantly reduce racial bias, however, in either the Hong Kong-Mainland or the Chinese-South Asian IATs. While a decrease in mean bias scores was shown between IAT1 and IAT2 for all social groups generally, each of them exhibited varied trends and magnitudes of change across the different IATs.

Importantly, social group networks and exposure seems to have an unexpected impact on bias scores post intervention. When correlating the IAT scores with other background factors provided by research participants, it was found that the strength or weakness of their social ties with certain groups. For example, participants who were raised by working mothers showed a slight increase in their bias scores (i.e. more biased on questions) in relation to the Gender-Career test between IAT1 and IAT2 while those who were raised by stay-at-home mothers showed a reduction in bias scores on the Gender-Career IAT. Another example similarly reflected the relevance of racial networks on bias. For instance, participants who had close ties with Caucasians were closely linked with an increase in their bias scores (became more biased) between IAT1 and IAT2 in the Gender-Career and Chinese-South Asian IATs while bias scores for those without such ties were found to have decreased. On the other hand, participants with strong ties with South Asians

showed a significantly large reduction in bias scores (became less biased) between IAT1 and IAT2 in relation to the Gender-Science IAT than those without such a network.

CONCLUSION

The results of this research study provide groundbreaking insights into the prevalence, nature and extent of unconscious bias among different social groups as well as the variables which influence such biases negatively or positively in the context of Hong Kong. Furthermore, the study demonstrates the effectiveness of specifically designed interventions in terms of reducing particular biases, while outlining the more challenging categories of unconscious bias which require more complex intervention models to address concretely. The key research findings are:

(1) Unconscious gender and racial biases are widespread in Hong Kong across diverse social groups;

(2) Unconscious bias tends to be stronger in the case of racial biases compared with gender biases.

(3) The level of racial bias also varies depending on target group with South Asians being more susceptible to higher levels of bias relative to Mainland Chinese for the most part.

(4) The level of gender bias in relation to sciences is significantly higher when compared to gender-role stereotypes pertaining to career.

(5) The IAT itself has the effect of mitigating against certain types of unconscious bias but may have the opposite effect in respect of deeply entrenched biases;

(6) Interventions can and do work. However, the effectiveness of interventions varies depending on the type of bias, targets of discrimination, social groups targeted by the intervention, their social networks and exposure to outgroups;

(7) Some biases (racial biases) are more entrenched than others (gender-based biases) in the Hong Kong context and interventions have limited or little impact in reducing them; and

(8) One-size-fits-all solutions do not work. There is a clear and potent need for intervention tools to be well-tailored to different groups and contexts and fine-tuned for different types and manifestations of biases.

Importantly, this study is the first of its kind to examine the manifestation of unconscious bias as embedded in an Asian context. The findings demonstrate that unconscious bias clearly exists and is prevalent in our society. However, in Hong Kong, it presents in specific ways judging from the distinct findings pertaining to certain racial categories and gender stereotypes in relation to career and sciences. Moreover, it reveals the significance of social context, networks and the particular background factors on bias levels. While intervention by way of raising awareness about the existence of different types of unconscious bias is found to mitigate biases, it is not sufficient in and of itself to reduce these in concrete terms or in the longer-term. Furthermore, if delivered carelessly without due consideration of the environmental context in which

participants are engaged and their background or networks, or a failure to debrief participants properly in terms of what the scores mean relative to prejudice levels, the intervention can have a detrimental effect, in turn, exacerbating biases.

These findings bear important implications for future of research and design considerations pertaining to unconscious bias and the implementation of interventions in Hong Kong in across different sectors, most notably, corporate, high school and higher education sectors.

This study breaks new ground in Hong Kong by showing that systemic and indirect discrimination is prevalent here at a subtle level and is capable of being more invidious than direct discrimination and other more widely recognised forms of indirect discrimination as it is not as apparent as the usual forms of discrimination we expect people to fall prey to. We often look for clear, overt, and egregious signs of discrimination. However, as the literature review and research findings reveal, unconscious bias has effects across different social groups in different settings, and individuals may find it difficult to completely overcome their unconscious biases even when they have been made aware of their presence and impact.

Law has traditionally concerned itself mainly with tangible, explicit acts and clear intent (although such intent is not required in proving discrimination, invariably, such considerations play a significant role in the determination of complaints of discrimination under the law as presently implemented), but since tangibility is not a relevant metric in the realm of the unconscious, we need to start looking elsewhere to bring these biases to light and to work on tackling them. As current anti-discrimination laws stand, it is extremely challenging for claimants to mount challenges against discriminatory conduct based on unconscious biases due to evidentiary hurdles, given the inherently implicit nature of such biases. Traditionally, the law has focused on and been primarily used to target instances of direct discrimination in relation to which overt acts of discrimination are established in very clear terms and the outcomes of the conduct are documented and pursued accordingly. Anti-discrimination measures have seldom been used to address systemic and indirect discrimination since their very nature makes it so that the impugned conduct is subtle and not explicitly rendered in prejudicial terms. As such, evidentiary burdens are difficult to satisfy in light of the challenges of documenting or establishing patterns and outcomes in accordance with the threshold stipulated for such claims under the law. This is all the more so where the most relevant evidence of the impact of indirect discrimination is under the control of the very institutions whose practices are the subjects of the complaints in the first place. This makes subtle prejudice operating in the form of unconscious bias in one-off situations most challenging to tackle under the legal framework but even where such unconscious bias appears to be systemically entrenched, it remains beyond reproach under the law.

The law should encompass not only direct discrimination, but also systemic and indirect discrimination in more recognisable and realisable terms. To this end, data on the prevalence of unconscious bias towards different groups can bear a significant evidentiary burden to assist complainants against various forms of discrimination. Legal standards, in terms of their coverage and reach, need to be examined more critically to

determine whether these claims are actionable given the evidentiary burdens of establishing such bias. Moreover, the effectiveness of these legal provisions must be considered in light of environmental and structural constraints, which often impact complainants' willingness to engage these processes and to a certain extent, enable such biases to remain entrenched. Unconscious bias research data is a significant step towards plugging this evidentiary gap and to draw a stronger nexus between acts or omissions and their discriminatory impact on victims of discrimination.

This research integrates theory with empirical evidence to show that the brain can be rewired to influence its circuitry to achieve substantive changes in our information processing, which in turn helps alleviate prejudice. A systemic, cultural change to implement training standards and early childhood education strategies that can gain traction in the long-term is required. These must be complemented by changes in law and policy to achieve the objectives of antidiscrimination law more broadly. While early childhood education measures can help ensure that these strategies are incorporated early on by hardwiring our brains, training in later years can also effectuate an ongoing, rewiring process in the form of systematically convened, regular interventions and checks to prevent our evolutionary advantage from rapidly organising information about perceived threats from failing us by leading us to re-enact biases that are deeply entrenched in society or hardwired into our systems.

These research findings and the recommendations set out below can lay the groundwork for future research and the development of industry-specific responses to identify, understand, and root out patterns of unconscious bias. We know for example, that the gender pay gap, lack of representation of women in parliaments or as leaders of countries and at senior levels in organisations all have a detrimental impact on society more broadly but also, that they are an affront to our commitment to the ideals of equality and non-discrimination.[262] As such, unconscious bias must be taken just as seriously if not more seriously than direct discrimination.

More crucially, the findings beckon for the extension of this research, which ought to be piloted more broadly in other domains of antidiscrimination such as disability, sexual orientation, religion, and age. Further data collection and research should also be done on intersectional discrimination in the Hong Kong, recognising that marginalised groups often suffer from multiple and intersectional forms of discrimination, types of discrimination, putting them in particularly vulnerable positions. The implications of the research findings for intersectional identities such as ethnic minority women for example are significant and worthy of urgent attention. The same goes for concerns pertaining to gender and careers in STEM. Given the

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[262] 'Goal 5: Achieve gender equality and empower all women and girls', United Nations Sustainable Development Goals, available at https://www.un.org/sustainabledevelopment/gender-equality/.

research emerging in the United Kingdom[263], and the United States[264] in relation to the under-representation of women of colour in STEM disciplines, it is all the more important to take a more complex approach in understanding the operative implications of subtle biases in different spheres.[265] Raising awareness about these groups' unique circumstances and the ways in which unconscious bias exacerbates their life circumstances on a day-to-day basis can lead to more targeted, concrete and systemic change in terms of addressing inequalities at their root. A more focused approach with tangible outcomes and metrics will also be more likely to incentivise decision-makers to work on these particular areas and demonstrate their commitment to achieve change in key areas such as education, health, employment and social work, for example. However, the implications of these findings for lawyering and judicial decision making should not be overlooked.

