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Issue Highlights:

- Parental social stigma & autism spectrum children
- Indonesian educational policy decentralisation
- Psychological health & interpersonal communication
- Volumes 1-6, article & author index

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Contact

Editor-in-Chief, **Dr Gareth J Johnson**:

exchangesjournal@warwick.ac.uk

Social Media

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Reflections, Anxieties, Developments & Quality: Editorial, Volume 6, Part 2

Gareth J Johnson

Institute of Advanced Study, University of Warwick, UK
Correspondence: gareth.johnson@warwick.ac.uk
Twitter handle: @llordllama
ORCID: 0000-0003-3953-6155

> *Perhaps a lunatic was simply a minority of one. At one time it had been a sign of madness to believe that the Earth goes around the sun; today, to believe that the past is unalterable. He might be alone in holding that belief, and if alone, then a lunatic. But the thought of being a lunatic did not greatly trouble him; the horror was that he might also be wrong. (**Orwell, 1984**)*

Introduction

Welcome to the Twelfth edition of *Exchanges: The Interdisciplinary Research Journal*. This issue we once again bring you a selection of new thinking and insights drawn from emerging scholars from across the disciplinary spectrum. Being a scholarly researcher can be a challenging and, at times, unsettling experience, especially when it comes to exposing your thought to the wider world's scrutiny through your first publications. Doubtlessly we've all heard that inner voice, whispering doubts in the dark of the night, suffered outbreaks of imposter syndrome or faced professional reputation anxiety. It's a common component of the learning journey for early career and post-graduate researchers alike. Certainly, like Orwell's Winston Smith, I've known those moments of trepidation as I release a manuscript (or new issue) into 'the wild', that some hitherto unknown flaw or inaccuracy might be revealed. Naturally, this anxiety is one of the many important reasons why submitting your work to peer-review actually serves to improve and sharpen your scholarship, although it is only natural to be concerned about exactly *what* reviewers and editors may have to say.

At Exchanges we always encourage our reviewers as they cast their critical eye over work, to ensure they recall their role to help authors improve their academic voice. As an early career focussed journal, given our own experiences of trepidation and anxiety over publications, our editors also strive to support authors through this process. Hopefully, those authors appearing in this issue have had as stress-free and empowering a publication experience as we could offer. As Editor-in-Chief I'm always keen to hear suggestions about how we might make this experience even better for future authors, so please do get in touch.

So, on behalf of my Editorial Board and myself, I hope you enjoy reading the articles as much as we have. Moreover, we can all appreciate these authors' candour and courage, in choosing to listen to their better angels, and expose their thoughts within a more public sphere.

Anniversary Reflections

In recent weeks, as I've been pulling this issue together with the help of my editorial team, I passed the milestone of my first anniversary helming the journal. It's a moment which gave me the perfect excuse to take stock and reflect on progress. Perhaps the biggest fundamental change we've seen resulted from one of my earliest decisions, to consciously-uncouple from the Warwick brand, and make the title less about scholars local to our base of operations and more inclusive for those around the world. While our statistics show the majority of articles submitted to *Exchanges* have to date always come from Warwick's researchers, I've been delighted as work from globally located scholars have increasingly been submitted for consideration (***fig 1***). Notably, we've seen a distinct uptick in manuscripts emerging from beyond the anglophone western academy realm. This is something which presents new challenges for the editorial team, in terms of ensuring our standards of grammatical and linguistic quality are maintained. Nevertheless, I believe these efforts are worthwhile for improving the published scholarship, along with helping authors' own written experience.

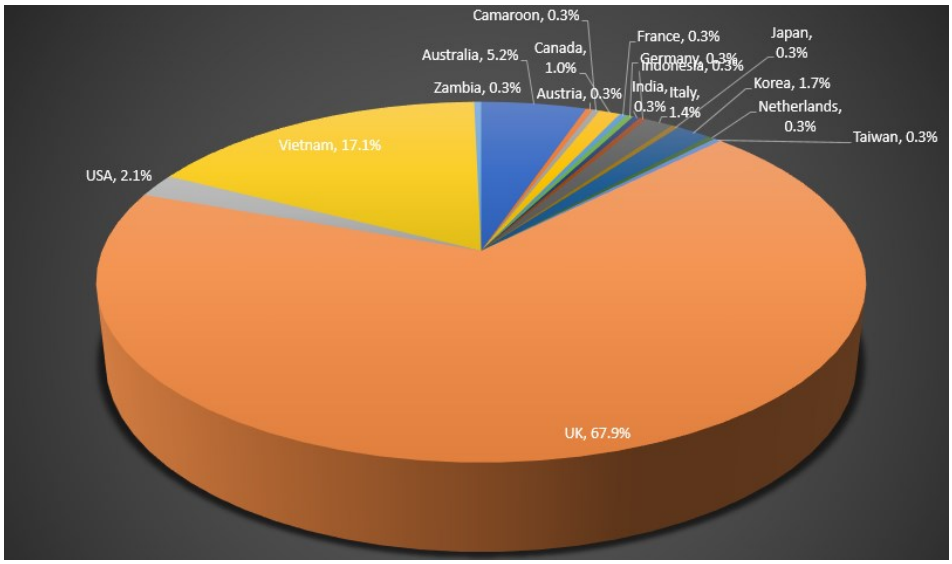

Figure 1: Exchanges Author Submission Locations (2011-2018)

The past year has also seen changes in my Editorial Board's membership, as a number of experienced editors stood down, although new members have been recruited to maintain the Board's strength. In keeping with our international stance, many of these new editors are increasingly drawn from outside the UK, and I believe their contributions will help further enrich Exchanges' operations alongside expanding our audience reach. There have also been various incremental improvements to the platform we run Exchanges on (PKP's *Open Journal System*), most of which have improved the efficacy of our operational processes. Perhaps more visible to readers, authors and reviewers, has been the wholesale revision of the guidance provided on our site. Given some of this material had remained unrefined since the founding days of the journal, reworking it was a laborious but essential early task for myself, but one which I hope served to improve the clarity and coherence of the information provided.

There's also been an increase in the direct and distributed marketing we do for Exchanges, along with establishing various social media presences. For many scholars, marketing can be somewhat of a dirty word, but in an academic publication environment replete with journals competing for readers and authors' attentions alike, ensuring people know about our title remains a key activity for the whole Editorial Board. That's alongside the efforts we make to raise the visibility of every single article and author published in Exchanges too. This is one of the reasons why, starting this issue, we're providing a little more background information about individual authors, to help in further raising their professional profiles. Interestingly, quite a few times our marketing endeavours have involved a personal appearance at a conference or contributing to a workshop, here and abroad. This is something I especially enjoy, as it provides a great opportunity to speak directly to our various academic audiences in an informal and formal settings. Going forward into my second year, I can only encourage any readers, institutions or conferences who'd like to hear directly from myself or Editorial Board members about Exchanges' activities, to get in touch. We would love to speak with you.

It's worth highlighting here something I mentioned in the previous editorial which sprung forth from one of these engagements (**Johnson, 2018**). This was a collaboration with Warwick's renowned *Politics and International Studies* department to develop an essential guide to peer-review. Generously funded through the EU's *PLOTINA* project's outputs, this work is specifically targeted at meeting post-graduate and early career researchers' concerns about engaging as peer-reviewers for the first time. After emerging from review and final editorial discussions, it finally saw publication last month as a fully open-access work (**Johnson et al, 2019**). If you're an early career researcher about to, or considering, getting

involved in peer-review for any title, or funding body, for the first time, you may well find this publication is a resource worth consulting.

Naturally, as a scholar-led open access journal we have also been keeping an ever-watchful eye on two big external developments which are likely to impact upon academic publishing. The first, Brexit, I'm not going to talk about, given far more informed and eloquent scholars than myself have written on the topic (**Ayris, 2017)**. The other big development is the work of cOAlition S (**2019**) and their *Plan S* initiative. If you've not been following the debate closely, then briefly speaking this is a research funder-led effort to encourage greater take-up of open access publishing. In the UK it arguably represents the most strident attempt to flip a greater proportion of commercial journal titles over to open-access since the flurry of initiatives stemming from *The Finch Report* (**Finch, 2012, Szomszor, 2019**). As with every element of academic publishing, there are a myriad of reactions, concerns, issues and uncertainties stemming from the various stakeholder groups (**Eve, 2019**). Indeed, even within these groups it's not uncommon to spot diametrically opposed positions over the efficacy, desirability or practicality of Plan S' implementation. I'm glad to say, that Exchanges, to the best of my current understanding of the scheme's requirements, is Plan S compliant. So, my own concerns with the initiative remain ones of scholarly interest rather than practical uncertainties. Nevertheless, interesting and possibly turbulent times lie ahead for many aspects of scholarly publishing practices.

Articles

Turning now to the main body of this issue, as we are delighted to bring you four main articles and a new critical reflection too. Firstly, **Eirini Veroni** reports on her investigations into the challenges of raising a child with Autism Spectrum Disorders (ASD) in Greece. Her paper explores the results of a mixed-method based project, utilising a semi-structured questionnaire-based approach, to better understand the social stigma faced by parents of children with this disorder. Interestingly, the paper also comments on the associated impacts upon support services and broader educational programmes related to ASD, which have arisen as a consequence of Greece's ongoing period of financial austerity (1).

Our next author casts their perceptions even further to the east, as **Ahmad Rahma** tackles the fascinating topic of Indonesian educational policy's decentralisation, by scrutinising the literature and discourse concerning it. Since its instigation in the early 2000s, the shift away from a centralised educational policy by the government has been perceived as responsible for transforming secondary education in the country. Notably, Indonesia's

diverse geographical and cultural milieu means that the prior 'one-size fits all' approach, represented a poor fit for the disparate needs of schoolchildren and educators alike. However, Rahma suggests while some advantages have been conferred through the new decentralisation policy approach, practically, for many educators, many obstacles and challenges remained. As such this article offers a number of suggestions for overcoming these issues (30).

A change of pace for our next article, as **Chi Cuong Tran** and colleagues explore issues around automated disease detection within the Vietnamese shrimp farming industry. Here the yellow head virus is a particular problem and finding novel and automated ways to detect it in a timely manner, along with bringing new efficiencies to the food industry. Tran explores in particular an image processing approach, utilising the Raspberry Pi platform. The research seemingly indicates that image detection methods utilising subject colour as key identification technique proffer notable advantages over prior approaches (48).

Staying in the far east, our last research article this issue is from **Xintong Lu**. This research has been examining issues around undergraduate students' social relationships, interpersonal communication and the psychological health. Drawing on Bandura's seminal work, Lu's research contrasts the occurrence of Jing's Interpersonal Communication Efficacy (ICE) concept within domestic and international students studying at Chinese universities. Interestingly Lu uncovers a greater prevalence of interdependence and interpersonal communication between the domestic students in her sample. As such, this suggests appreciating interpersonal communicative cultural variances would be beneficial within university educational support and training activities (64).

Critical Reflections

We close the main body of the journal with an article on a topic close to my professional heart: practical event organisation. In another in our series of always popular critical reflections **Matthew Bradbury** and colleagues introduce a critical lens to the organisation of the annual *Warwick Postgraduate Colloquium in Computer Science*. In particular the piece explores recent organisational and practical revisions to a long established, and much valued by delegates, event in terms of the increased resource, scheduling and labour impacts upon the organisers. The article concludes by exploring lessons learned, and how organisers of similar postgraduate colloquia might benefit from their experiences (86)

Exchanges Index

Beyond the articles, you'll find one more piece included in this issue. I confess as a former academic librarian, the lack of any index to Exchanges has been something which has nibbled away at my attention over the past year. Hence, you'll find as a final appendix to this issue and volume 6, an article and author index to all issues of Exchanges published to date. Hopefully, this might prove to be a handy and informative jumping off point for readers old and new alike to delve into the treasure trove of works we've published since 2013 (**102**).

In-between Spaces: Thematic Call for Papers:

> *This is Major Tom to Ground Control, I'm stepping through the door. And I'm floating in a most peculiar way, and the stars look very different, today.* (**Bowie, Space Oddity**)

As scholars we are often focussed directly upon examining and understanding specific objects, cultures, properties or thinking. Yet, there is also incredible value in considering what lies between, outside or around our subject focus. Why focus on the destination, when it is the journey which can shape our perceptions? Why focus on the subject, when it is the space they occupy which shapes their perceptions, preconceptions and presumptions? Why consider the nucleus, when it is the disparate forces which prescribe its existence? Hence, what surrounds us, can often define, shape, or influence; in all manner of unexpected and revelatory ways. From liminal spaces providing places of transition between what was and what will be, through marginalia, paradata and metadata to vacuums (false or otherwise) or negative-space; that which encloses often provides access to unique and often overlooked revelations as much as our normative focuses of attention.

> *He who fights with monsters should look to it that he himself does not become a monster. And when you gaze long into an abyss, the abyss also gazes into you.* (**Nietzsche, Beyond Good & Evil**)

This is why for the issue of Exchanges **to be published Spring 2020**, we are inviting authors to submit original, exciting, insightful research-based articles addressing some aspect of ***in-between spaces***: however you or your disciplinary traditions conceptualise them. Exchanges especially welcomes articles tackling this topic by multiple authors with contrasting positions or from disparate fields. The Editorial Board and I are available to discuss article concepts or outline ideas further.

The deadline for submissions is **Friday 1st November 2019**.