RECOMMENDATIONS

1. TRAINING AND INTERVENTIONS: DESIGN, REVIEW & EVALUATION AT THE INSTITUTIONAL LEVEL (FOR GOVERNMENTAL, EDUCATIONAL, CORPORATE, HEALTH, CIVIL SOCIETY AND ENTITIES ENGAGED IN LEGAL AND SOCIAL SERVICES)

(a) *Using interventions to reduce unconscious bias:* The research findings demonstrate the effectiveness of suitably designed and targeted interventions in school, university and corporate settings in reducing unconscious bias. This requires establishing a baseline data within the specific institutional context by administering an unconscious bias assessment, analysing the findings and charting specific goals and strategies for intervention based on the data.

(b) *Taking context into account*: Our research results have further shown that training must be done carefully and mindfully, in terms of both *who* is delivering the training, *how* the training is conducted and *what* is being delivered in the name of training; otherwise intervention may be ineffective or even counter-productive. Institutions must identify relevant contexts within their environment which make certain types of unconscious biases more likely. Multiple factors have to be taken into account in designing training tools, including the setting in which the training is to be conducted (school,

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[263] Codiroli Mcmaster, N., (2017) 'Women are less likely to study STEM subjects. But disadvantaged women are even less so' *LSE Impact Blog*, available at: https://blogs.lse.ac.uk/impactofsocialsciences/2017/07/20/women-are-less-likely-to-study-stem-subjects-but-disadvantaged-women-are-even-less-so/.

[264] Hill, C., (2014) *Solving the Equation: The Variables for Women's Success in Engineering and Computing*, American Association of University Women, available at https://www.aauw.org/research/solving-the-equation/.

[265] Several ethnic minority students have shared that they are often dissuaded from pursuing particular disciplinary programmes at university by their high school teachers due to concerns that the courses would be 'too challenging' for them or they would be unlikely to obtain the necessary scores in the Diploma of Secondary Education or did not have the requisite language credentials to enter the discipline. Kapai, P., (2015) 'The Education of Ethnic Minorities' in *Status of Ethnic Minorities in Hong Kong 1997-2014,* The Zubin Foundation and The Centre for Comparative and Public Law, ch.3.

corporate, NGO, or public body), the demographic characteristics and social circles associated with the target group, the particular biases to be addressed, and the timing of such training. This requires looking at the target audience in terms of their own gender, social networks and backgrounds to anticipate sources of resistance, likelihood of particular forms of biases and their entrenchment. Using targeted approaches to raise awareness and specifically address unconscious biases, as well as designing systems to facilitate reflective processes to eliminate the impact of unconscious bias on people and communities around them, such tailored interventions are more likely to prove effective.

(c) *Breaking unconscious habits*: The approach adopted in this research study's intervention for participants is based on the 'habit-breaking intervention' model developed by Devine et al.[266] Multiple studies have found a similar approach effective.[267] In essence, any effective intervention tool requires first of all, a recognition that unconscious bias exists and can afflict anyone, even those who generally value equality and non-discrimination, and the identification of the types of biases that the individual is particularly prone to. It is unhelpful to take a 'colour-blind' or 'gender-blind' approach, given the virtual impossibility for human beings to not see physical differences and make certain associations about these categories which are deeply culturally and socially embedded. What is important instead is to recognise these as habits that can lead to harmful consequences for ourselves and marginalised groups in society and hence something that we should, and indeed can, change. The next step after such a reckoning is to increase one's exposure to these groups as a channel through which to begin substituting old habits with direct knowledge through personal interaction in daily life, or where this is not possible, through cultivating positive stereotypes about different groups that are not sufficiently represented in mainstream education and media, by reviewing mainstream media critically, seeking out alternative sources of information.

(d) *Institutionalising interventions and adoption of anti-bias measures at all levels*: It must be kept in mind that unconscious bias training cannot be treated a mere box-ticking exercise. Instead, the commitment to equal treatment and non-discrimination it need to become part of the social fabric of educational, corporate, judicial, law enforcement, and public institutions to turn the tide against long-engrained thought processes that have been in place for much of recent history. This means going beyond dismissing racism, sexism and other –isms as the problem of particular 'individuals' or giving these biases the cover of denial by relying on their 'well-meaning, well-intentioned' character who never intended such consequences. It means being actively "anti-racist"[268] and "anti-sexist" by taking necessary steps to disrupt such biases from pervading spaces around you. Commitment to the

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[266] Devine, P.G. et al., (2012) 'Long-term reduction in implicit race bias: A prejudice habit-breaking intervention' *Journal of Experimental Social Psychology*, vol.48, 1267-1278.

[267] See, for example, Dasgupta, N. and Greenwald, A.G., (2001) 'On the Malleability of Automatic Attitudes: Combating Automatic Prejudice With Images of Admired and Disliked Individuals' *Journal of Personality and Social Psychology*, vol.81, 800-814 and Olson, M.A. and Fazio, R.H., (2006) 'Reducing Automatically Activated Racial Prejudice Through Implicit Evaluative Conditioning' *Personality and Social Psychology Bulletin*, vol.32, 421-433.

[268] Kendi, I. X., (2019) *How to Be an Anti-Racist?*

objective of reducing and eventually eliminating harmful unconscious biases requires dedicated and deliberate approaches to course-correcting. This also requires a culture that encourages bystander intervention and other strategies that enable checks against biases to operate more effectively and in tandem with other measures such as law, education and the use of media to build more inclusive societies. These strategies need to be institutionalised, for example, as part of hiring and promotion processes, by asking candidates the right questions and giving all candidates a similar opportunity to present their skills and shine. Devine et al's study, which ran the habit-breaking intervention model in six STEM-focused schools at the University of Wisconsin-Madison and subsequently saw the proportion of women hired by the intervention departments increase by almost one-fifth, is an example of the long-term and tangible impact of a well-implemented and sustainable unconscious bias training regime.[269]

(e) *Regular stocktaking, monitoring, evaluating and improving interventions and their impact:* As it is impossible to tell from the outset what particular effects each and every relevant factor may have on the effectiveness of a particular training tool, these tools should be regularly reviewed through administering implicit or unconscious bias assessments which collect, collate, and review attitudes so that problem areas may be addressed effectively through revised interventions and other strategies in a timely manner.

2. EDUCATION: FROM EARLY CHILDHOOD THROUGH HIGHER EDUCATION

(a) *Early childhood intervention to prevent entrenchment of biases*: Given the singularly influential role played by the exposure of the human brain to various messages in society, developing strategies for early childhood intervention to prevent the acquisition and entrenchment of harmful stereotypes is vital. This requires thoroughly examining our school curricula and teaching materials, everyday language, and role models children are exposed to. Enhancing individuals' understandings about sources of stereotypes and prejudice and equipping them with critical thinking skills to reassess their existing sources of knowledge and information is also crucial. In order to ensure a sufficient counter-narrative is at work to challenge 'normalised' stereotypes frequently and adequately, it is necessary that individuals not only possess the relevant competencies and skillset but are also motivated to look outside traditional or one-sided domains to ensure alternative understandings and explanations for (mis)perceptions about certain social groups are considered. This corresponds with Kahneman's System 2 and unconscious bias training components which encourage participants to displace harmful stereotypes as a matter of reflective practice. This is a habit that should be introduced and formed very early on among children and young adolescents so that it can lead to better decision-making that is rationally informed and can serve individuals and their communities well.

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[269] Devine, P.G., et al., (2017) 'A Gender Bias Habit-Breaking Intervention Led to Increased Hiring of Female Faculty in STEMM Departments' *J. Exp. Soc. Psychol.*, vol.73, 211-215.

(b) *Breaking the cycle – Saving Oneself from Becoming a Casualty of the Self-fulfilling Prophecy*: Education is also important not only in terms of preventing children from acquiring and entrenching harmful stereotypes about others from a young age but also from developing such stereotypes about *themselves* if they belong to a marginalised out-group. Studies on gender and STEM, for example, have shown that young women, especially those from disadvantaged social backgrounds, are less inclined than young men to study STEM subjects because of self-perceptions about their abilities.[270] They also reveal that stereotype threats are operative in impacting girls' performance in math – they are conditioned to believe that girls cannot do well in math and therefore, underperform in the subject.[271] In the Hong Kong context, students of particular ethnic minority backgrounds (Pakistani and Nepalese) are found to have a much higher pre-Form 5 dropout rate than ethnic Chinese students. This is associated with teachers' implicit and explicit biases against these student groups, perpetuating negative stereotypes about ethnic minorities among students as a whole. This critically undermines their self-confidence, and plays into the prevalent social script about their groups, hampering their prospects for social integration.[272] Studies have shown that unconscious bias is prevalent among children and young people, from 3 year-olds[273] to university students.[274] Left unaddressed, these biases have the potential of turning into self-fulfilling prophecies that leave the most disadvantaged groups behind given the influence of societal bias on their own confidence in their abilities in the long-run. This proves most costly for society as a whole but also, for those who are the targets of such harmful biases. It strips them of opportunities and eventually, the desire and confidence to pursue their dreams and aspirations.[275]

3. LAW, POLICY & RESEARCH

Since the emergence of and increasing attention paid to studies on implicit bias in the field of behavioural science, legal scholars have also discussed the possibility of incorporating related empirical findings and theory into antidiscrimination law and policy, or, in other words, using antidiscrimination law and policy to combat implicit bias. As we have discussed above, current antidiscrimination laws are rarely able to address the effects of implicit bias. As Hosking and Russell write in relation to the UK's Equality Act 2010:

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[270] Codiroli Mcmaster above.

[271] Spencer, S.J., Steele, C.M., and Quinn, D.M., (1999) 'Stereotype Threat and Women's Math Performance', *Journal of Experimental Social Psychology*, vol.35, 4-28.

[272] Kapai (2015) above, ch.3.

[273] Qian, M.K., et al., (2016) 'Implicit Racial Biases in Preschool Children and Adults from Asia and Africa' *Child Development*, vol.87(1), 285-296.

[274] Codiroli Mcmaster above.

[275] Kapai, P., (2018) *#HongKonger: Ethnic Minority Youth Aspirations, Challenges and Identity*, The Zubin Foundation and the Centre for Comparative and Public Law, available at https://www.zubinfoundation.org/hongkonger and Kapai, P. and Lalvani, R., (2019) *Dreams of Pakistani Children: In-depth conversations with 22 girls and 3 boys*, The Zubin Foundation and the Centre for Comparative and Public Law, available at https://www.wsrcweb.hku.hk/index.php/2019/04/16/puja-kapai-dreams-of-pakistani-children.

'[N]othing in the statutory provision or case law would prevent a direct discrimination claim being brought on the basis of implicit bias, the practical impossibility of demonstrating, in an individual case, that implicit bias was causally linked to the alleged less favourable treatment renders such a claim almost impossible to prove. While the provisions on indirect discrimination and equal pay offer a different, group-based approach to tackling disadvantage, like direct discrimination, they suffer from procedural limitations.'[276]

Instead, they suggest a new 'proactive model' which obliges public bodies, in their decision making, to have due regard for the need to eliminate discrimination and advance equality of opportunity' and, importantly, 'takes the existence of discriminatory inequalities as its starting point and places the onus on the public authority to take action to eliminate these'.[277] Based on this model, relevant public bodies should be required to utilise implicit bias research to formulate appropriate strategies for course correction to rectify exclusion and historical marginalisation.

Some may question the incorporation of unconscious bias into antidiscrimination law as it is vastly different in nature from the usual cases that gain public and judicial attention – direct discrimination cases with clearly identifiable perpetrators and victims.[278] However, these critics are taking a much too narrow view of discrimination, which 'treats discrimination as a wrong perpetrated by a discriminator who acts self-consciously and irrationally'. Given emerging knowledge about the ubiquity of unconscious bias and its very real and substantial impact on the lives of marginalised groups, we should instead be adopting an understanding of discrimination as a 'social problem that – whether or not it reflects the "fault" of any individual discriminator – has systematically harmful effects on the life chances of members of particular socially salient groups.'[279] This also means that further implicit bias research will be crucial to gaining a full understanding of discrimination as a social problem that, like public health concerns, may be seen as something larger than mere individual harms and addressed through law and policies without having to locate a blameworthy moral agent.[280]

In fact, in some jurisdictions implicit bias has indeed been brought to the attention of courts and utilised by judges, although it remains far from being formally recognised in law. A number of lower courts in the US have begun to gradually pick up the concept of implicit bias in discrimination cases. In *United States v Mateo-Medina*, the court refused to allow the consideration of bare arrest reports in sentencing, based partly on

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[276] Hosking, K. and Russell, R., (2016) 'Discrimination Law, Equality Law, and Implicit Bias' in Brownstein, M. and Saul, J. (eds.), *Implicit Bias and Philosophy, Vol II: Moral Responsibility, Structural Injustice, and Ethics*, ch.3.4, 255.

[277] *Ibid. See also* Jolls, C. and Sunstein, C.R., (2006) 'The Law of Implicit Bias' *California Law Review*, vol.94, 969-996 and Kang, J. and Banaji, M.R., (2006) 'Fair Measures: A Behavioral Realist Revision of "Affirmative Action"' *California Law Review*, vol.94, 1063-1118.

[278] For example, Wax argues that extending antidiscrimination law to cover unconscious disparate treatment is undesirable as 'unconscious bias is an unpredictable, mysterious, and elusive phenomenon that can only be tentatively inferred but never observed directly', which means that the blame or cause for discrimination cannot be definitely attributed to anyone. *See* Wax, A.L., (1999) 'Discrimination as Accident' *Indiana Law Journal*, vol.74, 1129-1231, 1132 and 1230.

[279] Bagenstos, R.S., (2007) 'Implicit Bias and Antidiscrimination Law' *Harvard Law & Policy Review*, vol.1, 477-493.

[280] Hosking and Russell (2016) above. *See also*, Solanke, I., (2016) *Discrimination as Stigma: A Theory of Anti-discrimination Law*.

'research indicating that police are likely to stop, and arrest, people of colour due to implicit bias.'[281] In another case involving workplace discrimination, it was found that one of the defendants, 'in addition to failing to provide a credible explanation of the conduct complained of' 'behaved in a manner suggesting the presence of implicit bias', citing studies on implicit bias and specifically, the operation of stereotypes in the employment context.[282] These cases show that it is indeed possible for courts to recognise and utilise the concept of implicit bias in their reasoning in both antidiscrimination and other cases.

The aforementioned examples of unconscious bias being taken into account in antidiscrimination law and jurisprudence serve as a strong signal of the prospects and relevance of utilising such research by law- and policy-makers and judges as appropriate in the Hong Kong context as evidence of its prevalence and impact. Where harm is not recognised, it cannot be remedied. It is therefore important that unconscious bias is recognised as actionable discrimination which maps directly onto systemic and historical discrimination or where the evidence establishes it, as direct discrimination covered by antidiscrimination laws and policies. While a major part of the formative processes involving the development of unconscious bias relates to the brain's automated, neurological processes, they are part of a broader circuit which is directly influenced by and responds to external environmental stimuli (in the form of people, culture, systems, facts, institutions, and media) the brain is exposed to. Both the social and legal dimensions which are implicated in this circuit are in need of attention and reform. Unconscious bias is not something that individuals and decision-makers can correct 'benevolently' but something that *must* be addressed through systems, processes and checks situated in relevant, actionable and practical domains.

4.   THE ROLE OF THE EQUAL OPPORTUNITIES COMMISSION

Given the EOC's role as a quasi-human rights body with the mandate for oversight in relation to antidiscrimination laws, it should urgently issue relevant codes of practice to incorporate best practices in relation to addressing unconscious bias in diverse domains as a matter of policy and good practice or evidence of preventive and responsive measures to address discrimination. Such a code of practice would need to incorporate requirements to maintain a data register on relevant outcomes or metrics to determine the relative position of various groups on the issue of equal treatment or outcomes. For example, in the context of workplace management, such data would pertain to decisions on hiring, retention, promotion, and performance-appraisal, regular unconscious bias assessments, appropriate interventions and mandatory induction training, and regular evaluations to identify problem areas, preferably using external consultants to ensure independence, with specified goals to work on for the next review cycle. As discussed above in relation to the need for training to be tailormade and context-specific, these guidelines should also be industry-specific and pertain to different types of biases. This should be feasible as the EOC currently already provides policy guidelines and workshop materials on, for example, sexual harassment that is industry-

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[281] *United States v. Mateo-Medina*, 845 F.3d 546, 553 (3rd Cir. 2017), as cited in Bagnestos, S.R., (2017) 'Implicit Bias's Failure' *University of Michigan Public Law and Legal Theory Research Paper Series*, no.564.
[282] *Kimble v. Wisconsin Department of Workforce Development*, 690 F. Supp. 2d 765, 778 (E.D. Wis. 2010), also cited in *ibid.*

specific. As a matter of urgency, these codes of practice should be introduced to cover educational, healthcare, social work and welfare organisations and law-enforcement bodies as well as a broad range of other sectors and institutions.