General Submissions: Open Call for Papers

Additionally, *Exchanges: The Interdisciplinary Research Journal* **welcomes submissions 365 days a year** on any subject, outside of the requirements of our themed calls. We therefore invite manuscript contributions from researchers or learned practitioners from any discipline, anywhere in the world, which fulfil our **standard article format** requirements. We are happy to receive traditional research or review articles, but we also especially welcome submissions of **interviews with key scholars** or **critical reflections** on important scholarly events, conferences or crucial new texts. More information on all of these article formats are available on the Exchanges website. Likewise, all members of the Editorial Board are also available to further explore article ideas.

As Exchanges has a mission to support the development and dissemination of research by early career and post-graduate researchers, we are particularly pleased to receive manuscripts from emerging scholars. Please note, as our readership has strong interests in work which encompasses or straddles disciplinary boundaries, prospective authors are strongly encouraged to consider how their manuscripts address a broader, interdisciplinary audience.

Exchanges is a diamond open access (**Fuchs & Sandoval, 2013**), scholar-led journal, which means there are no author fees or reader subscription charges. Authors also retain copyright over their work but grant Exchanges first right of publication as a submission requirement. Contact any member of the Editorial Board or see our online guidelines for more information about submitting to Exchanges.

https://exchanges.warwick.ac.uk/about/submissions

Forthcoming Issues

Normally, I'd highlight the next regular issue of Exchanges here (expected autumn 2019), but I'd thought instead I'd share the rather exciting news of two forthcoming special issues. Both stem from international conferences, and will showcase a range of articles from early career researchers from around the globe. The first issue draws on the *Bites Here and There* conference (**Warwick, 2018**), held in November 2018. This interdisciplinary and international conference explored the 'evolution and the different uses of the tropes and figures of cannibalism across both time and disciplines'. Submissions associated with this conference are already starting to undergo review at time of writing, with many more manuscript submissions expected soon. This special issue is currently scheduled for publication during January 2020

The second special issue will showcase papers from speakers at the *Utopia, Dystopia and Climate Change* conference (**Utopian Studies Society, 2019**), to be held July 2019 at Monash University's Prato Campus, Italy. I'm delighted to report I've been invited to attend the conference in my capacity as Editor, so hope to spend some engaging days chatting with the speakers about their work and publication plans. This issue is currently scheduled for publication in September/October 2020, with a submission deadline for late 2019.

There have also been very tentative conversations about publishing a bilingual issue of Exchanges, in collaboration with an American university. You can be sure I'll revisit these various developments in future editorials, and more regularly in the Exchanges blog. Nevertheless, in the meanwhile we look forward to publishing our next regular issue of Exchanges (Volume 7.1) this autumn.

Acknowledgements

As always, my thanks to our authors and reviewers for the vital and continued contribution of their intellectual labour in the creation of this latest issue. Without you, the ability to produce a quality-assured, peer-reviewed, scholar-led publication would quite simply not be possible. Thanks also to our reader community, who play a key role in developing the debates and insights raised in each issue. I hope you find this issue as stimulating, thought-provoking and perhaps challenging as previous volumes.

My thanks also to the Editorial Board, especially our newest member, Dr Sven Van Kerckhoven (Vrije Universiteit Brussel), for their input and comments, along with their dedication, focus and commitment they each bring to producing this interdisciplinary research organ. You may be pleased to note some of our Editorial Board have relocated to other prestigious institutions, and we warmly applaud their continued collaboration with Exchanges.

Finally, thanks also to the University of Warwick's Library, for their continued advice, guidance and technological support for Exchanges. I'd also like to acknowledge Fiona O'Brien of the Reinvention journal for a number of stimulating conversations about scholar-led publishing over the past year.

Continuing the Conversation

In the meantime, don't forget to stop by the editorial blog, follow our Twitter account or join our new Linked.In group for the latest news, developments and insights about Exchanges. Please do come and join in the conversation, as we always love to hear the thoughts of our authors and readership communities. Alternatively, start a dialogue with myself via the email at the start of this article.

Editorial Blog: https://blogs.warwick.ac.uk/exchangesias/

Twitter: @ExchangesIAS

Linked.In: https://www.linkedin.com/groups/12162247/

Editorial Board Members

Gareth has been Exchanges' managing editor-in-chief since early 2018, with a varied prior career within academic libraries, drug research and project management. He originally read for a degrees in biomedical technology (Sheffield Hallam) and a masters in information management (Sheffield), before completing a doctorate in communications, culture and media at Nottingham Trent University. His research interests focus on the power-relationships and evolution of scholarly academic publication practices, viewed through critical social and political economic frameworks. Gareth is an outspoken proponent for greater academic agency through scholar-led publishing, along with being an expert in interpersonal and online communication, and distributed team-working practices.

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The Social Stigma and the Challenges of Raising a Child with Autism Spectrum Disorders (ASD) in Greece

Eirini Veroni

Centre for Education Studies, University of Warwick
*Correspondence: E.Veroni@warwick.ac.uk

Peer review: This article has been subject to a double-blind peer review process

Abstract

This paper describes the social stigma and the challenges some Greek parents of children with autism spectrum disorders (ASD)[1] faced in Athens, Greece. The sample consisted of seventy-four parents of children with ASD and a mixed methods approach was used; (seventy - four parents completed a semi - structured questionnaire and twenty had semi-structured interviews). The quantitative and qualitative findings show these parents and families of ASD children experienced stigma in various ways which played a major role in making their lives difficult. This study offers a lens through which to view attitudes towards disability, stigmatisation, especially when resources are scarce. It was conducted in Greece during the period of austerity, affecting the delivery of education within social – cultural restraints. So studies at a different time or in another place could produce other findings.

Keywords: autism spectrum disorders (ASD); Greek parents; social stigma; austerity; open-ended questionnaires; social isolation

1. Introduction

The serious financial and economic crisis in Greece has affected the services provided to children with autism spectrum disorders (ASD) (**Kalyva, 2013; Stampolis et al., 2012; Syriopoulou - Delli et al., 2012**). The reduced economic capacities post-crisis, at both state and family levels, continue to prevent these children from fully enjoying their constitutional rights to inclusive education, quality health services and effective social care structures (**Policy Department C, 2013**). Greek Social Services have been described as unavailable, difficult to obtain, inappropriate and inaccessible (**Kalyva, 2011; Stampolis et al., 2012; Syriopoulou-Deli et al., 2012**). The Committee for the Rights of the Child in Greece recommended investment to protect vulnerable children, including children with disabilities, by defining strategic budgetary lines to be protected even in situations of economic crisis (**Policy Department C, 2013**).

This study aimed to shed light on the challenges that parents, and families face in supporting their children with disabilities in an age of austerity with welfare services curtailed. This paper is based on a previously published conference paper describing my doctoral research.

Karim et al., (**2012**) and Ridge (**2013**) have argued that families with disabled children are the worst hit when resources are restricted. Hartas claims neoliberal policies make parenting harder because the legitimacy of the state's support for structural inequality is questionable and so responsibility for overcoming structural problems and the unequal provision of adequate services to children rests with the family itself (**Hartas, 2014**). Cuts to social benefits over the last decade have had a severe financial impact on most families, especially those with disabled children, and some young people's educational, social and physical needs have not been met (**Ridge, 2013**). Living with a child diagnosed with ASD poses many challenges for a family. Generally, parents are told to let the professionals organise interventions to support their child. However, insufficient resources and training, and lack of scientifically-based practice approaches have left many parents dissatisfied with the services provided and children not achieving their full potential, leaving families exposed to tremendous stress.

Their stress is increased by social stigma, which has not been extensively researched in Greece because of the economic crisis, nor have the difficulties stigma adds to other challenges these families face. Parents with children in the autism spectrum disorder are more at risk of developing depression and other mental disorders than parents of children with other disabilities (**Benson & Karlof, 2009; Ekas et al., 2010**). Many questions arise about the relationship between autism spectrum disorder and the mental health of parents, particularly the mechanisms that link ASD to anxiety and depression found in parents (**Cramm & Nieboer, 2011; Meirsschaut et al., 2010**). Heiman's (**2002**) survey suggests that inadequate knowledge of ASD in relation to other disabilities and the socially undesirable and aggressive behaviour of children with this disorder seem to cause anxiety and depression in parents.

Three anxiety factors linked to the upbringing of a child with autism are the permanence of the situation, the lack of acceptance of autistic behaviour by society (and often the family itself) and the low levels of social support (**Konstantareas & Homatidis, 1989; Twoy et al., 2007**). In Greece, these factors have not been extensively investigated; this research will address this lack, focusing on social stigma.

Much of the previous research into parental caregivers' emotional and physical health centred on their children's behavioural problems or hoe severe their disability was (e.g. **Plant & Sanders, 2007**) rather than lack of support (**Resch et al., 2010**). The number of children diagnosed with ASD continues to rise, while resources decline or are insufficient to support parents and families (**Hall & Graff, 2011**).

Understanding what parents go through is essential to the design of appropriate interventions to reduce parenting stress and empower the parents of ASD children by helping them access the available sources of social support and provide strategies to cope with stigmatisation (**Dardas, 2014; Hope-West, 2011**). Most studies reviewed employed qualitative methods, mainly interviews with teachers (e.g. **Hoogsteen & Woodgate, 2013; Ingersoll & Hambrick, 2011**) rather than quantitative or mixed methods. This research took a mixed method approach of questionnaires and interviews with parents. The research questions were:

1. Do Greek parents of children with ASD face social stigmatisation?
2. Do Greek parents of children with ASD face social–emotional isolation?

2. Autism in the Greek educational system

Much of the research into special educational needs (e.g. **Gray, 2003; Hutton & Caron, 2005; Montes & Halterman, 2007; Tomanik et al., 2004**) discusses the difficulties parents of ASD children face in their daily lives. Glover-Graf (**2011**), suggests parents are likely to experience strained marital and extended family relations, social isolation, challenging education arrangements, and a sense of grief related to the restricted opportunities of their children. A diagnosis of ASD affects not only the diagnosed individual, but their entire family. Parents will have to advocate on behalf of their children, identify their needs, recognise their strengths, challenge practices and negotiate to participate in decision - making with the professionals, express dissatisfaction to providers, and reach resolutions regarding all these concerns.

Parents have the greatest influence on the outcomes for their children with ASD (**Wang, 2008; Singer et al., 2012**). Beatson (**2008**), Beckman (**2002**), and Prelock et al. (**2003**) highlight the importance of the interaction between families and professionals. The increase in diagnoses of autism spectrum disorder has resulted in the creation of a special needs category – Greek education laws 1566 (1985) and 2817 (2000). In 2008, a new education law (3699) specified that children with autism spectrum disorder were to be placed in line with their cognitive and language abilities and social skills (**Makrygianni & Reed, 2010; Miller et al., 2013; Syriopoulou-Deli, 2010**). No comprehensive official statistics on the exact

number of Greek people with ASD exist (**Centre for Education Research, 2009**). Keennan et al., (**2015, p. 173**) claim the lack of adequate Applied Behaviour Analysis (ABA)[2] support means the different needs of individuals may not be taken into account. Law 3699 (2008) explicitly makes the state responsible for special education as an integral part of mandatory, free public education and free special education and training for individuals with disabilities of any age and at all education levels. The state is also committed to supporting their full inclusion participation and contribution to society, independent living, economic self-sufficiency and autonomy.

No suggestions are offered as to how these aims will be met, as no legislation in Greece targets ASD specifically, only the education and treatment of all children with special needs. The newer ABA approach is not mentioned in any official document. The traditional eclectic interventions by psychiatrists, psychologists, speech and language therapists, special educators and occupational therapists are often prescribed and partly funded by the public health system in educational or home settings (**Ministry of Interior, 2007**).

Kalyva (**2013**) and Stampoltzis et al.'s (**2012**) empirical studies exploring the needs of children with ASD in Greece found the Greek government's financial support for parents of children with ASD and professionals for training and professional development was inadequate. In addition, very few secondary schools in Greece had the curriculum content, teaching accommodation and/or adequately trained personnel appropriate to the needs of ASD children.

Kalyva (**2013**) claims Greek parents of children with ASD are not content with the facilities offered in formal educational settings (special schools). Gena et al. (**2006**) claimed Greek families suffer due to the under-funding of appropriate educational provision for their ASD children. Few empirical studies in Greece have examined contextual factors such as parents' involvement with their children's learning, parent – professional co-operation, the types of service offered in special education settings, the lack of public services and the generally limited resources within ASD education provision and the impact these have on social relations. A few studies (e.g. **Avramidis & Kalyva, 2007; Konstantareas & Homatidis, 1989; Mavropoulou, 2007; Papageorgiou & Kalyva, 2010**) have examined parents' needs but paid scant attention to the support services available for families with ASD children or the challenges parents face in looking after and educating their children.

3. Challenges faced by parents raising children with ASD: parents' emotional wellbeing

Living with a child diagnosed with ASD challenges parents who are often themselves at risk of developing negative psychological outcomes including high levels of stress (**Griffith & Hastings, 2010; Ingersoll & Hambrick, 2011; Ludlow et al., 2012**).