5. MANDATING DATA COLLECTION AND DISAGGREGATION

Unconscious bias is by definition implicit and elusive, especially when seen through the lens of current antidiscrimination laws that privilege explicit acts of direct discrimination. The only way to identify the scale and nature of the problem of systemic discrimination is to regularly collect and maintain data that is disaggregated by different characteristics, such as gender, race, religion, disability, and sexuality. Our research underscores the importance of maintaining disaggregated data, which has in fact been part of the recommendations of various international human rights committees in their Concluding Observations on the situation of human rights in Hong Kong and China, including the Committee on the Elimination of Discrimination Against Women (CEDAW),[283] the Committee on the Elimination of Racial Discrimination (CERD), [284] and the Committee on Economic, Social and Cultural Rights (CESCR).[285] Requirements to maintain disaggregated data and making such data transparent and publicly available should be made mandatory under the law in different institutional settings, especially with regards to governmental bodies and entities engaged with education, legal assistance, social welfare, and healthcare. These requirements should also be made part of best practices for corporate actors to follow.[286]

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[283] UN Committee on the Elimination of Discrimination Against Women, 'Concluding observations on the combined seventh and eighth periodic reports of China' (14 November 2014) UN Doc CEDAW/C/CHN/CO/7-8, 13, para 57.

[284] UN Committee on the Elimination of Racial Discrimination, 'Concluding observations on the combined fourteenth to seventeenth periodic reports of China (including Hong Kong, China and Macao, China)' (19 September 2018) UN Doc CERD/C/CHN/CO/14-17, para 48.

[285] UN Committee on Economic, Social and Cultural Rights, 'Concluding observations on the second periodic report of China, including Hong Kong, China, and Macao, China' (13 June 2014) UN Doc E/C.12/CHN/CO/2, paras 17-18.

[286] Reference may be made here to the UK Equality Act 2010 (Gender Pay Gap Information) Regulations 2017, which requires all UK employers with 250 or more staff to report gender pay gap information.

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APPENDIX I

CODE: _____

Gender – Science Task

As part of this study, you will complete a task in which you will be asked to sort words into groups as fast as you can. You will be given 20 seconds for each part of the test. your goal is to achieve the maximum number of correct choices within this time.

Please tick the corresponding circle on the left or right of the block of words to categorize items into groups as fast as you can. Here are the four categories into which the items can be grouped as well as the corresponding items that belong to each group:

性別 —— 學科 任務

作為本研究的一部分，您將完成一項任務，在該任務中，您將被要求盡快將單詞分組。每個部分的測試都會給20秒。您的目標是在這段時間內實現最多且正確的選擇。

請勾選單詞左側或右側的相應圓圈，以盡可能快地將項目分組。以下是對項目進行分組的四個類別以及屬於每個組的相應項目：

Male	Man, Son, Father, Boy, Husband
Female	Mother, Wife, Woman, Girl, Daughter
Science	Math, Chemistry, Physics, Biology, Engineering
Liberal Arts	Arts, Humanities, Music, Literature, English

*There are seven parts to this task. The instructions change for each part. Please pay attention.
*請注意此項任務有七個部份，每個部份的說明都有所變化。

Part I

For **Chart 1**, tick the left circle for items that belong to the category **Science**. Tick the right circle for items that belong to the category **Liberal Arts**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第一部分。對於**圖表1,** 屬於**"Science"**類別的項目請勾選左邊圓圈, 屬於**"Liberal Arts"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 1

Science		Liberal Arts
O	Math	O
O	Arts	O
O	Music	O
O	Physics	O
O	Chemistry	O
O	Engineering	O
O	English	O
O	Biology	O
O	Humanities	O
O	History	O
O	Math	O
O	Literature	O
O	History	O
O	Arts	O
O	Biology	O
O	Music	O
O	Chemistry	O
O	English	O
O	Humanities	O
O	Physics	O

Part II

For **Chart 2**, tick the left circle for items that belong to the category **Male**. Tick the right circle for items that belong to the category **Female**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第二部分。對於**圖表2,** 屬於**"Male"** 類別的項目請勾選左邊圓圈, 屬於**"Female"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 2

Male		Female
O	Boy	O
O	Mother	O
O	Woman	O
O	Girl	O
O	Son	O
O	Wife	O
O	Father	O
O	Man	O
O	Daughter	O
O	Husband	O
O	Man	O
O	Father	O
O	Son	O
O	Girl	O
O	Mother	O
O	Daughter	O
O	Wife	O
O	Woman	O
O	Boy	O
O	Husband	O

Part III

For **Chart 3**, tick the left circle for items that belong to the category **Science *or* Male**. Tick the right circle for items that belong to the category **Liberal Arts *or* Female**.

DO NOT START NOW!BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for this part. Tick as much as you can while being accurate.

這是本練習的第三部分。對於**圖表3,** 屬於**"Science *or* Male"**類別的項目請勾選左邊圓圈, 屬於**"Liberal Arts *or* Female"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 3

Science Or Male		Liberal Arts or Female
O	Boy	O
O	Chemistry	O
O	Husband	O
O	Arts	O
O	Son	O
O	Math	O
O	Literature	O
O	Wife	O
O	English	O
O	Man	O
O	Humanities	O
O	Engineering	O
O	Girl	O
O	Physics	O
O	Mother	O
O	Biology	O
O	Woman	O
O	Daughter	O
O	Father	O
O	Music	O

Part IV

Chart 4 is the same as the previous part. Tick the left circle for items that belong to the category **Science *or* Male**. Tick the right circle for items that belong to the category **Liberal Arts *or* Female.**

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第四部分。對於圖表4**,** 屬於**"Male *or* Career"**類別的項目請勾選左邊圓圈, 屬於**"Female *or* Family"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 4

Science Or Male		Liberal Arts or Female
O	Husband	O
O	Music	O
O	Father	O
O	Daughter	O
O	Chemistry	O
O	Math	O
O	Arts	O
O	Woman	O
O	Physics	O
O	Son	O
O	Music	O
O	Mother	O
O	Humanities	O
O	Boy	O
O	Wife	O
O	Literature	O
O	Girl	O
O	Mother	O
O	Engineering	O
O	English	O
O	Man	O
O	Biology	O
O	Wife	O
O	Humanities	O
O	Boy	O
O	Physics	O
O	Math	O
O	Daughter	O
O	Arts	O
O	Husband	O
O	English	O
O	Biology	O

Part V
Watch out, the labels have changed position!

For **Chart 5**, tick the left circle for items that belong to the category **Liberal Arts**. Tick the right circle for items that belong to the category **Science**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第五部分。對於圖表5，屬於**"Liberal Arts"**類別的項目請勾選左邊圓圈, 屬於**"Science"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 **"GO！"** 才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 5

Liberal Arts		Science
O	Biology	O
O	Humanities	O
O	Physics	O
O	Music	O
O	Chemistry	O
O	Literature	O
O	Engineering	O
O	Math	O
O	English	O
O	Arts	O
O	Math	O
O	Music	O
O	Arts	O
O	Physics	O
O	Biology	O
O	Literature	O
O	Chemistry	O
O	Engineering	O
O	English	O
O	Humanities	O

Part VI

For **Chart 6**, tick the left circle for items that belong to the category **Liberal Arts** *or* **Male**. Tick the right circle for items that belong to the category **Science** *or* **Female.**

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第六部分。對於圖表6，屬於**"Liberal Arts** *or* **Male"**類別的項目請勾選左邊圓圈, 屬於**"Science** *or* **Female"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 6

Liberal Arts or Male		Science or Female
O	Wife	O
O	Music	O
O	Biology	O
O	Father	O
O	Math	O
O	Chemistry	O
O	Woman	O
O	Literature	O
O	English	O
O	Arts	O
O	Mother	O
O	Son	O
O	Man	O
O	Daughter	O
O	Physics	O
O	Girl	O
O	Boy	O
O	Husband	O
O	Humanities	O
O	Engineering	O

Part VII

This is the final part of this exercise. **Chart 7** is the same as the previous part. Tick the left circle for items that belong to the category **Liberal Arts *or* Male**. Tick the right circle for items that belong to the category **Science *or* Female**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第七部分。對於圖表7**,** 屬於**"Liberal Arts *or* Male"**類別的項目請勾選左邊圓圈, 屬於"**Science *or* Female**"類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 7

Liberal Arts or Male		Science or Female
O	Literature	O
O	Mother	O
O	Man	O
O	Arts	O
O	Father	O
O	Humanities	O
O	Husband	O
O	Math	O
O	Engineering	O
O	Women	O
O	Chemistry	O
O	Girl	O
O	Music	O
O	Boy	O
O	Wife	O
O	English	O
O	Daughter	O
O	Physics	O
O	Son	O
O	Biology	O
O	Mother	O
O	Humanities	O
O	Girl	O
O	Engineering	O
O	Husband	O
O	Chemistry	O
O	Man	O
O	English	O
O	Wife	O
O	Math	O
O	Boy	O
O	Literature	O

Gender-Career Task

As part of this study, you will complete a task in which you will be asked to sort words into groups as fast as you can. You will be given 20 seconds for each part of the test. your goal is to achieve the maximum number of correct choices within this time.