Problems often result from a mismatch between parents' needs and the resources available which could be effectively addressed by policy makers and service providers collaborating with families to identify needs and establish family-centred policies and services to meet them (**Prelock & Hutchins, 2008; Resch et al., 2010**). International research indicates that caring for a child or adult suffering from a developmental disorder demands superlative parental care which adds to their burden of stress (**Dyson, 1997; Hassal et al., 2006; Hayes & Watson, 2012; Ludlow et al., 2012; Myers et al., 2009; Whitaker, 2002**) because a wide range of symptoms can be part of their disability (**Griffith & Hastings, 2010; Ingersoll & Hambrick, 2011; Konstantareas, 1990; Montes & Halterman,2007; Woodgate et al., 2008**).

3.1. Social Stigma

The term *stigma* is used in the sense of disapproval by and exclusion from a social group when an individual's behaviour does not accord with its rules (Whitehead, 2001). Most people, according to Goffman (**1963**; **1986**) consider the stigmatised person as abnormal, even as non-human. At best, the stigmatized are considered human but incomplete, which can be presented as the justification for discrimination, both painful and inhibiting for the stigmatized individual's development. Hostile reactions can be seen by the 'normal' as justified by the phobias and the fear they face in encounters with these individuals (**Goffman, 2009**). Goffman (**1963; 1986**) also points out that the near environment of family and friends usually supports the stigmatised and, accepts them, albeit not in all cases.

Green et al. (**2005: p.197**) refer to Link and Phelan's earlier (2001) work labelling as a way of denoting difference or by ignoring those who are different in social situations, seeing biological difference as being socially significant. Green (**2003**) defines stereotyping as the attribution of negative value to socially silenced differences.

Link and Phelan (**2006**) add that the sources and targets of stigmatization are two different concepts; *felt* and *enacted* stigma. Felt stigma relates to the feelings of those with a socially undesirable attribute while enacted stigma relates to discrimination against those who have a stigmatizing

attribute. Parker and Aggleton (**2003**) suggest enacted stigma produce and reproduces the existing social hierarchies and resisting or negotiating the experience of felt stigma is a way of challenging these hierarchies.

3.1.1. Social stigma and Autism Spectrum Disorders

Stigma associated with ASD is significant and widespread. Kinnear et al. (**2016**) suggest the need for research into the parents of children with ASD to further understand the components and impact of stigma on their lives. Stigma is a multifaceted construct, according to Goffman (**2009**), deeply discrediting since it turns the individual from a whole person into a tainted, discounted one. Wachtel and Carter (**2008**) argue that when a child is diagnosed with ASD, parents experience a range of feelings and a set of challenges that impact on their psychological adjustment, ranging from relief because their suspicions were validated, to grief for the loss of a life the way they had envisioned. Gray (**1993**) adds Goffman's (**1963; 1986**) *courtesy stigma* or stigma by association to refer to those who voluntarily associate with stigmatized individuals. Lilley (**2013**) includes parents among the circle of people she calls "wise" in the sense that they are "intimate with and privy to the daily lives and social worlds of those who are stigmatised" (**Lilley, 2013, p.4**), and so become stigmatised themselves through this connection. Gray (**2002**) found stigma by association applies to the parents of autistic children and highlighted the situations that provoke stereotyping and facilitate stigmatisation: the differences between the external appearance of children with ASD and the reality of their condition; the distinctive, disruptive, and socially inappropriate behaviour that children with ASD exhibit; the hardship that parents experience trying to get an accurate diagnosis.

Farrugia (**2009**) argues that parents have difficulty connecting with their child diagnosed with ASD, wanting to detach themselves from feeling they have "a spoiled identity". Moreover, Green et al. (**2005**) offer Susman's (**1994**) definition of stigma "as an adverse reaction to the perception of a negatively evaluated difference" (**Green et al., 2005, p.197**). Here, stigma comes from the interaction between the stigmatised individual and those who evaluate difference negatively, what Green (**2003**) refers to as the *subjective burden of stigmatization*, relating it to feelings caregivers experience in coping with other's reactions to children with disability. Green identified a range of emotions: "embarrassment, guilt, shame, resentment, entrapment, worry" (**Green, 2003, p.1364**).

Gray (**1993; 2002**) investigated courtesy stigma as experienced by the parents of children diagnosed with ASD, arguing that mothers experience stronger feelings of stigmatization than fathers as they "take greater responsibility for the public presentation of the family" (**Gray 1993, p.114**). Green (**2003**) also suggests that "the degree of stigma expected by

mothers has an impact on the emotional and social outcomes for themselves and their children" (**Green, 2003, p.1371**), while Brobst et al. (**2009**) point out common themes in research regarding the difficulties of parenting a child with special needs include fathers' lesser involvement in child care.

Parish et al. (**2004**) point out that the needs of children with developmental disabilities' range from specific therapies, respite care, complex diagnostic tests, modifications to their homes, equipment, adapted to their requirements medication, and special educational services, all of which entail financial difficulties, loss of employment and lack time for parents' personal needs.

Link and Phelan (**2001**) discuss stigma in the context of interrelated power differentials, including loss of status, when stigma prevents the individual from fully participating in the social and economic life of the community. Lilley (**2013**) argues that the problem is partly due to inadequate state support and services for the developmentally disabled; consequently, one parent has to be available at all times to look after their child, negotiate and advocate with service providers for their child's needs, and so is vulnerable to being stigmatised.

Link and Phelan (**2006**) describe how parents face a form of exclusion in trying to enrol their child if the school they want does not have the necessary resources to help them. Such exclusions happen often enough to be considered practices stigmatise ASD children (**Link & Phelan 2001, stated in Lilley, 2013**).These difficulties combined with social stigma, one of their most difficult aspects of public confrontation (**Davies & Hall, 2005; Guralnick et al., 2008**), mean Greek families and parents often perceive society's reaction to their child's disability as stereotypical and negative (**Papageorgiou & Kalyva, 2010; Patistea & Patistea-Tavoularea, 2009**).

4. Methodology

4.1. Research Design

The research language was Greek, and the author translated the methodological tools and results into English. Purposive sampling strategy (**Patton, 2002**) was used to select seventy-four parents whose children had been diagnosed ASD. The fieldwork was carried out in three (one urban, two suburban) special (SES) schools for children with ASD, all of mixed socioeconomic-status (SES) and three Centres for Differential Diagnosis and Support of Special Educational Needs (K.E.D.D.Y)[3] Centres located in the Attika region, urban and suburban.

These settings were selected because multidisciplinary teams were there conducting assessments and supporting children with ASD. The mixed methods sequential exploratory design had two phases; quantitative questionnaire responses, open qualitative questions (see Appendix) then individual interviews, also qualitative. In this way, "the quantitative data and its subsequent analysis provide a general understanding of the research problem. The qualitative data and their analysis refine and explain the statistical results by exploring the participants' views in more depth" (**Punch, 2011, p.300**).

4.2. Participants' Profiles (Questionnaires)

The 74 parents had lived in Greece for most of their lives, were raising their children in Greece and were the biological parents of at least one child diagnosed with DSM-5 Autism Spectrum Disorder. Their children were aged 7 - 17 years old (when ASD diagnosis is easier) and, diagnosed with ASD by a registered child psychiatrist and were enrolled in either a primary or secondary state school. No real names are used to protect their privacy.

The demographic characteristics of the 74 are: most were mothers (70.3%) who had completed basic education (47.3%) and married (85.1%). The sample had 53 mothers (71.6%) and 21 fathers (28.4%). Most of the children with ASD were male, 58 boys (78.4%), 16 girls (21.6%). The questionnaire, in addition to personal and demographic information, asked whether there were other autistic children in the family and if their child with ASD presented other medical issues, as shown below (tables 1-3).

Table 1: Sample Gender & Marital Status

Gender		**Marital Status**			
Male	**Female**	**Single**	**Married**	**Divorced**	**Widowed**
29.7%	70.3%	1.4%	85.1%	8.1%	5.4%
Sample size: n=74					

Table 2: Parents' Educational level

Lyceum[4]	**University**	**MA or PhD holders**	**Other**
47.3%	35.1%	14.9%	1.4%
Sample size: n=74			

Table 3: Other Medical Issues for Children with Autism within Sample

Language and speech problems	70%
Balance and coordination problems	18.3%
Hearing Problems	5%
Feeding Problems	30%
Clumsiness	25%
Other	12.2%
Sample size: n=74	

4.3. Measures

The questionnaire used a Social Stigma Scale adapted from the Impact on Family Scale (**Stein & Jessop, 2003**) and the Professional Autism Needs Questionnaire (PAN-Q) (see **Keenan et al., 2007**) measuring five items (i.e. prejudice, stereotyping, bullying, public awareness of ASD, society labelling the child as 'disobedient'). The participants selected 'yes' or 'no' for experience of each. Some open-ended questions (see Appendix) were included in this questionnaire and later, twenty parents were interviewed to allow them to expand on their answers or introduce other relevant issues.

4.4. Procedure

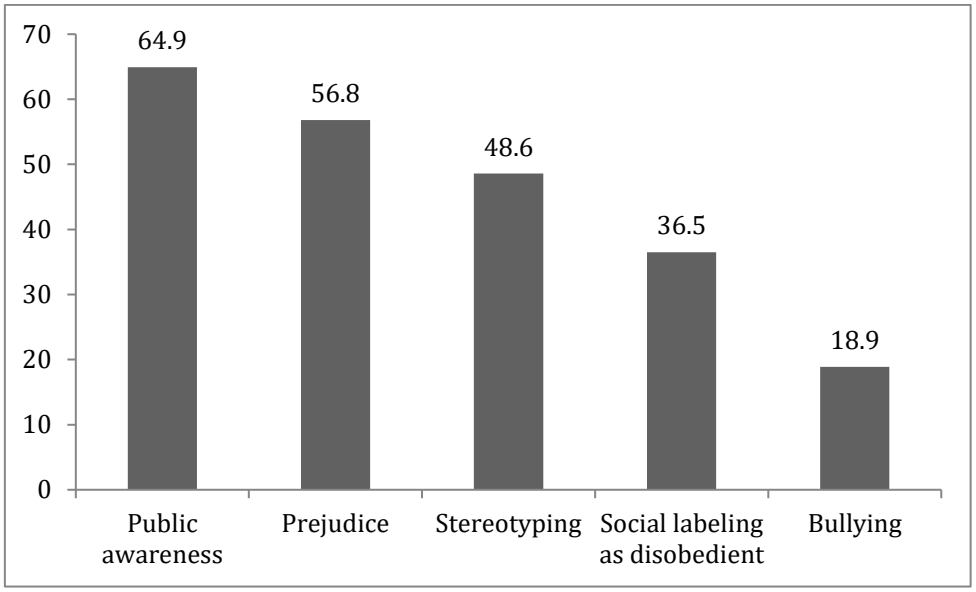
100 questionnaires were delivered to the participants by hand in order to maximize the return rate. This research complies with the guidelines of the British Educational Research Association (**BERA, 2011**). Official approval was obtained from the Special Education Department of the Ministry of Education in Greece. The participants were also told, as they were volunteers, they were free to leave the project at any point. Prior to the research, the participants had provided written consent and been made aware of the nature of the research. The participants were also informed that their cultural values would be respected and that their responses kept anonymous.

5. Results

5.1. Social stigma

Around half the parents indicated they had experienced negative stereotyping or prejudice according the Social stigma scale. About 36.5% of parents indicated their child had been stigmatised as 'disobedient' and 18.9% stated their children had experienced bullying. However, 64.9% of parents felt the level of public awareness of ASD was high which is encouraging. Most parents faced challenging behaviour from their child (aggression, tantrums, stereotypical behaviour, self-injury behaviour, being withdrawn and socially inappropriate behaviour) (see Figure 1).

Figure 1: Occurrence of Social Stigma (n=74, parents of children with ASD)



Green et al. (**2005**) argued that the majority "of research on caring for children with disabilities has emphasized the emotional distress of having a child with a disability and de-emphasized both the benefits of caring for a child with a disability and the negative consequences of stigma and socio-structural constraints". (**Green et al., 2005, pp. 158 - 160**). They also claim that if emotional distress persists, it is due to the belief that disabled people are the objects of social stigmatization and not related to degree of disability.

Table 4 shows that social stigma is not related to the parents' education level, that the severity of social stigma can be a problem for all socio - economic levels of Greek society.

Table 4: Relationship between Social Stigma and Parents' Education Level

	Lyceum graduate				University graduate				Master or PhD degree					
	No		Yes		No		Yes		No		Yes			
	N	%	N	%	N	%	N	%	N	%	N	%	$X^2(2)$	p
Prejudice	13	37.1%	22	62.9%	12	46.2%	14	53.8%	5	45.5%	6	54.5%	.575	.750
Stereotyping	19	54.3%	16	45.7%	12	46.2%	14	53.8%	6	54.5%	5	45.5%	.447	.800
Public awareness of condition	14	40.0%	21	60.0%	7	26.9%	19	73.1%	4	36.4%	7	63.6%	1.141	.565
Society labelling your child as 'disobedient; or 'ignorant'	23	65.7%	12	34.3%	16	61.5%	10	38.5%	7	63.6%	4	36.4%	.113	.945
Bullying	28	80.0%	7	20.0%	23	88.5%	3	11.5%	8	72.7%	3	27.3%	1.467	.480
No challenges	32	91.4%	3	8.6%	22	84.6%	4	15.4%	9	81.8%	2	18.2%	1.016	.602

Note: primary school and high school were excluded from the analysis, as there was a very small sample for these categories

Most of the 20 parents interviewed felt prejudice and stigma to be a significant obstacle in their lives. They reported rejection and struggles against discrimination. Twelve parents claimed they felt lonely and isolated because of being socially rejected while another actually experienced being socially excluded. Others claimed to have lost friends, while ten experienced limitations to their social lives. Seven parents experienced local rejection and stigmatisation, and also within themselves. Eight parents had asked local people to rethink their attitude to disability and accept people who were different. The interviewees indicated their relationship with the world involved indifference or compassion, or the need to explain the inexplicable behaviour of their child, that society's attitude to ASD is influenced by prejudice and stigma, resulting in isolation and discrimination against the child with ASD.

> "*I feel a gross injustice because people don't understand, and they don't accept my child's particularity"* (a father's comment)

The various qualitative data of all participants was analysed using thematic analysis. Thematic analysis is a fundamental method of qualitative analysis and suggested by Braun and Clarke (**2013**) appeared to be the most feasible way of analysing the interview transcripts of this research to thematise the participants' experienced world.

5.2. Social – Emotional Isolation and Social Networks

Due to their communication and social interaction difficulties, children with autism exhibit behaviours that are disruptive and hard to manage. These behaviours are not only a source of stress for parents but can make them feel extremely isolated.

According to the interviewees' responses, outside the home, the parents and families of ASD children often have problems controlling or disciplining them. Parents were the butt of unhelpful or abusive remarks outside the home as a result of their children's behaviour, when other people were around in places like churches, playgrounds, restaurants or when shopping. A few parents felt angry after unhelpful or aggressive remarks or about the behaviour of their children. Many parents reported having a normal social life challenging. They wanted their children to make friends and be accepted by others. They found it very painful for them to see their child rejected by others. Many suffered bouts of anxiety. The mainstream or special school can play an important role in improving social interactions with peers.

> *"It was a shock when the private kindergarten did not allow my child to participate in a school celebration, so as not to spoil or offend the parents of normal children"* (a mother's comment)

The majority of parents experienced isolation due to their children's behaviour in a social environment. They felt a self-help social network of parents with ASD children could help the exchange of ideas, opinions and experiences in an environment friendly to their child as a way forward.

> "*We share our experience wIth our social environment because we want to include our child in it. We believe that it will be really helpful for him to be a member of our society"* (a father's comment)

The interviewees acknowledged that other people can offer emotional support for their children with ASD; some shared feelings with their extended family and friends who also had children with ASD. The parents of ASD children need strong coping skills and informal support to reduce stress and deal with the social and psychological *felt* effects of stigmatisation.

6. Discussion and Implications

The social stigma parents of children with ASD[5] face and their needs and expectations were identified through questionnaires and interviews. A child with ASD creates challenges to family life and inter-familial relationships, which emerged from both quantitative and qualitative data about parents' everyday experiences of living with a child with ASD and the knowledge they acquired through trial and error.

Stigma played a major role in making life difficult for the parent/respondents of children with ASD. They worried about being treated differently, were ashamed or embarrassed by their child's condition or even tried to keep their child's condition a secret.

Greek parents of children with ASD face many trials, two of which are stigmatisation and lack of the appropriate provision for their child. The interview data revealed parents' concerns that their children behaved in non-age appropriate developmental ways and that the child they now had to raise is "different to the one they gave birth to", suggesting that some parents themselves could view their child as transgressing the dominant ideas of normal behaviour (**Huws & Jones, 2010**) and thus as stigmatised objects.

Parents in this study highlighted the need for professional and personal networks that could provide social support to help them work through societal prejudice and stigma. For the researcher, the value of this research lies in helping the voices of parents to be heard.

The questionnaire results suggest many Greek parents experienced negative stereotyping and prejudice, but only 35.1% felt public awareness of ASD was low. The most difficult to cope with social stigmatisation pertained to the nature of the condition, while more than half the parents saw prejudice as the major obstacle they have to overcome. Klar-Wolfond (**2006**) claims that better knowledge and understanding of ASD[6] will lead to greater respect, dignity, tolerance and support from the community, but the stigma attached to autism and the lack of understanding of it by the public put's parents under considerable levels of stress (**Ming, 2006, pp. 47- 49**) as experienced by the interviewees. They reported feeling that sometimes others blamed them for their child's difficult behaviour or perceived the child's behaviour as a reflection of their parenting skills, as in Lubetsky et al.'s findings (**2011**). Cosser's findings (**2005**) also showed that parents felt blamed for their child's behaviour and, in addition, some parents had blamed themselves before they were given their child's diagnosis. This study's findings are consistent with other findings (e.g. **Broady et al., 2015; Gray, 1993; Gray, 2002; Green, 2003; Green et al., 2005; Kinnear et al., 2016**) that indicate the majority of parents

experienced *felt* stigma, which relates to the feelings associated with having a socially undesirable attribute.

The quantitative and qualitative findings indicate that the study parents of children with ASD felt what Green refers to as "internal turmoil experienced on a regular basis" (**Green 2003, p.1366**) due to the burden of stigmatization and the everyday tasks required to care for their children. The parents in this study experienced the *felt*, *enacted*, and *courtesy* stigma (outlined in Section 3) due to their child's condition.

Gray (**1993**) and Green (**2003**) argue that mothers experience stronger feelings of stigmatization than fathers and Brobst et al. (**2009**) point out that fathers tend to have less involvement in caring for a child with special needs. Whether stigmatization is differently experienced by mothers and fathers is not clear, but the findings from this study also indicated that the majority of prime caregivers were mothers who had completed studies at university level and substantiate Gray's research (**1993; 2002**).

Parents in this study seemed to experience the "structural discrimination" described by Link and Phelan (**2006**) when they tried to enrol their child at school and the school, they wanted their children to attend did not have the resources needed to help their children, but also because of the prejudiced attitudes of other parents. According to the findings, such attempts at exclusion occurred often enough to disadvantage children with ASD (**Link & Phelan 2001, as stated in Lilley, 2013**).

Parents argued that they were labelled and stereotyped by their social circle, and in response they tried to be frank and educate "others" about their child's condition. The participants claimed they felt inadequate as parents since their child was not able to achieve "the persuasive grip" of other children (**James, 2005, pp.102-103**) and also because they focused their attention on the child with ASD, neglecting any siblings:

> *"I experienced a mournful situation. It got so bad I became jealous of my own children on behalf of my child with ASD. This was a serious issue, so I wasn't interested in my other children and didn't pay attention to their needs either. I was absorbed with my son. I slept and woke up with his image. My son was my hope"* (a mother's comment)

The qualitative (interview) data revealed some parents experienced marginalization because their children would never reach the expected childhood milestones. They felt they belonged to a group of "us against the rest" as Lilley (**2013**) describes it and had to act as mediators for their children to minimize societal stigma.

As pointed out, the qualitative findings in this study indicate parents also experienced *courtesy* (by association) stigma; their responses suggest they had experienced all the attributes of stigma indicated in Gray's (**2003**) research.

> *"Besides our efforts to accept our child's particularity we also face problems with our child's development. A significant obstacle is the attitude of the state and the whole society which doesn't realise that everyone is different with a unique personality and different needs"* (a father's comment)

Parents' responses seemed to support Farrugia's (**2009**) findings of the parent-child relationships being seen in terms of disability as well as autism because their child's diagnosis made it difficult for parents to connect with him/her as they wanted to detach themselves from feelings of having "a spoiled identity". The interview data indicated that parents had to find new ways of communicating with their children while holding on feelings of "normal but different" Gray (**1993**).

The data in this study show the experience of stigma is related to the lack of services for ASD children to meet their educational and social needs. Parents struggled to obtain equality in education and services while facing the absence of the necessary technical infrastructure, understaffing in schools, lack of funding, covert or overt practices of acceptance and/or rejection of people with disabilities in the education system (**Loukisas & Papoudi, 2016**). Most parents acknowledged that they felt victims of the current situation in Greece and shared their emotional burden only with their immediate family. Their difficulties remain in the private sphere of the family because they face societal prejudice and rejection. Thirteen out of twenty interviewed parents experienced a sense of victimisation and helplessness:

> *"Our children are the children of a lesser God. If my child lived in any other country of Central and Northern Europe, he would have another process in his life. In Greece, we are intruders, the government isn't interested in our children"* (a mother's comment)

According to Hartas (**2014**) the privacy of family life should be guarded as the last refuge of parents and family members and function as a "buffer" between their children and the state to protect them from exploitation and oppression (p. 135). This was difficult to achieve according to the interviewees, since lack of social support and the stress of living with autistic individuals can affect the psychological wellbeing of the whole family (**Gray, 1993, p.103**).

Parents' emotional challenges particularly stigmatisation emerged as a key issue in this study. They may have experienced the status loss that Link and Phelan (**2001**) in the context of power differential refer to since they had to reorganize their lives according to their child's needs, by reducing their work hours or not working, with the corresponding loss of earnings and effects on every aspect of family life and societal attitudes to them. Parents' evidence resonated with Lilley's (**2013**) assertion that inadequate state support and services for the developmentally disabled entails one parent being constantly available to advocate their child's needs. Their shock and worry made them unsure about how to proceed and about the overall future of their children, which accords with Sigman et al.'s (**2006**) findings.

Overall, the findings suggest an urgent need for emotional support and counselling, especially when there are further cutbacks to overstretched welfare services; as Ridge's (**2013**) study showed, reduced state financial support greatly impacted on most, but particularly on; those families with children with SEN [7], whose educational, social and physical needs are not met.

This study was conducted in Greece during a period of austerity, financial cuts that affected all aspects of life, including education provision. Other countries with similar socio-political structures may not undergo austerity in the same way in comparative terms. However, the study offers a lens through which to view attitudes towards disability, stigmatisation, especially when resources are scarce.

This study has implications for professionals working with parents of children with ASD in Greece. The high level of perceived stigma experienced by parents, suggests the need to design interventions to improve public awareness/education about ASD and so reduce stigmatisation, and to improve access to the appropriate services. Professionals need to respect parents' beliefs and provide appropriate information on the causes and strategies to support ASD children and their parents. Future research investigating the needs and wellbeing of parents raising a child with ASD could add longitudinal studies including evaluations of the quality of the services provided to demonstrate how the needs of parents of children with ASD change over time, from the time of diagnosis and throughout the development of their child. This could also contribute to a better understanding of autism as a concept, what it is and what it entails and how it could be accepted as normal, but different, rather than an object of stigmatisation.

Eirini Veroni is head teacher of a Special Educational Needs (SEN) school in Athens, Greece. Her BA is in Pedagogical studies from the National & Kapodistrian University of Athens and she has a BA in Sociology from the Panteion University of Athens. Her MEd and PhD from Warwick University are in Special Educational Needs. Her particular interest is the relationship between physical and economic support and the emotional feelings of support, control and empowerment that can develop through having a voice.

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Appendix: Questionnaire for parents with children with ASD

Personal Characteristics

1. **What is your relationship to your child who has an autism spectrum disorder?**

   Mother ☐ Father ☐ Other (please describe): ……..

2. **What is your highest level of education completed?**

   ☐ Primary school graduate

   ☐ High school graduate

   ☐ Lyceum graduate

   ☐ University graduate degree

   ☐ Master or PhD degree

3. **What is your marital status?**

   ☐ Married

   ☐ Divorced

   ☐ Widowed

   ☐ Single (never married)

4. **Have you (or your spouse) had to make any changes to your employment status in order to support your child with autism? (e.g. cut back on work hours, resign from your position)**

   ☐ No ☐ Yes

5. **Does your child have siblings? Do any of these siblings have a medical condition or disability?**

   ☐ No ☐ Yes

   How many have a medical condition or disability? ……..

6. **In what year was your child first diagnosed with an autism spectrum disorder?**

   ……

7. **Has your child had any other mental health problems? Please tick as appropriate**

Hearing problems ☐ Speech & Language problems ☐

Balance & Coordination problems ☐ Feeding Problems ☐

Clumsiness ☐

Other: **(Specify):**

……

What is your child's gender? ☐ **Male** ☐ **Female**

Social Stigma Scale

Which of these challenges would you say you have faced raising your child? Please tick as many as necessary:

Bullying ☐ Prejudice ☐ Stereotyping ☐

Public awareness of ASD ☐

Society labeling your child as "disobedient" ☐

Open – Ended Interview Questions

1. **How do you feel your child is treated by others?**

   ……
   ……
   ……
   ……
   ……

2. **Have you experienced stigma and prejudice in society?**

   ……
   ……
   ……
   ……
   ……

3. **Do you keep your pain private and struggle to cope with everyday challenges?**

   ……
   ……
   ……
   ……
   ……

4. **Are your relationships with others difficult?**

   ……
   ……
   ……
   ……
   ……

5. **Has your child made friends with peers?**

   ……
   ……
   ……
   ……
   ……

6. **Do you feel that the only support/advice you get is from experts?**

   ……
   ……
   ……
   ……
   ……

7. **What type of social network (extended family, parent organizations/ groups, friends, church, other social clubs) do you find to be supportive of your child' s disability?**

   ……
   ……
   ……
   ……
   ……

8. **What kind of support do you need to develop a social network for your child?**

   ……
   ……
   ……
   ……
   ……

9. **Do you get emotional support from other parents of children with ASD? What kind of external support do you need?**

   ……
   ……
   ……
   ……
   ……

Endnotes

[1] Autism Spectrum Disorders (ASD) refers to a group of developmental disorders (like autism and Asperger's syndrome) which affect sufferers' social and communication skills. They also display patterns or have restricted interests – also called pervasive developmental disorder (American Psychiatric Association, 2013). ASD is now so widespread that it has become a special needs category in Greek educational laws 1566 (1985), 2817 (2000) and 3699 (2008).