Please tick the corresponding circle on the left or right of the block of words to categorize items into groups as fast as you can. Here are the four categories into which the items can be grouped as well as the corresponding items that belong to each group:

性別——事業 任務

作為本研究的一部分，您將完成一項任務，在該任務中，您將被要求盡快將單詞分組。每個部分的測試都會給20秒。您的目標是在這段時間內實現最多且正確的選擇。

請勾選單詞左側或右側的相應圓圈，以盡可能快地將項目分組。以下是對項目進行分組的四個類別以及屬於每個組的相應項目：

Male	Ben, Paul, Daniel, John, Kelvin
Female	Emily, Anna, Julia, Michelle, Mary
Career	Career, Salary, Office, Professional, Business
Family	Wedding, Marriage, Family, Home, Children

*There are seven parts to this task. The instructions change for each part. Please pay attention.
*請注意此項任務有七個部份，每個部份的說明都有所變化。

Part I
For **Chart 1**, tick the left circle for items that belong to the category **Male**. Tick the right circle for items that belong to the category **Female**.

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第一部分。對於圖表5，屬於**"Male"**類別的項目請勾選左邊圓圈, 屬於**"Female"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 1

Male		Female
O	Emily	O
O	Ben	O
O	Kelvin	O
O	Anna	O
O	Paul	O
O	Daniel	O
O	Julia	O
O	Michelle	O
O	John	O
O	Mary	O
O	Daniel	O
O	Julia	O
O	Anna	O
O	John	O
O	Kelvin	O
O	Mary	O
O	Paul	O
O	Emily	O
O	Ben	O
O	Michelle	O

Part II

For **Chart 2**, tick the left circle for items that belong to the category **Career**. Tick the right circle for items that belong to the category **Family**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第二部分。對於圖表2**,** 屬於**"Career"**類別的項目請勾選左邊圓圈, 屬於**"Family"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "**GO！**"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 2

Career		Family
O	Family	O
O	Wedding	O
O	Marriage	O
O	Office	O
O	Professional	O
O	Home	O
O	Business	O
O	Career	O
O	Children	O
O	Salary	O
O	Business	O
O	Salary	O
O	Career	O
O	Wedding	O
O	Home	O
O	Family	O
O	Children	O
O	Marriage	O
O	Professional	O
O	Office	O

Part III

For **Chart 3**, tick left circle for items that belong to the category **Male *or* Career**. Tick right circle for items that belong to the category **Female *or* Family**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第三部分。對於圖表3，屬於"**Male *or* Career**"類別的項目請勾選左邊圓圈, 屬於"**Female *or* Family**"類別的項目請勾選右邊。

現在還不要開始！等到計時員說出"**GO！**"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 3

Male or Career		Female or Family
O	Home	O
O	Emily	O
O	Salary	O
O	Paul	O
O	Daniel	O
O	Children	O
O	John	O
O	Anna	O
O	Ben	O
O	Kelvin	O
O	Professional	O
O	Michelle	O
O	Mary	O
O	Family	O
O	Business	O
O	Wedding	O
O	Julia	O
O	Office	O
O	Career	O
O	Marriage	O

Part IV

Chart 4 is the same as the previous part. Tick the left circle for items that belong to the category **Male *or* Career**. Tick the right circle for items that belong to the category **Female *or* Family.**

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第四部分。對於圖表4**,**屬於**"Male *or* Career"**類別的項目請勾選左邊圓圈, 屬於**"Female *or* Family"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出"**GO！**"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 4

Male or Career		Female or Family
O	Children	O
O	Anna	O
O	Daniel	O
O	Salary	O
O	Marriage	O
O	Ben	O
O	Family	O
O	John	O
O	Home	O
O	Paul	O
O	Emily	O
O	Professional	O
O	Julia	O
O	Career	O
O	Mary	O
O	Kelvin	O
O	Business	O
O	Office	O
O	Wedding	O
O	Michelle	O
O	Career	O
O	Ben	O
O	Children	O
O	Mary	O
O	Salary	O
O	Anna	O
O	Marriage	O
O	Paul	O
O	Professional	O
O	Daniel	O
O	Home	O
O	Emily	O

Part V
Here is the fifth part of this exercise.
Watch out, the labels have changed position!

For **Chart 5**, tick the left circle for items that belong to the category **Female**. Tick the right circle for items that belong to the category **Male**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第五部分。小心！標籤的位置改變了。對於圖表5，屬於**"Female"**類別的項目請勾選左邊圓圈，屬於**"Male"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出"GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 5

Female		Male
O	Emily	O
O	Daniel	O
O	Paul	O
O	Michelle	O
O	Ben	O
O	Anna	O
O	John	O
O	Julia	O
O	Mary	O
O	Kelvin	O
O	Ben	O
O	Daniel	O
O	Julia	O
O	Emily	O
O	Kelvin	O
O	John	O
O	Mary	O
O	Anna	O
O	Michelle	O
O	Paul	O

Part VI

For **Chart 6**, tick the left circle for items that belong to the category **Female** *or* **Career**.

Tick the right circle for items that belong to the category **Male** *or* **Family.**

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第六部分。對於圖表6**,** 屬於**"Female** *or* **Career"**類別的項目請 勾選左邊圓圈, 屬於**"Male** *or* **Family"**類 別的項目請勾選右邊。

這個部分你會有20秒的時間。嘗試盡可 能多地勾選項目並保持準確性。

Chart 6

Female or Career		Male or Family
O	Emily	O
O	Marriage	O
O	Michelle	O
O	Salary	O
O	Office	O
O	Mary	O
O	Career	O
O	Home	O
O	Professional	O
O	Wedding	O
O	Daniel	O
O	Anna	O
O	Paul	O
O	Children	O
O	Business	O
O	John	O
O	Kelvin	O
O	Family	O
O	Ben	O
O	Julia	O

Part VII

Chart 7 is the same as the previous part. Tick the left circle for items that belong to the category **Female *or* Career**. Tick the right circle for items that belong to the category **Male *or* Family.**

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第七部分。對於圖表7，屬於**"Female *or* Career"**類別的項目請勾選左邊圓圈, 屬於**"Male *or* Family"**類別的項目請勾選右邊。

現在還不要開始！等到計時員說出"**GO！**"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 7

Female or Career		Male or Family
O	Julia	O
O	Marriage	O
O	Ben	O
O	Salary	O
O	Kelvin	O
O	Mary	O
O	Business	O
O	Michelle	O
O	Office	O
O	John	O
O	Wedding	O
O	Professional	O
O	Daniel	O
O	Children	O
O	Anna	O
O	Career	O
O	Emily	O
O	Home	O
O	Paul	O
O	Family	O
O	Mary	O
O	Business	O
O	Kelvin	O
O	Marriage	O
O	Julia	O
O	Office	O
O	Ben	O
O	Professional	O
O	Daniel	O
O	Family	O
O	Emily	O
O	Children	O

The End ~ THANK YOU for your Participation.

CODE: _____

Racial Group Task

As part of this study, you will complete a task in which you will be asked to sort words into groups as fast as you can. You will be given 20 seconds for each part of the test. your goal is to achieve the maximum number of correct choices within this time.

Please tick the corresponding circle on the left or right of the block of words to categorize items into groups as fast as you can. Here are the four categories into which the items can be grouped as well as the corresponding items that belong to each group:

種族任務

作為本研究的一部分，您將完成一項任務，在該任務中，您將被要求盡快將單詞分組。每個部分的測試都會給20秒。您的目標是在這段時間內實現最多且正確的選擇。

請勾選單詞左側或右側的相應圓圈，以盡可能快地將項目分組。以下是對項目進行分組的四個類別以及屬於每個組的相應項目：

Good	Cheer, Smiling, Excellent, Joyous, Happy
Bad	Grief, Horrific, Evil, Tragic, Angry
Chinese	Chen, Lee, Cheung, Wong, Leung
South Asian	Khan, Ahmed, Bibi, Singh, Siddiqui

*There are seven parts to this task. The instructions change for each part. Please pay attention.
*請注意此項任務有七個部份，每個部份的說明都有所變化。

Part I

Here is the first part.

For **Chart 1**, tick the left circle for items that belong to the category '**Good**'. Tick the right circle for items that belong to the category '**Bad**'.

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第一部分。對於**圖表1**，屬於"**Good**"類別的項目請勾選左邊圓圈，屬於"**Bad**"類別的項目請勾選右邊。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目，並保持準確性。

Chart 1

Good		Bad
O	Evil	O
O	Angry	O
O	Smiling	O
O	Cheer	O
O	Horrific	O
O	Grief	O
O	Joyous	O
O	Tragic	O
O	Excellent	O
O	Happy	O
O	Grief	O
O	Cheer	O
O	Excellent	O
O	Tragic	O
O	Smiling	O
O	Horrific	O
O	Angry	O
O	Evil	O
O	Happy	O
O	Joyous	O

Part II

Here is the second part:

For **Chart 2**, tick the left circle for items that belong to the category **Chinese**. Tick the right circle for items that belong to the category **South Asian**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第二部分。對於**圖表2**，屬於 **"Chinese"** 類別的項目請勾選左邊圓圈，屬於 **"South Asian"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目，並保持準確性。

Chart 2

Chinese		South Asian
O	Chen	O
O	Cheung	O
O	Wong	O
O	Lee	O
O	Khan	O
O	Leung	O
O	Ahmed	O
O	Bibi	O
O	Singh	O
O	Siddiqui	O
O	Leung	O
O	Wong	O
O	Bibi	O
O	Ahmed	O
O	Siddiqui	O
O	Singh	O
O	Chen	O
O	Cheung	O
O	Lee	O
O	Khan	O

Part III
Here is the third part:

For **Chart 3**, tick the left circle for items that belong to the category **Good *or* Chinese**. Tick the right circle for items that belong to the category **Bad *or* South Asian**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第三部分。對於**圖表3**，屬於 **"Good *or* Chinese"** 類別的項目請勾選左邊圓圈, 屬於 **"Bad *or* South Asian"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目, 並保持準確性。

Chart 3

Good *or* Chinese		Bad *or* South Asian
O	Excellent	O
O	Khan	O
O	Horrific	O
O	Singh	O
O	Wong	O
O	Bibi	O
O	Happy	O
O	Angry	O
O	Evil	O
O	Cheung	O
O	Siddiqui	O
O	Joyous	O
O	Smiling	O
O	Cheer	O
O	Lee	O
O	Ahmed	O
O	Leung	O
O	Grief	O
O	Chen	O
O	Tragic	O

Part IV
Here is the fourth part:

Chart 4 is the same as the previous part. Tick the left circle for items that belong to the category **Good *or* Chinese**. Tick the right circle for items that belong to the category **Bad *or* South Asian**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第四部分。對於圖表4, 屬於 **"Good *or* Chinese"** 類別的項目請勾選左邊圓圈, 屬於 **"Bad *or* South Asian"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目, 並保持準確性。

Chart 4

Good *or* Chinese		Bad *or* South Asian
O	Cheung	O
O	Evil	O
O	Ahmed	O
O	Happy	O
O	Leung	O
O	Smiling	O
O	Khan	O
O	Cheer	O
O	Singh	O
O	Angry	O
O	Wong	O
O	Excellent	O
O	Lee	O
O	Tragic	O
O	Siddiqui	O
O	Horrific	O
O	Bibi	O
O	Grief	O
O	Chen	O
O	Joyous	O
O	Leung	O
O	Evil	O
O	Singh	O
O	Happy	O
O	Khan	O
O	Cheer	O
O	Ahmed	O
O	Tragic	O
O	Chen	O
O	Angry	O
O	Cheung	O
O	Smiling	O

Part V
Here is the fifth part:

Watch out, the labels have changed position!

For **Chart 5**, tick the left circle for items that belong to the category **South Asian**. Tick the right circle for items that belong to the category **Chinese**.

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第五部分。**小心，這裏標籤改變了位置！**

對於圖表5，屬於 **"South Asian"** 類別的項目請勾選左邊圓圈, 屬於 **"Chinese"** 類別的項目請勾選右邊。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 5

South Asian		Chinese
O	Chen	O
O	Singh	O
O	Bibi	O
O	Khan	O
O	Leung	O
O	Wong	O
O	Cheung	O
O	Lee	O
O	Ahmed	O
O	Siddiqui	O
O	Cheung	O
O	Leung	O
O	Siddiqui	O
O	Singh	O
O	Wong	O
O	Ahmed	O
O	Chen	O
O	Bibi	O
O	Lee	O
O	Khan	O

Part VI

Here is the sixth part:

For **Chart 6**, tick the left circle for items that belong to the category **Good *or* South Asian**. Tick the right circle for items that belong to the category **Bad *or* Chinese.**

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第六部分。對於圖表6，屬於 **"Good *or* South Asian"** 類別的項目請勾選左邊圓圈, 屬於 **"Bad *or* Chinese"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 6

Good *or* South Asian		Bad *or* Chinese
O	Khan	O
O	Happy	O
O	Tragic	O
O	Wong	O
O	Siddiqui	O
O	Excellent	O
O	Ahmed	O
O	Cheung	O
O	Singh	O
O	Cheer	O
O	Leung	O
O	Joyous	O
O	Angry	O
O	Bibi	O
O	Chen	O
O	Lee	O
O	Horrific	O
O	Smiling	O
O	Singh	O
O	Grief	O

Part VII
This is the final part of the exercise:

Chart 7 is the same as the previous part. Tick the left circle for items that belong to the category **Good *or* South Asian**. Tick the right circle for items that belong to the category **Bad *or* Chinese**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第七部分。對於圖表7，屬於 "**Good *or* South Asian**" 類別的項目請勾選左邊圓圈, 屬於 "**Bad *or* Chinese**" 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 7

Good *or* South Asian		Bad *or* Chinese
O	Joyous	O
O	Chen	O
O	Tragic	O
O	Khan	O
O	Grief	O
O	Bibi	O
O	Excellent	O
O	Lee	O
O	Evil	O
O	Siddiqui	O
O	Cheer	O
O	Cheung	O
O	Happy	O
O	Ahmed	O
O	Angry	O
O	Singh	O
O	Horrific	O
O	Chen	O
O	Smiling	O
O	Leung	O
O	Tragic	O
O	Bibi	O
O	Smiling	O
O	Wong	O
O	Joyous	O
O	Cheung	O
O	Grief	O
O	Khan	O
O	Happy	O
O	Siddiqui	O
O	Evil	O
O	Lee	O

Mainland – Hong Kong Task

As part of this study, you will complete a task in which you will be asked to sort words into groups as fast as you can. You will be given 20 seconds for each part of the test. your goal is to achieve the maximum number of correct choices within this time.

Please tick the corresponding circle on the left or right of the block of words to categorize items into groups as fast as you can. Here are the four categories into which the items can be grouped as well as the corresponding items that belong to each group:

內地 —— 香港 任務

作為本研究的一部分，您將完成一項任務，在該任務中，您將被要求盡快將單詞分組。每個部分的測試都會給20秒。您的目標是在這段時間內實現最多且正確的選擇。

請勾選單詞左側或右側的相應圓圈，以盡可能快地將項目分組。以下是對項目進行分組的四個類別以及屬於每個組的相應項目：

Good	Happy, Cheer, Joyous, Pleasing, Beautiful
Bad	Disgust, Bothersome, Angry, Hurtful, Annoy
Mainland	Mainland, Mandarin, Putonghua, Mainlanders, Simplified Chinese
Hong Kong	Hong Kong, Cantonese, Local, Hongkongers, Traditional Chinese

*There are seven parts to this task. The instructions change for each part. Please pay attention.
*請注意此項任務有七個部份，每個部份的說明都有所變化。

Part I

Here is the first part of this exercise:

For **Chart 1**, tick the left circle for items that belong to the category **Good**. Tick the right circle for items that belong to the category **Bad**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第一部分。對於圖表5，屬於 **"Good"** 類別的項目請勾選左邊圓圈，屬於 **"Bad"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 1

Good		Bad
O	Angry	O
O	Joyous	O
O	Hurtful	O
O	Disgust	O
O	Annoy	O
O	Happy	O
O	Cheer	O
O	Pleasing	O
O	Bothersome	O
O	Beautiful	O
O	Disgust	O
O	Angry	O
O	Cheer	O
O	Pleasing	O
O	Happy	O
O	Joyous	O
O	Hurtful	O
O	Beautiful	O
O	Annoy	O
O	Bothersome	O

Part II

Here is the second part of this exercise:

For **Chart 2**, tick the left circle for items that belong to the category **Hong Kong**. Tick the right circle for items that belong to the category **Mainland**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第二部分。對於圖表2，屬於 **"Hong Kong"** 類別的項目請勾選左邊圓圈, 屬於 **"Mainland"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 2

Hong Kong		Mainland
O	Putonghua	O
O	Hongkongers	O
O	Local	O
O	Traditional Chinese	O
O	Mandarin	O
O	Mainlanders	O
O	Simplified Chinese	O
O	Cantonese	O
O	Mainland	O
O	Hong Kong	O
O	Local	O
O	Mainlanders	O
O	Cantonese	O
O	Hongkongers	O
O	Putonghua	O
O	Simplified Chinese	O
O	Hong Kong	O
O	Mainland	O
O	Traditional Chinese	O
O	Mandarin	O

Part III
Here is the third part:

For **Chart 3**, tick the left circle for items that belong to the category **Hong Kong *or* Good**. Tick the right circle for items that belong to the category **Mainland *or* Bad**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!"