[2] Applied Behaviour Analysis is a scientifically validated approach to understanding behaviour and how it is affected by the environment (**Autism Speaks, 2017**).

[3] See Special Education Law (**L2817/2000, L3699/ 2008**) and MNERA (**2008**) for details of the operation of the assessment, diagnosis, social and educational support of ASD children in Greece.

[4] Editor's note: Lyceum is a type of educational institution, common across Europe although not the UK, roughly equivalent to secondary/high school in level.

[5] See endnote 1.

[6] See endnote 1.

[7]According to the *1981 Education Act*, 'SEN' in England refers to children receiving special education (**Department for Education (DfE) 1981**). Children with SEN are those who have "a learning difficulty which calls for special educational provision to be made for them" (**DfE, 2014, p. 6**). Communication, interaction, cognition, learning, emotional, social and behavioural difficulties, sensory and/or physical disabilities all come with the remit of SEN.

Decentralised Education Policy in Indonesia: Intended Outcomes and Remaining Challenges

Ahmad Ardillah Rahman

Monash University
Correspondence: Aarah4@student.monash.edu
Twitter: @ahmadardillah
ORCID: 0000-0002-3295-7013

Abstract

This review aims to discover and investigate using available literature, the advantages and the challenges of changing the educational policy from a centralisation to a decentralisation, particularly to look at more closely on teachers' readiness toward the new educational transformation in Indonesia. Since 2003, with the introduction of decentralisation in Indonesian educational system, teachers and principals have been given more influence and authorities to manage their educational practices. However, there are some problems and challenges faced by teachers and the government in implementing the system. Therefore, this review evaluates benefits and obstacles of the implementation of decentralisation in Indonesian contexts. Findings of this study were gained through a synthesis research where the current empirical studies surrounding the notion of decentralised education were descriptively analysed, integrated and synthesised. It reveals that while the decentralisation has offered several promises that might contribute to the better movement of educational practices, the decentralised education system in Indonesia is still distrait by uneven teachers' quality, low commitments of teachers and principals, and the poor participation of parents and local societies in succeeding the school committee program. Therefore, in order to succeed the transformation, this review concludes that promoting continual teachers' education and training, creating teachers' professional career pathway, and encouraging local monitoring for teachers are fundamental aspects to be developed.

Keywords: decentralisation, local monitoring, school committee.

Introduction

This paper critically analyses the challenges of decentralised education policy for teachers in Indonesian education context. The decentralisation policy in education has been a trend in some countries in the last decade. In this review, decentralisation refers to give more autonomies and flexibilities to local governments or schools to manage their own educational practices (**Al-Taneiji & McLeod, 2008**)**.** Studies have suggested that the policy has been successfully implemented in some countries (**Esther, 2006; Ouchi, 2006**). However, the implementation of the decentralisation in Indonesian educational system still face some obstacles to gain the potential and maximum benefits from the policy.

Indonesia is a country endowed with tremendous geographical diversity, diverse populations, many different cultures, and various local resources. In a country like Indonesia, with its spatial and multi-dimensional structure, the educational system must be able to accommodate and support all local potentials in different regions and schools. The educational system of Indonesia has to meet the needs of a large, growing, and widely separated population and with a large number of distinctive characteristics among regions. In this investigation, it will be argued that decentralised education policy has many advantages to being implemented in Indonesia. However, there are specific challenges for teachers in maximising the potential outcomes of the policy that need to be carefully evaluated.

Therefore, the following questions are provided to lead this study:

1. What are the benefits of decentralised education policy in Indonesia?
2. What are the challenges that teachers and government have to encounter by the implementation of decentralisation?

Purpose and Objectives

The purpose of this review is to discover and investigate using available literature, the advantages and the challenges of the implementation of decentralisation in educational system, particularly to look at more closely on teachers' understanding and their readiness towards the new educational transformation in Indonesia. Looking at whether teachers are well informed and prepared to work under the new educational policy would be essential to unpack the reasons why teachers are unable to implement the decentralised educational system as it is expected by the government.

The objective of this study is to review current and available literature, the process of the educational transformation in Indonesia; to point out and discuss several advantages of implementing the decentralised educational system; to identify several obstacles faced by teachers and local societies in maximising the potential outcomes of the new policy; and to provide some recommendations in which the national and local government, school principals, and schools' boards and committees can better provide adequate training and preparation for the teachers in facing the new reform of educational system. The results of this investigation are expected to influence how teachers and local societies understand and adapt to their new roles in the decentralised educational system.

Methodology

In order to answer the research questions, the methodology of this study was a synthesis research where the current empirical studies surrounding the issue of the decentralised education policy are descriptively analysed, integrated, and synthesized. This method of synthesis has been explained by Onwuegbuzie, Leach, & Collins (**2011**) as the process in which findings from empirical studies are combined to be able to draw conclusions. To complete a comprehensive search of the literature around the notion of decentralisation in Indonesia, the online education databases and journals article of Monash library has become the main source of literature. The selected literature was taken from three different sources namely ERIC Journal, Scopus, and google scholar. As the search column plays an essential role in limiting the nature of the search, specific keywords such as decentralisation, teachers' autonomy, and school-based management were used. It is accompanied by the aid of Boolean operators (AND, OR, and NOT) to further focus and specify the search. The writer had also manually checked on reference list of the selected literature to find out the key names in the field of educational decentralisation. After an extensive search and careful selection of literature, the final list of research articles were reviewed.

The discussion of this paper will be divided into three parts. The first section discusses an overview of the decentralised education in Indonesia, the history and the roles of Indonesian teachers in applying the policy. The second section points out the advantages and beneficial outcomes of the policy implementation, and in the third section of the essay, some challenges for teachers in implementing the policy will be discussed accompanied by some recommendations.

Discussion

Decentralised Education Policy in Indonesia: An Overview

Before looking into the benefits and challenges of decentralised education policy in Indonesia, it is crucial to discuss the educational structure after the implementation of decentralised education policy in order to understand contextual details, history and the educational settings description. In this section, the changes of the educational structure in Indonesia and its effects on altering the teachers' responsibilities and accountabilities in schools will be elaborated.

Indonesia has undergone various cycles on its educational structure. Based on the constitution number 20, year 2003, it is stated that the reform of Indonesian educational system aims to be based on democratic, decentralised, and socially just principles (**The Constitutions of Indonesian Republic, 2003**). Therefore, the decentralised education policy in Indonesia was started to be implemented in 2004 with the occurrence of the Competency-Based Curriculum (CBC). For two years, the government had made a lot of efforts to put more decentralised features on the curriculum before they finally introduced the School-Based Curriculum (SBC) as a perfected curriculum in 2006.

The implementation of the CBC which was advanced and completed by the occurrence of the SBC was the mark of changes on the educational structure of Indonesia from centralisation to a decentralisation (**Mangali & Hamdan, 2016**). With the implementation of the curriculum, the Indonesian government had begun to decentralise its educational system and to apply School-Based Management policy where schools were authorised to conduct their own teaching practices according to their students' needs and local potentials. Schools were also encouraged to get involved with societies and local communities to improve the quality of education. As a result, there are various aspects of education in Indonesia which have been altered by the reform, and the alteration involved the changes in the teachers' roles, teaching hours, and the way funding from the government is delivered to schools.

The first concern is due to the changes in the teachers' roles. Prior to the implementation of the decentralisation policy in Indonesia, the curriculum was designed and developed by the central government where teachers only implement the curriculum given by 'experts' into their classroom practices. In contrast, the responsibilities changed after the reform where teachers are not merely as implementers but also as curriculum planners. Under the School-Based Curriculum, teachers and schools are required to independently develop their own schools' curricula like identifying the learning objectives, choosing and planning the teaching approaches and

strategies, and deciding the assessment criteria and evaluations based on the content of national standards outlined by the Ministry of Education (**Indonesian Ministry of Education, 2006**). On the one hand, this new role encourages teachers' professional development and enables them to be more flexible in their teaching and learning practices, but on the other, it requires teachers to engage with new responsibilities and get involved with curriculum design and planning.

Some commonalities are apparent in educational reforms of other countries where teachers should adapt and engage in new work roles with the transformation of the curriculum. Ermenc and Mazgon (**2015**) found that after the curricular and decentralisation reform of Slovenia's Vocational Education and Training (VET) in 2001, Slovenian teachers had to cope with many changes in their responsibilities and accountabilities. Similarly, the alteration of roles and works had also been experienced by teachers in United Arab Emirate (UAE) with the new decentralised schools' management policy introduced by the government (**Al-Taneiji & McLeod, 2008**). These similarities indicate that the changes in teachers' roles are crucial in every reform of an educational system. However, if teachers have an inadequate understanding of their new roles in the transformation, the objectives of the curricular reform will be useless and ineffective.

This has been seen in countries such as Brazil and Argentine during the 1990s. During the years, Brazilian federal government for instance, had reformed the constitution towards the new educational decentralisation policy in order to create universal and equal access to education (**Derqui, 2001; OECD, 2012**). The movement toward transferring roles and accountabilities to schools seems to be the new and innovative transformation. However, the educational resources available such as teachers did not keep up with the new policy transformation. Despite the increasing number of 90 percent students enrolling in schools, the educational quality standard in Brazil during the years did not appear to improve (**OECD, 2012**). Therefore, the implication and suggestions from Brazil and other Latin and Hispanic nations can be consulted with the decentralised educational context in Indonesia.

Another key implication involving the new reform of decentralisation in Indonesia is the regulation on teachers' academic standard and teachers' certification program. Owing to the problem of poor teaching quality in Indonesia, the Ministry of Education issued a government regulation number 16 in 2007 which was a significant reform on teachers' minimum standard and competence (**Indonesian Regulations of National Ministry of Education, 2007**). The rule highlighted two crucial points: Firstly, the government increased the standard of minimum teachers' academic

qualification from diploma II to a bachelor degree. Secondly, teachers are obligated to complete a certification program in which teachers have to meet certain prerequisites and requirements to gain professional allowance or certification allowance from the government which is as much as teachers' basic salary (**Asian Development Bank & OECD, 2015**). In this certification program, teachers are obligated to teach at least 24 minimum hours and at most 40 hours in a face to face meeting and should work at least for 13.5 hours accumulatively in lesson planning, assessment, and student guidance (**McKenzie et al., 2014**). This existing aspect and the increasing number of teaching hours for teachers, has become an important issue, which will be discussed in detail later in this paper.

The third reform implemented by the government to further support decentralised educational system in Indonesia is by establishing a School Operational Assistance program or "Bantuan Operasional Sekolah" (BOS) in which the government would subsidise schools' funding directly to schools, and the schools' budget can be used based on the school priorities. This BOS program was launched in 2005 as a way of delivering financial aids to schools in order to give schools more autonomies and flexibilities in managing their funds and expenses (**ADB & OECD, 2015**). The amount of financial aid is subsidised differently according to the number of students enrolled in a school. With this program, the principals and school committees will have more authority to plan and to manage the funding used by schools. The funding might be used in various programs and objectives such as teachers' training, student enrolment costs, students' books, payment for non-permanent teachers, learning tools and materials, and extra-curricular activities for students. This decentralised funding policy indicated that the government of Indonesia had practised decentralisation in education not only in the area of curriculum and teaching but also in the area of financial administration and management.

To sum up, as previously mentioned in the introduction, Indonesia is characterised by its diverse islands and consequently diverse educational system. In the light of the fact that the government with its decentralised rules and policies has tried to adjust the educational practices closer to the local contexts, it is believed that the transformation and changes will have some advantages for Indonesian educational system.

Potential Outcomes of Decentralisation

Having demonstrated the surface of the implementation of decentralised education in Indonesia, it is now important to discuss various advantages and potential outcomes of implementing decentralised education policy. There are a lot of empirical evidence proposing the benefits of decentralisation in education which will be discussed in the following paper.

It has been pointed out in the above discussion that the transformation of Indonesian curriculum and policies have altered the teachers' roles in conducting teaching practices. The reform has equipped teachers with more authorities to explore their teaching expertise according to the local potentials of regencies or schools which are good for students' outcomes. Similarly, as described by De Grauwe (**2005**) supported by Di Gropello and Marshall (**2011**), by giving more autonomies to teachers, it allows them to be more flexible and innovative that teachers can teach based on the local resources and students' needs. Since the result of the learning will much depend on the appropriateness between the instructional materials and students' interest, with the new roles of teachers in School-Based Curriculum, it is fundamental that the teachers are allowed to review and to choose their learning activities which are relevant to the classroom environment. The fact that teachers are given freedom will make the teaching practices into a huge laboratory of innovation. Knowing that there is a national objective, every school and teachers can develop their own strategies to reach the goals based on the reality of the local needs and traditions.

Another significant and beneficial factor in implementing the decentralised educational policy is that the policy will encourage not only teachers and principals but also parents, families, and local communities to share the sense of responsibility regarding students' achievements (**De Grauwe, 2005; Parker & Raihani, 2011**). In Indonesia, with the implementation of decentralisation in education, the government has made it mandatory for schools to create school committees consisting of parents, teachers, principals and local societies. The school committee is intended to have annual meetings to discuss and evaluate certain things regarding the educational practices in schools. It is believed that, with this school committee, everyone engaging with educational practices in schools will collaboratively work to empower the management system as well as teaching and learning practices.