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第三部分。對於圖表3，屬於 **"Hong Kong *or* Good"** 類別的項目請勾選左邊圓圈, 屬於 **"Mainland *or* Bad"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 3

Hong Kong *or* Good		Mainland *or* Bad
O	Cantonese	O
O	Beautiful	O
O	Cheer	O
O	Mainlanders	O
O	Local	O
O	Joyous	O
O	Annoy	O
O	Hurtful	O
O	Traditional Chinese	O
O	Putonghua	O
O	Bothersome	O
O	Hongkongers	O
O	Disgust	O
O	Hong Kong	O
O	Mainland	O
O	Pleasing	O
O	Happy	O
O	Angry	O
O	Simplified Chinese	O
O	Mandarin	O

Part IV
Here is the fourth part:

Chart 4 is the same as the previous part. Tick the left circle for items that belong to the category **Hong Kong *or* Good**. Tick the right circle for items that belong to the category **Mainland *or* Bad**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!" You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第四部分。對於圖表4，屬於 **"Hong Kong *or* Good"** 類別的項目請勾選左邊圓圈, 屬於 **"Mainland *or* Bad"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 4

HK or Good		Mainland or Bad
O	Bothersome	O
O	Local	O
O	Pleasing	O
O	Cantonese	O
O	Cheer	O
O	Putonghua	O
O	Angry	O
O	Simplified Chinese	O
O	Beautiful	O
O	Hong Kong	O
O	Hurtful	O
O	Mainlanders	O
O	Joyous	O
O	Traditional Chinese	O
O	Annoy	O
O	Mainland	O
O	Disgust	O
O	Hongkongers	O
O	Happy	O
O	Mandarin	O
O	Angry	O
O	Simplified Chinese	O
O	Pleasing	O
O	Local	O
O	Bothersome	O
O	Putonghua	O
O	Beautiful	O
O	Cantonese	O
O	Annoy	O
O	Mainland	O
O	Cheer	O
O	Traditional Chinese	O

Part V

Here is the fifth part of this exercise:

Watch out, the labels have changed position!

For **Chart 5**, tick the left circle for items that belong to the category **Mainland**. Tick the right circle for items that belong to the category **Hong Kong**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!" You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第五部分。小心！標籤的位置改變了。對於圖表5，屬於"**Mainland**"類別的項目請勾選左邊圓圈, 屬於"**Hong Kong**"類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 5

Mainland		Hong Kong
O	Local	O
O	Hong Kong	O
O	Mainlanders	O
O	Hongkongers	O
O	Simplified Chinese	O
O	Putonghua	O
O	Mainland	O
O	Mandarin	O
O	Cantonese	O
O	Traditional Chinese	O
O	Putonghua	O
O	Traditional Chinese	O
O	Mainlanders	O
O	Cantonese	O
O	Simplified Chinese	O
O	Mainland	O
O	Hongkongers	O
O	Mandarin	O
O	Hong Kong	O
O	Local	O

Part VI
Here is the sixth part:

For **Chart 6**, tick the left circle for items that belong to the category **Mainland *or* Good**.
Tick the right circle for items that belong to the category **Hong Kong *or* Bad.**

You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第六部分。對於圖表6，屬於 **"Mainland *or* Good"** 類別的項目請勾選左邊圓圈, 屬於 **"Hong Kong *or* Bad"** 類別的項目請勾選右邊。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 6

Mainland or Good		Hong Kong or Bad
O	Happy	O
O	Mainlanders	O
O	Traditional Chinese	O
O	Joyous	O
O	Angry	O
O	Cantonese	O
O	Bothersome	O
O	Mainland	O
O	Local	O
O	Mandarin	O
O	Disgust	O
O	Beautiful	O
O	Annoy	O
O	Putonghua	O
O	Hong Kong	O
O	Hurtful	O
O	Pleasing	O
O	Hongkongers	O
O	Cheer	O
O	Simplified Chinese	O

Part VII

This is the final part of this exercise:

Chart 7 is the same as the previous part. Tick the left circle for items that belong to the category **Mainland** *or* **Good**. Tick the right circle for items that belong to the category **Hong Kong** *or* **Bad**.

DO NOT START YET! BEGIN once the Timekeeper says "GO!" You will be given 20 seconds for each part. Tick as many as you can while trying to get as many right as possible.

這是本練習的第七部分。對於圖表7，屬於 **"Mainland** *or* **Good"** 類別的項目請勾選左邊圓圈, 屬於 **"Hong Kong or Bad"** 類別的項目請勾選右邊。

現在還不要開始！等到計時員說出 "GO！"才開始。

這個部分你會有20秒的時間。嘗試盡可能多地勾選項目並保持準確性。

Chart 7

Mainland or Good		Hong Kong or Bad
O	Hurtful	O
O	Mainland	O
O	Annoy	O
O	Hong Kong	O
O	Joyous	O
O	Simplified Chinese	O
O	Cheer	O
O	Mainlanders	O
O	Disgust	O
O	Cantonese	O
O	Beautiful	O
O	Traditional Chinese	O
O	Angry	O
O	Putonghua	O
O	Pleasing	O
O	Local	O
O	Happy	O
O	Mandarin	O
O	Bothersome	O
O	Hongkongers	O
O	Cheer	O
O	Simplified Chinese	O
O	Disgust	O
O	Cantonese	O
O	Annoy	O
O	Mainland	O
O	Joyous	O
O	Hong Kong	O
O	Hurtful	O
O	Traditional Chinese	O
O	Beautiful	O
O	Putonghua	O

The End ~ THANK YOU for your Participation.

APPENDIX II

CODE: _____

Demographics

1. What sex were you assigned at birth, on your original birth certificate?
    Male
    Female

2. What is your current gender identity? (check all that apply)
    Male
    Female
    Trans Male/Trans man
    Trans Female/Trans woman
    Genderqueer/Gender nonconforming
    A different identity

3. Please list your birth month and year:

    Birth Month   _ _
    Birth Year   _ _ _ _

4. Which racial group, if any, do you identify yourself with?

5. Which ethnic group do you belong to?

6. How would you classify your political orientation?

    Strongly Conservative
    Moderately Conservative
    Slightly Conservative
    Neutral
    Slightly Liberal
    Moderately Liberal
    Strongly Liberal

7. What, if any, religion(s) do you practice? Please write 'N/A' for none.

8. Please indicate the highest level of education that you have completed.

_____

9. Please indicate your full-time or part-time occupation. Please write 'student' if you are a full-time student.

_____

10. Do you have close friends or colleagues you have strong working relationships with belonging to the following groups? Please select all that apply:

Boys/men
Boys/men in science disciplines
Stay-at-home fathers
Girls/women
Girls/women in science disciplines
Working mothers
South Asians
Mainland Chinese
Caucasians
Hong Kong Chinese

Questionnaire 1

1. Please rate how warm or cold you feel toward the following group (please only rate once for each group):

	Chinese	South Asian
10 – Extremely warm		
9 – Very warm		
8 – Moderately warm		
7 – Somewhat warm		
6 – Slightly warm		
5 – Neither warm nor cold		

4 – Slightly cold		
3 – Somewhat cold		
2 – Moderately cold		
1 – Very cold		
0 – Extremely cold		

2. Which statement best describes your sentiment? Please select only one.

   I Strongly prefer Chinese people to South Asians.
   I Moderately prefer Chinese people to South Asians.
   I Slightly prefer Chinese people to South Asians.
   I like Chinese people and South Asians equally.
   I Slightly prefer South Asians to Chinese people .
   I Moderately prefer South Asians to Chinese people .
   I Strongly prefer South Asians to Chinese people .

3. What is your religious belief status?

   Believer / a person of faith   Agnostic   Atheist
   _____

4. I am personally motivated by my beliefs to be non-prejudiced toward South Asians:

   Strongly agree.
   Moderately agree.
   Slightly agree.
   Neutral.
   Slightly disagree.
   Moderately disagree.
   Strongly disagree.

5. Due to expectations of political correctness, I try to **appear** non-prejudiced toward South Asians:

   Strongly agree.
   Moderately agree.
   Slightly agree.

Neutral.
Slightly disagree.
Moderately disagree.
Strongly disagree.