For example, parents will understand their crucial role in supporting the education of their children at home. Local societies can also play important roles in creating a comfortable environment for schools in conducting the teaching and learning process. Teachers and principals will be closely

related to the society, parents and students that will make it easier in deciding appropriate academic and extracurricular activities for students. In addition, through the decentralised system of the school committee, an eye to eye communication with principals, teachers, parents and communities is possible. As a result, local monitoring for teachers will be higher ensuring maximum teaching services provided by teachers.

Rucker (**2014**) suggested that the increase of parental and community involvement in decision making and school practices have been identified as influential to initiate a constructive learning environment for students. Similarly, Bandur (**2012**) argued that the engagement of local stakeholders, parents and communities through school committees to control the school practices appeared to have contributed to the growth of professional practices of teachers and their sense of ownership in teaching. Teachers and parents can socialise and interchange ideas that make it possible for everyone to give feedback and learn from each other. As a result, all those societal components tend to have the same vision and understanding of what aspects are needed to further improve the educational outcomes. This aspect has been one of the advantages of implementing the decentralised educational system.

Another factor to consider as an advantage of decentralisation in school practices is that by the implementation of the policy, decisions regarding school practices will be made quicker and less bureaucratic (**De Grauwe, 2005**). Prior to the implementation of the decentralisation, when principals and teachers have new decisions and planning relating to the academic matter, approval from the central government should be proposed before implementing the certain policy. A proposal can be rejected for various reasons, and even if it is accepted, the time spent on the process of approving a proposal is too much. By the implementation of the policy, schools have quicker access to a policy implementation without consuming much time in a bureaucratic process. This notion is fundamental for schools since teachers and principals are the main elements who understand the schools' dynamics and needs. Thus, local decision power for teachers as the central part of the education needs to be strengthened. Esther (**2006**) suggested the positive results obtained from school autonomy can be seen in Hong Kong, Japan and South Korea. These countries spent less time in decision making since decisions related to curriculum and instruction, budgeting and student affairs are authorised to schools.

Finally, by applying decentralised education policy accompanied by the certification program, incentives given to teachers are doubled that may affect teachers' performance. As discussed earlier, by the occurrence of the certification program, the Indonesian government has improved

teachers' payment. The rising amount of incentives received by teachers increases the motivation and satisfaction which is correlatively related to the better performance in schools (**Falk, 2007**). In this case, certified teachers receiving more payment through a certification allowance are assumed to have provided better teaching practices in their classrooms.

Having described several benefits and potential outcomes of decentralised education policy to be implemented in Indonesia, it can be concluded that there are various advantages to be gained from the policy. These arguments above, however, should not be taken for granted since there are also many challenges and obstacles faced by teachers and governments in implementing the decentralisation.

Some Challenges Faced by Teachers under Decentralisation

To this point, the focus has been several benefits and potential outcomes of decentralised education policy to be implemented in Indonesia, particularly in addressing specific evidence as reasons to implement the policy. Yet, despite all the potential benefits of decentralised education policy, there are several obstacles and challenges faced by teachers and government in implementing the policy which needs to be carefully discussed.

Firstly, it is pointed out in the previous part of this review that giving more autonomies to teachers will improve teachers' productivity that they can teach based on the local resources. It might be true in the context of developed countries whose teachers have an adequate understanding of the roles in the decentralised policy. However, what reveals in the educational practices in Indonesia is a huge gap between the requirements of the new curriculum and the teaching practices applied by teachers. Because of the insufficient understanding of the transformation, teachers tend to be confused in implementing their roles of the new reform in schools. Some similarities are shared with countries like United Arab Emirate, Slovenia and Brazil that inadequate understanding of the new concept had also become problems for the countries since the government did not offer sufficient information and preparation of decentralisation (**Al-Taneiji & McLeod, 2008; Ermenc & Mazgon, 2015; OECD, 2012**). Similarly, in an interview conducted by Sulfasyah, Haig and Barratt-Pugh (**2015**), a teacher of a Junior High School in Makassar, Indonesia, said:

> I am aware that under the School-Based Curriculum, teachers should be facilitators. But I am not sure what facilitator really means. In my class, I facilitate learning by explaining the lesson first and then asking my students to practice. That's my understanding (p.65).

The implication of the statement shows that the teachers have inadequate training and preparation in facing the new reform. Similar evidence is suggested by Leer (**2015**) and supported by Mangali and Hamdan (**2015**). They state the shift in curriculum in Indonesian education had tremendously changed the teachers' roles at the schools' level, which unfortunately was not followed with sufficient information and training for teachers. The training conducted by the government did not meet the teachers' expectation where teachers mostly got inconsistent information in relation to the implementation of the policy. Besides, the government mostly focused on the teachers' training in the aspect of theory without sufficiently backing practical knowledge (**Sulfasyah et al., 2015**).

It is also worth noting that implementing decentralised education system would create significant demands on teachers and schools in terms of expertise and understanding of the new system, which unfortunately they may not have. Akrom (**2015**) described that Indonesian school teachers generally did not accomplish the competency requirements to independently design, develop, and implement their own curriculum based on the local needs. Therefore, the condition for teachers to design their school-level curriculum seemed to be problematic since it is not accompanied by appropriate guidance and active participation from experts. This view has been shared by one school committee member in Indonesia as has been suggested by Akrom (**2015**):

> Our human resource quality is still low. If we just let schools develop their own curriculum, without proper guidance from the experts, it can create a huge gap in educational quality among the schools, depending on their capacity, because the quality of each school's curriculum depends on their human resource quality. Having been a School Committee member for six years in two different schools, I understand now that the biggest challenge is teacher quality. So, for me, transferring curriculum development authority to schools is indeed a good idea; it can force teachers to improve their professionalism; it can result in a School Curriculum that's more relevant to the local context. However, in our region, I don't think it can be successfully implemented, unless teachers are properly supported or facilitated (p.114).

As suggested in the above extract, it is necessary to acknowledge that the basic problem of the unsuccessful implementation of decentralisation is the lack of readiness of teachers in terms of their expertise and professionalism. It might be true that school-level curriculum and decentralisation might equip teachers with flexibilities and chances to

grow their professional development. However, if this is not followed and supported with proper supervision, it may bring the educational practices to inequality that is further away from the intended outcomes of the government.

Secondly, as also mentioned in the overview, the certification program run by the government has extensively increased the number of hours that teachers should spend teaching in the classroom. With that condition, instead of providing better quality in teaching as the aim of the program, teachers were burdened with many more responsibilities on paperwork, curriculum planning, and supervision. Teachers are under too much pressure to balance between their administrative responsibilities and their actual teaching practices. As a result, it might adversely impact on teachers' effort in conducting the classroom. As in the instance of Slovenia with the curricular reform in the country, teachers tended to be overloaded with constructing the curriculum and doing supervision, thereby spending less time engaging with the students (**Ermenc & Mažgon, 2015**). Similarly, despite the significant increase of the status and the allowance of the teaching profession with the certification policy, no substantial distinctions was apparent before and after the certification program in terms of either the teachers' expertise in classroom teaching practices or students' learning outcomes (**De Ree, Muralidharan, Pradhan, & Rogers, 2017; Kusumawardhani, 2017**).

Thirdly, another upheaval which emerges in the educational practices in Indonesia is on teachers' culture of pedagogy. In the implementation of the new system, teachers in Indonesia simply put their old paradigm in teaching where they remain to employ the old-fashioned and traditional way. It is often found that teachers do not try to adapt with the new reform of a policy (**Mangali & Hamdan, 2015**). Teachers taught the students exactly the same way before the curriculum reform with no changes in their attitude, culture and commitment to teaching. In the new curriculum, teachers are expected to attach more local and indigenous knowledge to their teaching practices using student-centred approach. In contrast, Leer (**2015**) indicated that Indonesian teachers acted with no response to the new approach and transformation in which they taught in their classrooms, rather just applying their old practices which were very teacher-centred.

This particular problem had also been experienced by teachers in Brazil in the late of 1990s (**Derqui, 2001; OECD, 2012**). The uneven teachers' quality and low teachers' commitment toward the changes had been the main problem in succeeding the transformation. However, by 2007, the federal government of the country doubled the investment in education as well as improved mechanism to reward the school and teachers that have met

and achieved the objectives and goals (**OECD, 2012**). High achieving schools and teachers in Brazil would be given incentives and bonus so that they can still implement further improvement. In addition, every two months principals and teachers have regular meeting where schools' performance are monitored as a means to improve outcomes. This has been proven effective where the relationship between the high achiever schools and low achiever schools could be strengthened so that they can learn from each other (**OECD, 2012**). This particular practice seems possible to be adapted in Indonesia through school committee in order to have better movement on the policy transformation.

The last obstacle appearing in the educational practices in Indonesia is the lack of mutual understanding among teachers, parents, and local societies in succeeding the objectives of decentralised policy. The aim of decentralised policy in Indonesia with the occurrence of school committee is basically to equip teachers, parents and societies with a board that they all can contribute as equals to decide appropriate policies to be implemented for students. This notion is similar to the implementation of School Management Committees in Nepal that teacher, parents and leader societies have equal chances and responsibilities to contribute to their educational practices (**Khanal, 2011**). However, in Indonesia, many teachers believe that the policy-making in schools was a responsibility of only teachers and principals, while parents and local community should not be involved to take part in a school's decision-making (**Parker & Raihani, 2011**).

In a study conducted by Vernez, Karam, and Marshall (**2012**), it reveals that despite the occurrence of school-committee program, rarely do school committee members in Indonesia get involved in school decision making process. They are not involved in the discussion of BOS funds allocation and schools' planning. As obligated by governmental standards, the chair of school committee was merely requested to sign and approve on the decision made by schools. The meeting with school committee and parents was generally conducted once a semester when the parents were invited to pick up the students' report/marks card. With this condition, the contribution of school committee and parents are still minimal. In this case, unless the function and the authority of school committee board are strengthened, it seems that the decentralised educational system has no significant benefits to improve school management.

In summary, there are still various problems experienced by principals, teachers, parents, local societies, and stakeholders that need to be contested. Thus, in order to reduce the obstacles and to maximise the potential outcomes of the policy, some logical recommendations are pointed out in the following section.

Efforts for Improvement

In this part, some recommendations are proposed to minimise the emerging problems in the implementation of the decentralised education system. There are at least five points suggested in this section.

Firstly, the training conducted by the government for teachers should be continual and consistent. Providing only a short-term training will not be effective to support the improvement of teachers' professionality and competence toward the new reform. The training will only be meaningful and significant if it is frequent and consistent. Therefore, it is crucial to provide principals and teachers with a progressive training and continual assistance from experts so that teachers can reconceptualise their pedagogical practices. Besides, according to Thompson (**2016**), training through mentoring can be implemented as one of the ways to encourage the better pedagogical achievement of teachers. Senior and successful teachers, for instance, can guide other novice teachers to implement and understand the new curriculum. They can also collaboratively work where everyone can learn through reflecting their teaching experiences.

Secondly, according to Bandur (**2012**), the participation of school community such as parents and local societies is essential to create cultural changes in a schooling system. The active engagement of every element in decision making regarding school practices will be important in a way that the teaching and learning environments can be discussed, shaped, and developed according to societal and students' needs. Thus, teachers and government should engage with parents and families to be involved in educational practices by strengthening and supporting School Committee program in which teachers, parents, and local societies can meet and discuss.

Thirdly, all the member of school committee, not only teachers, should also be provided with the training about the objectives and functions of school committee board, including the way to manage meetings, to create and develop a school's concept and vision, to participate in planning financial budgeting and forecasting, and to monitor school practices. To be effective, training will need to be ongoing and consistent.

In addition, local monitoring for teachers should be strengthened in which teachers should get continual evaluation not only from principals but also from colleges, parents, and students in which teachers will be evaluated based on their performance. The government can develop a program and maximise the use of a technological platform in which everyone can evaluate and view teachers' performance including students, parents, and other teachers through online. With this program, it will give more

authority to school committees, particularly local societies, parents, and students to be involved and participate in school matters.

Finally, it is argued that teachers will put more commitments in their teaching practices once they get motivating professional career pathway (**De Ree, Muralidharan, Pradhan, & Rogers, 2017**). Therefore, instead of only allocating much money on the certification allowance, the government can develop a professional career pathway for teachers which is based on the teachers' performance. Teachers with satisfying performance based on school committee's and online judgement should be rewarded with more incentives and promotion in their career.

Conclusion

By using available literature, this review has discussed the educational decentralisation policy implemented in Indonesian context, with the focus on the advantages and remaining challenges of the policy. The synthesis has identified some potential outcomes as well as some problems in succeeding the transformational policy.

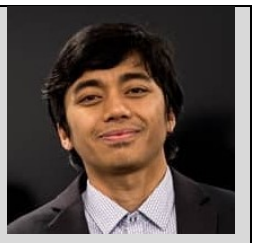
Decentralisation educational policy has offered several promises that might contribute to the better movement of educational practices. The promises include forming greater autonomy for schools and teachers in implementing educational practices, encouraging the active participation of societies and parents in schools' matter, eliminating the difficulties of bureaucracy process in terms of taking new decisions on schools' practices, and providing motivational incentives with the certification program.