6. My personal values dictate that negative stereotyping of South Asians is wrong.

   Strongly agree.
   Moderately agree.
   Slightly agree.
   Neutral.
   Slightly disagree.
   Moderately disagree.
   Strongly disagree.

7. I attempt to **appear** non-prejudiced toward South Asians in order to avoid the disapproval of others.

   Strongly agree.
   Moderately agree.
   Slightly agree.
   Neutral.
   Slightly disagree.
   Moderately disagree.
   Strongly disagree.

Questionnaire 2

8. Which statement best describes you?

   I Strongly prefer Hongkongers to Mainlanders.
   I Moderately prefer Hongkongers to Mainlanders.
   I Slightly prefer Hongkongers to Mainlanders.
   I like Hongkongers and Mainlanders equally.
   I Slightly prefer Mainlanders to Hongkongers.
   I Moderately prefer Mainlanders to Hongkongers.
   I Strongly prefer Mainlanders to Hongkongers.

9. Please rate how warm or cold you feel toward the following group (please only rate once for each group):

	Hongkongers	Mainlanders
11 – Extremely warm		
9 – Very warm		
8 – Moderately warm		
7 – Somewhat warm		
6 – Slightly warm		
5 – Neither warm nor cold		
4 – Slightly cold		
3 – Somewhat cold		
2 – Moderately cold		
1 – Very cold		
0 – Extremely cold		

10. Have you ever met a mainlander?

    Yes
    No

11. Do you consider yourself to be:

    Hongkonger   Mainlander
Neither   Both   Other: _____

Questionnaire 3

1. Please indicate which of these best reflects your views of the **Liberal Arts.**

    Strongly like
    Like
    Neither like or dislike
    Dislike
    Strongly dislike

2. Please indicate which of these best reflects your views of the **Sciences.**

    Strongly like
    Like
    Neither like or dislike

Dislike

Strongly dislike

3. How strongly do you associate the following with males and females?

Science	Liberal Arts
Strongly male	Strongly male
Moderately male	Moderately male
Slightly male	Slightly male
Neither male or female	Neither male or female
Slightly female	Slightly female
Moderately female	Moderately female
Strongly female	Strongly female

4. Women hold a smaller proportion of science and engineering faculty positions at top research universities than men. The following factors are sometimes offered as reasons for this difference. Please rate how important you think each factor is in explaining this difference. Please use the table below and select the appropriate number to fill into the box based on your assessment.

Extremely Important	5
Important	4
Somewhat Important	3
Slightly Important	2
Not at all Important	1

☐ a) Different proportions of men and women are represented among people with the very highest levels of math ability.

☐ b) In general, men and women differ in their willingness to devote the time required by such "high-powered" positions.

☐ c) In general, men and women differ naturally in their scientific interest.

☐ d) In general, men and women differ in their willingness to spend time away from their families.

☐   e)   Directly or indirectly, boys and girls tend to receive different levels of encouragement towards developing interest in the sciences .

☐   f)   In general, consciously or unconsciously, men are favored in hiring and promotion processes.

5. Please rate the following personal-goal-statements in terms of their importance to you:

a. Being knowledgeable about **Science**.
> Extremely important
> Very important
> Somewhat important
> Slightly important
> Not at all important

b. Being knowledgeable about **Liberal Arts**.
> Extremely important
> Very important
> Somewhat important
> Slightly important
> Not at all important

6. Suppose that ten Form 3 boys were picked at random from a typical Hong Kong secondary school. How many would you predict will complete a Calculus course before finishing high school?

_____

7. Suppose that ten Form 3 girls were picked at random from a typical Hong Kong secondary school. How many would you predict will complete a Calculus course before finishing high school?

_____

8. How strongly do you associate the following with males and females?

Career
> Strongly Male
> Moderately Male
> Slightly Male
> Neither Male or Female
> Slightly Female
> Moderately Female
> Strongly Female

9. How important is the following domain to you, personally ?

Family

  Extremely important
  Very important
  Somewhat important
  Slightly important
  Not at all important

10. How important is the following domain to you, personally ?

Career

  Extremely important
  Very important
  Somewhat important
  Slightly important
  Not at all important

11. What is your annual household income?

_____

12. What percentage of your family's annual household income do you contribute?

_____

13. What surname do you use?
  My parents use the same surname; I also use that surname
  My parents use different surname; I use my father's surname
  My parents use different surname; I use my mother's surname
  I have a hyphenated surname that includes my mother's and my father's surname
  None of the above

14. Are you currently the parent or guardian of a child (or children) under 18 living in your home?
  Yes
  No

15. During your youth, who was your primary caregiver?

  Birth or adoptive mother
  Birth or adoptive father
  Step-mother
  Step-father

Other relative
Other (please specify): _____
N/A (I did not have a primary caregiver)

16. During your youth, who was your secondary caregiver?

Birth or adoptive mother
Birth or adoptive father
Step-mother
Step-father
Other relative
Other (please specify): _____
N/A (I did not have a secondary caregiver)

17. What type of job do you normally associate with males?

_____

18. What type of job do you normally associate with females?

_____

19. Please indicate which of these ratings best reflects your views about the following statement:
   It acceptable for men to put off marriage in order to pursue further education or career.

Strongly agree
Moderately agree
Slightly agree
Neither agree or disagree
Slightly disagree
Moderately disagree
Strongly disagree

20. Please indicate which of these ratings best reflects your views about the following statement:
   It acceptable for women to put off marriage in order to pursue further education or career.

Strongly agree
Moderately agree
Slightly agree
Neither agree or disagree

Slightly disagree
Moderately disagree
Strongly disagree

21. Please indicate which of these ratings best reflects your views about the following statement:
    It acceptable for women to put off childbirth in order to pursue further education or career.

    Strongly agree
    Moderately agree
    Slightly agree
    Neither agree or disagree
    Slightly disagree
    Moderately disagree
    Strongly disagree

22. Please indicate which of these ratings best reflects your views about the following statement:
    It acceptable for men to put off childbirth in order to pursue further education or career.

    Strongly agree
    Moderately agree
    Slightly agree
    Neither agree or disagree
    Slightly disagree
    Moderately disagree
    Strongly disagree

The end ~ THANK YOU for your Participation

APPENDIX III

CODE: _____

Post-IAT Behavioural Task

1.Who was the Olympic gold medalist for the Men's 10m Air Rifle event at the 2000 Olympic Games in Sydney?

    A. Bahadur Prasad
    B. Dai Guohong
    C. Jake Williams
    D. Leung Hiu Yee

2. Who was the World Chess Champion in 2006?

    A. Aqarab Abbas
    B. Han Jianhua
    C. Lucas Miller
    D. Wai Kong Chow

3. Which of these individuals won the Nobel Prize for Physics in the last five years?

    A. Irene Dewar
    B. Lise Teller
    C. Stanley Higgs
    D. Thomas Witten

4. Which of these individuals won the Nobel Prize for Literature in the last five years?

    A. Anne Smith
    B. Agatha Collins
    C. Bruce Shaw
    D. George Hill

5. Case Study:
There is a job vacancy at the management level at a law firm, Farevyu & Poynt, which involves high-intensity work and erratic working hours. The firm has recently hired a large number of associate and junior level staff. The firm is looking for someone to develop a robust unable resources department to ensure the firm's needs are met in the competitive business climate in

HK. Rachel and Kelvin are both highly qualified candidates for this position with outstanding performance and a similar working experience. Rachel displays a great organisational approach looking to enhance employees' professional skills and self development goals while Kelvin is known for his ability to garner optimal outputs. Rachel graduated from HKU's business school's coveted MBA programme while Kelvin is a graduate of INSEAD. Both bring something unique to the firm culture.

Rachel is a pregnant mother of two children, one five-year-old son and one two-year-old daughter, while Kelvin has twin boys and his third child is about to be born soon.

Based on the information above, who would you hire for this job position? Please list 3 main considerations for your decision.

Please circle: Rachel   Kelvin

Reason 1:

_____

Reason 2:

_____

Reason 3:

_____

6. Scenario Analysis:

Election of the president of Kowloon University's Student Union

Candidate A	Candidate B
Lau Tin Yeung, David	Wang Haoyu, Ryan
BBA (Government & Law) Year 2	BA(AS) Year 2
cGPA: 3.39	cGPA: 3.40
Slogan: Serve with heart and soul.	Slogan: All for one, one for all.
Personal Quality: Leadership, communication skills, experienced, teamwork, careful	Personal Quality: Leadership, mature and thoughtful, team player, good social skills
Political party: non-partisan	Political party: non-partisan
Extra curricular: highschool debate team captain, volunteer with hong Kong red cross	Extra curricular: volunteer rebuilding schools in Sichuan province, president of highschool student union

Your vote :

Please circle:

Lau Tin Yeung, David

Wang Haoyu, Ryan