However, there are some obstacles and challenges faced by teachers and government in implementing the new transformation and policies. It appears that the decentralised education system in Indonesia is still distrait by uneven teachers' quality, low commitments of teachers and principals, and poor participation of parents and local societies in succeeding the school committee program. What is apparent is that these kinds of obstacles continue to be the main problems in developing the educational quality of Indonesia. Thus, there is a need of finding new solutions in order to enhance the professional management of decentralisation.

Therefore, while teachers' education and ongoing training are fundamental to developing teachers' understanding towards the new policy reform, it is also needed for the government to create a motivational career pathway in order for teachers to be able to put more commitments on their teaching profession. Teachers and schools should also be continuously evaluated based on their performances by the school committee. In doing so, the school committee members should be given

more power and roles as well as be provided with the training about the objectives and functions of school committee board.

Ahmad Ardillah Rahman is a lecturer in the department of Islamic Education Management at Institut Parahikma Indonesia. He received his bachelor's degree in both English Education Department of Alauddin State Islamic University Makassar (UIN) in 2013 and German Education Department of Makassar State University (UNM) in 2016. He obtained his master's degree from Monash University, Australia, majoring Master of Education program. His research interests are in the areas of teaching and learning practices and educational policy.



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Designing the Yellow Head Virus Syndrome Recognition Application for Shrimp on an Embedded System

Chi Cuong Tran, Dinh Tu Nguyen, Hoang Dang Le, Trong Hieu Luu and Quoc Bao Truong*

College of Engineering, CanTho of University, Vietnam

*Correspondence: tqbao@ctu.edu.vn

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Abstract

One of the most serious problems confronted by the shrimp farming industry is the disease caused by the yellow head virus (YHV). This research proposes an image processing algorithm to detect, identify and eliminate shrimp with the yellow head virus from the Litopenaeus vannamei gathering lines. Using a Raspberry Pi 3 module with the support of the OpenCV library which may be associated with Niblack's algorithm is primarily suitable for segmentation. First, the shrimp object was identified and separated from the background using the image segmentation technique and the boundary that surrounds the object. Then, identification of diseased shrimp was analysed based on colour threshold. In this study, the sample of shrimp disease group had the highest amount of ratio, with about 6% to 11%. Most of the samples without the disease had a ratio of 0%. The experimental results show that the system can identify and accurately determine the coordinates of shrimp with yellow head virus disease and send information to the shrimp classification system in the food industry.

Keywords: Litopenaeus vannamei, shrimp, yellow head virus syndrome, image processing

Introduction

At present, YHV syndrome occurs on Penaeus monodon, Litopenaeus vannamei, Metapenaeus ensis, Penaeus semisulcatus, and other shrimps in Vietnam, Thailand and India. The YHV is a shrimp virus that causes significant damage to farmed penaeid shrimp throughout Asia through mass pond fatalities, which results in heavy production losses and consequent severe economic damage. Susceptible species include Penaeus monodon (**Boonyaratpalin et al., 1993**), P. aztecus, P. duorarum, P. merguiensis, and P. setiferus **(Flegel et al., 1997; Flegel, 1997; Lightner et al., 1998**).

The traditional diagnostic methods include pathological observations or pathologic histology that do not allow for accurate detection of pathogens early. Many molecular methods like in situ, western blot, polymerase chain reaction (PCR), reverse transcription polymerase chain reaction (RT-PCR) **(Dhar et al., 2002**) which are developed to overcome these disadvantages. The PCR methods are currently being used widely and effectively in shrimp testing. However, one of the significant limitations of PCR are false-negative phenomenon which takes a lot of time and is a low-efficiency detection (**Amarakoon and Wijegoonawardane, 2017**).

Considering some practical applications in this field, the authors realize the shrimp identification and classification system during the process of gathering is very important. This paper proposes the method of image processing embedded with Raspberry Pi 3 module (**Tran et al., 2017**). It also considers the applicability of the system to observe, analyse and identify diseased shrimp of the shrimp classification process in the industry.

System Overview

The input images are recognized by the Pi Camera and connect with Raspberry Pi 3 via the Camera driver, the image is recorded in a raw form which will be processed using specific algorithms with the support of the OpenCV library (**Bradski and Kaehler, 2008**). This paper proposes the extraction method and sends a series of coordinates to the actuator block. At the same time, the features of the images will be shown on a PC/Laptop with the support of SSH/ Putty through IP address that is provided by Router. This model is shown in **Figure 1**.

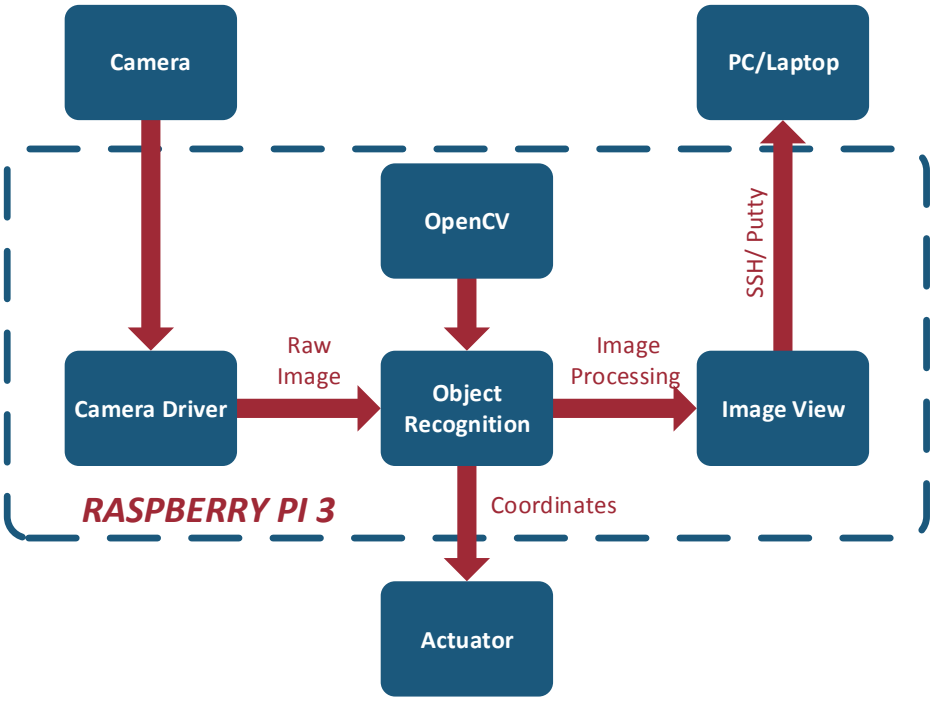


Figure 1 The diagram of an overall system

Proposed Method

Object Detection

The input image contains objects that will be reduced noise and removed background using the image segmentation algorithm. An adaptive threshold solution specifically is used specifically for this process. The detailed disposition steps are shown in **Figure 2**. This method is based on homogeneity – the same in term of grey level, colour, etc., which is a simple and common method in image segmentation because of its simplicity and fast performance.

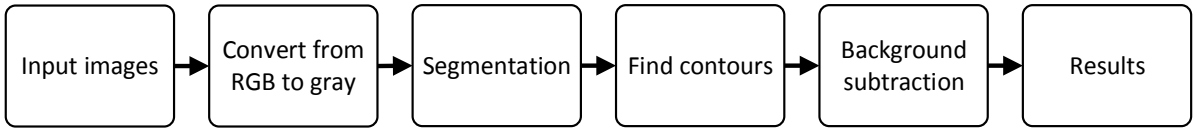


Figure 2 The object detection

Otsu's Algorithm

Otsu algorithm was launched by Nobuyuki Otsu (**Huang et al., 2012**). The objective of this algorithm is to determine a threshold T automatically based on greyscale values of the pixels in order to replace the use of fixed segment in the problem binary image based on threshold greyscale. The basic content of the method is described as follows: First, convert the input images to greyscale images and statistics on the number of grey levels, assuming there is $L(0 \le L \le 255)$ greyscale in the image. We dichotomize the

pixels into two classes and C_2 (background and objects, or vice versa) by a threshold at level T; C_1 denotes pixels with levels $[1,T]$, and C_1 denotes pixels with levels $[T+1,L]$.Total number of pixels is called N, $h[i]$ number of pixels in the grey level $i(0 \le i \le 255)$ and probability of appearance greyscale level i is: $p_i = \frac{h[i]}{N}$. From that, we calculate the optimal threshold T^* by the formula (1):

$$T^* = Arg\,Max_{0 \le T < L} \left\{ \sigma_B^2(T) \right\} \quad (1)$$

$\sigma_B^2(T)$ is identified by formula from (2) to (6).

Variance:

$$\sigma_B^2(T) = \omega_1(T)\omega_2(T)\left(\mu_2(T) - \mu_2(T)\right)^2 \quad (2)$$

Probability appear of C_1:

$$\omega_1(T) = P_1 = \sum_{i=0}^{T-1} p_i \quad (3)$$

Probability appear of C_2:

$$\omega_2(T) = P_2 = \sum_{i=T}^{L-1} p_i = 1 - P_1 \quad (4)$$

Average grey level of C_1:

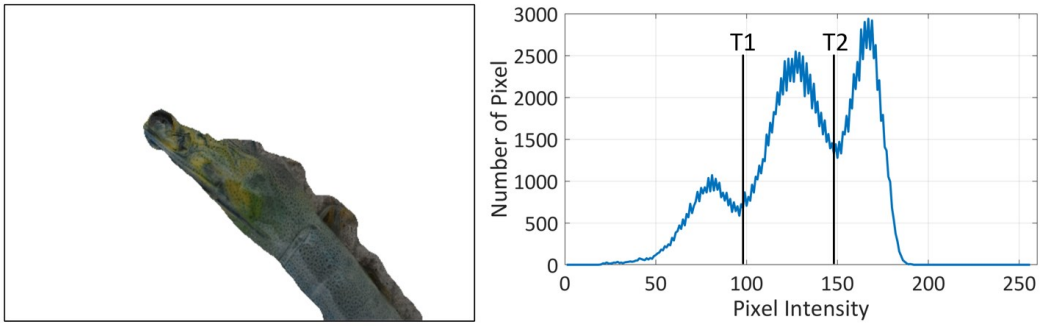
$$\mu_1(T) = \sum_{i=0}^{T-1} iP(i / C_1) = \sum_{i=0}^{T-1} ip_i / \omega_1(T) \quad (5)$$

Average grey level of C_2:

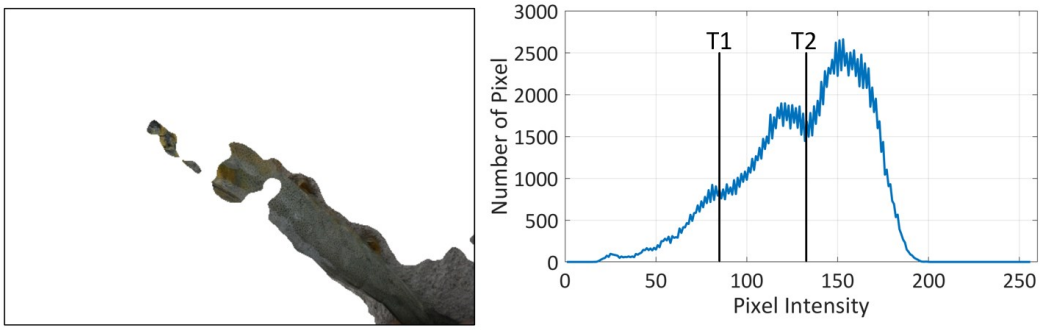
$$\mu_2(T) = \sum_{i=T}^{L-1} iP(i / C_2) = \sum_{i=T}^{L-1} ip_i / \omega_2(T) \quad (6)$$

Solutions segment images by Otsu algorithm are a simple algorithm for calculating the threshold T. It is available for global thresholding. So, threshold T is an important and factor that determines the success of the algorithm. **Figure 3(a)** shows, two threshold T_1 and T_2 is determined through the average value calculated on the histogram. The area between T_1 and T_2 is the area of the object, the rest is the background. For the case of shrimp sample 1, we detect the object easy because of the clearly partition of the peaks on the histogram. In contrast, the incorrect

segmental result is shown in **Figure 3(b)** because of the difficulty in determining threshold T_1 and T_2 based on the histogram.



(a) Shrimp sample 1



(b) Shrimp sample 2

Figure 3 The results of images segmentation by Otsu algorithm

Niblack's Algorithm

A threshold $T(x,y)$ is a value such that

$$b(x,y)=\begin{cases}0 & I(x,y)\le T(x,y)\\ 1 & otherwise\end{cases} \tag{7}$$

where $b(x,y)$ is the binarized image and $I(x,y)\in[0,1]$ be intensity of a pixel at location (x,y) of the image I. In the local adaptive technique, a threshold is calculated for each pixel, based on some local statistics such as range, variance, or surface-fitting parameters of the neighboring pixels. It can be approached in different ways, such as background subtraction (**Lu et al., 2010**), water flow model (**Oh et al., 2005**), mean and standard derivation of pixel values (**Sauvola and Pietikäinen, 2000**) and local image contrast (**Su et al., 2010**). Some drawbacks of the local thresholding techniques are region size dependant, individual image characteristics, and time-consuming. Therefore, some researchers use a hybrid approach that applies both global and local thresholding methods (**Gatos et al., 2006**) and some use morphological operators (**Le et al., 2011**). Niblack (**Niblack, 1985**), Sauvola and Pietikäinen (**Sauvola and Pietikäinen, 2000**) use the local variance technique while Bernse (**Bernse, 1986**) uses midrange value within the local block.

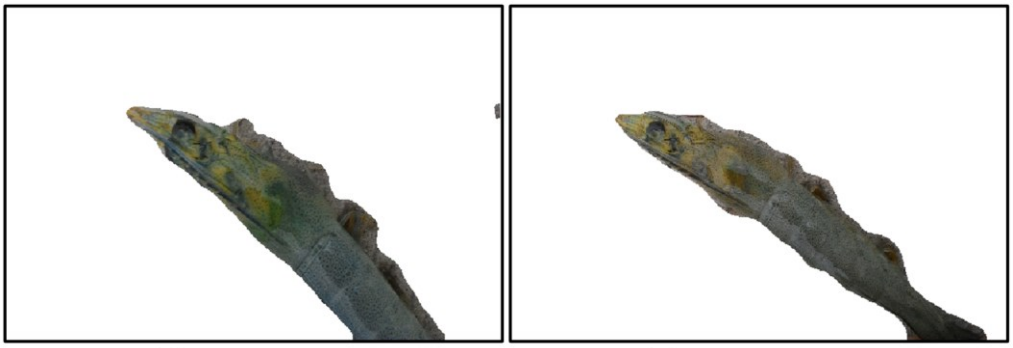
Niblack (Niblack, 1985) proposed an algorithm that calculates a pixel-wise threshold by shifting a rectangular window across the image. This method varies the threshold over the image, based on the local mean and local standard deviation. Let the local area be $b \times b$. Also, the threshold $T_{ni}(x,y)$ at pixel $f(x,y)$ is determined by the following equation (8):

$$T_{ni}(x,y) = \mu_{ni}(x,y) + k_{ni}\sigma_{ni}^2(x,y) \tag{8}$$

$$\mu_{ni}(x,y) = \frac{1}{b^2}\left[\sum_{j=y-\frac{b}{2}}^{y+\frac{b}{2}}\left(\sum_{i=x-\frac{b}{2}}^{x+\frac{b}{2}} f(i,j)\right)\right] \tag{9}$$

$$\sigma_{ni}^2(x,y) = \frac{1}{b^2}\left[\sum_{j=y-\frac{b}{2}}^{y+\frac{b}{2}}\left(\sum_{i=x-\frac{b}{2}}^{x+\frac{b}{2}} \left(\mu_{ni}(x,y) - f(i,j)\right)^2\right)\right] \tag{10}$$

As in the definition of equation(9), (10), $\mu_{ni}(x,y)$ are the local mean $\sigma_{ni}^2(x,y)$ are standard deviation values of a local area. The size of the local window, b, should be small enough to accurately reflect the local illumination level and adequately large to include both objects and the background. Trier and Jain (**Trier and Jain, 1995**) recommend taking a 15×15 neighborhood and $k_{ni} = -0.2$. Thus, Niblack's algorithm cannot be applied to the varying resolution input images.



(a) Shrimp sample 1 (b) Shrimp sample 2

Figure 4 The results of image segmentation by Niblack's algorithm

Image segmentation techniques using Otsu algorithm is not suitable for many cases such as approximately uniform illumination or object is similar to the background. In this case, the image segment using the adaptive threshold method is quite appropriate the effectiveness of image segmentation using the Niblack's algorithm is presented in **Figure 4**.

Find Contours and Remove Background

After splitting the objects, binary images obtained at the image segment stage are filtered using a 5×5 Median filter to eliminate noise. We will delimit the object's field and draw the boundary using the contour method in order to find the boundary around objects that were binary. Then, this method saves the boundary into the vector that points lying on this boundary. The results of the search of the object are shown in **Figure 5(a).**

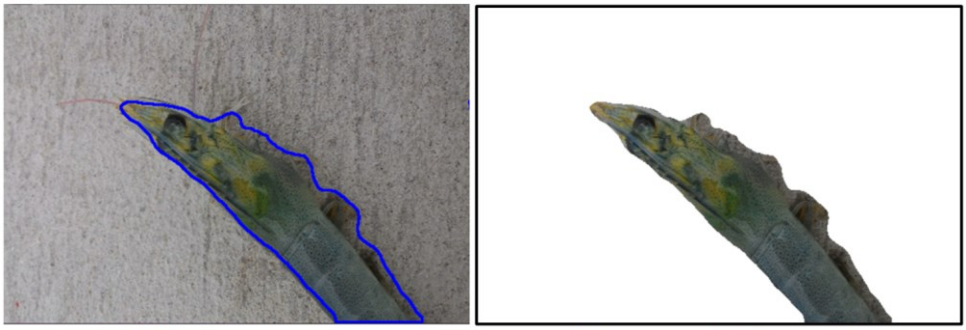


Figure 5 The results of find contours and remove background

The result of the subtraction process between finding contours and original images are shown in **Figure 5(b)**. This process is very important in image processing. The purpose of the subtraction should be to eliminate noise from the background and increase the accuracy of the next steps.

YHV Recognition

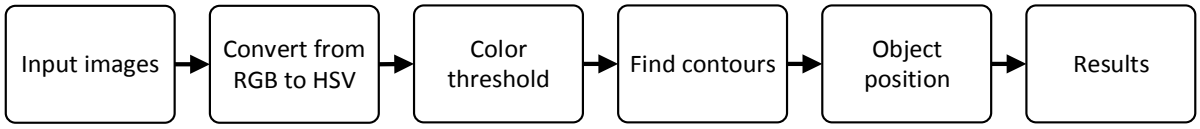


Figure 6 The identification of YHV syndrome

The detailed process to identify shrimp with YHV syndrome is shown in **Figure 6**.

HSV Colour Space

The RGB image is converted into the HSV space after object detection, because the HSV space and the HSL space are the same. Besides that, it is much used in image processing and a part of the computer vision technology. HSV is not the same as RGB, which is image intensities separation of colour information. This separation can be very helpful if we want to focus on the intensity component. Actually, sometimes we want to separate the different colour components from intensity for many various reasons such as increasing the saturation of colour or shadow removal.

The main reason is that it separates the colour information from saturation or intensity. Because the values are separated, you can construct a chart or a threshold rule by saturation and hue. In theory, this will work regardless of the change of saturation on the value channel. In fact, it is just a nice improvement. Even by indicating the colour you still have a very significant representation of the base colour that would probably work far better than RGB. The final result is a stronger colour threshold than the simpler ones.

Colour Threshold and Find Contours

Colour threshold is a simple and common method in image segmentation because of its simplicity and fast performance (**Kulkarni, 2012**). The next steps of the algorithm will be performed and show for Hue component of HSV colour representation. In this step, the image is filtered in a range which is set by the user. The setting of the filter was prepared to detect YHV syndrome. White pixels are pixels that satisfy the filter's condition. Many small white pixels that can be seen will be eliminated in further steps of the algorithm. As it can be seen the red coloured object is easily extracted by thresholding HSV values. However, the drawback is that function findContours finds any white coloured contour that was found in the thresholded image. The morphological operations (such as erosion and dilution) are able to eliminate noise effects.

Object Position

After separating the object from the background and delimiting the object by the contours, we find the centre of the object. To determine the coordinates of the object we have to find the moment of the image that is shown in theoretical (**Belkasim et al., 1991**).

The mathematical equation of the moment is shown in (11):

$$\mu_n = \int_{-\infty}^{+\infty} (x-c)^n f(x)dx \tag{11}$$

where n^{th} is the moment around point c. When you apply on the 2D space, we have two independent variables to present (11). That is presented again in (12):

$$\mu_{m,n} = \int\int (x-c_x)^m (x-c_y)^n f(x,y)dydx \tag{12}$$

where, $f(x,y)$ is the continuous function. So, we have to digitize each pixel that is shown in (13):

$$\mu_{m,n} = \sum_{x=0}^{\infty}\sum_{y=0}^{\infty}(x-c_x)^m (y-c_y)^n f(x,y) \tag{13}$$

After we calculate the region of the binary image, we have to calculate the 0^{th} moment.

$$\mu_{0,0} = \sum_{x=0}^{w}\sum_{y=0}^{h} x^0 y^0 f(x,y) \tag{14}$$

The formula is written again after x_0 and y_0 that is shown in (15).

$$\mu_{0,0} = \sum_{x=0}^{w}\sum_{y=0}^{h} f(x,y) \tag{15}$$

To determine the centre of the object, we have to compute on two axes.

$$centroid = \left(\frac{\mu_{1,0}}{\mu_{0,0}}, \frac{\mu_{0,1}}{\mu_{0,0}} \right) \tag{16}$$

The total number of pixels will be aggregated and expressed as follows:

$$\begin{aligned} sum_x &= \sum\sum xf(x,y) \\ sum_y &= \sum\sum yf(x,y) \end{aligned} \tag{17}$$

After that, we get the average by dividing the total of number pixel. Its formula is shown in (18).

$$\begin{aligned} \mu_{1,0} &= \frac{sum_x}{\mu_{0,0}} \\ \mu_{0,1} &= \frac{sum_y}{\mu_{0,0}} \end{aligned} \tag{18}$$

For the function in OpenCV, the coordinate of the centre is computed as follow:

$$\begin{aligned} c_x &= int\left(M['m10'] / M['m00']\right) \\ c_y &= int\left(M['m01'] / M['m00']\right) \end{aligned} \tag{19}$$

Experimental Results

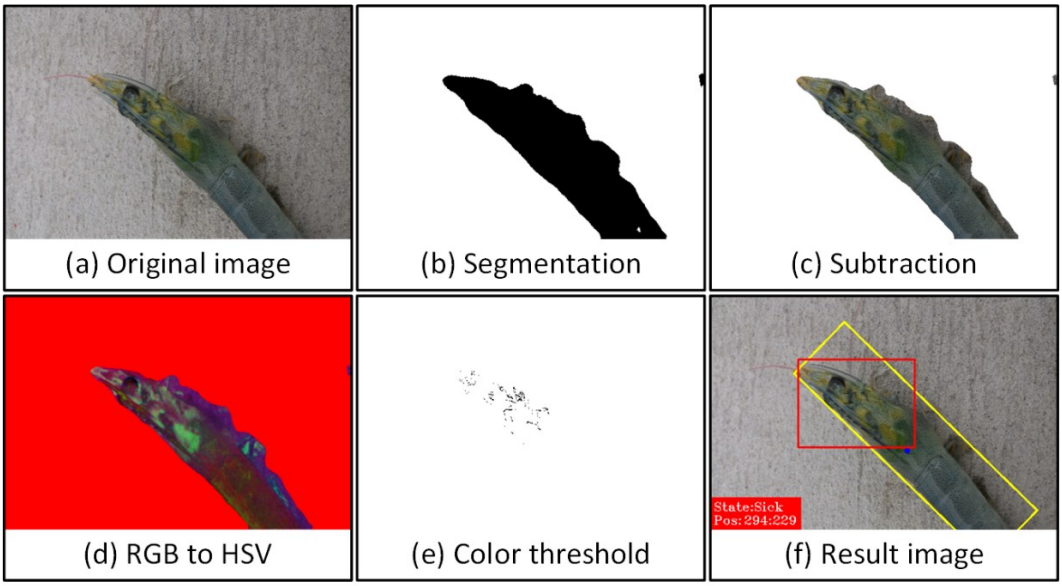


Figure 7 The process of identifying the disease location of diseased shrimp

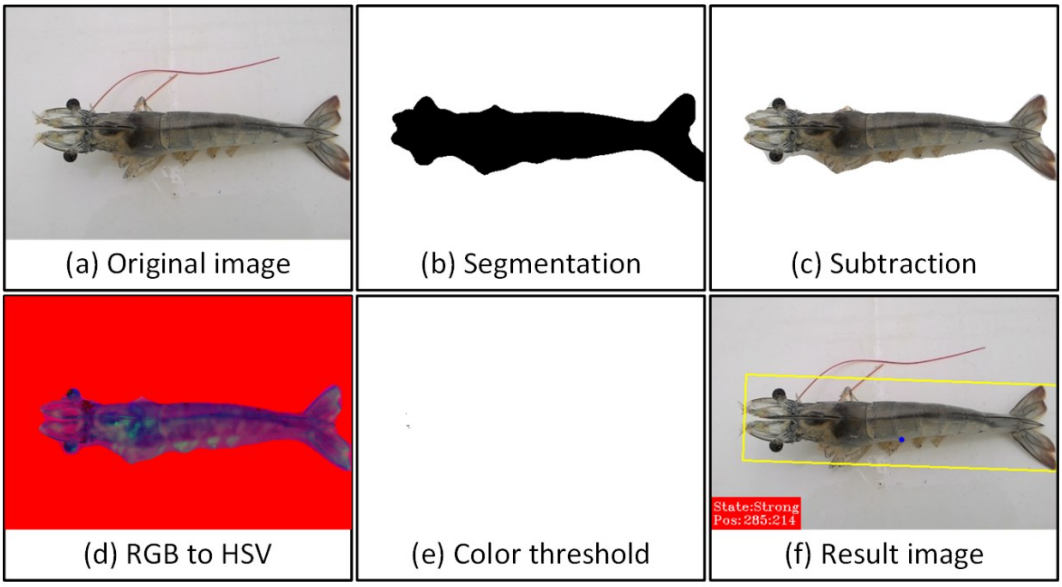


Figure 8 The process of identifying healthy shrimp

In this part, YHV inflection of shrimp will be illustrated by some typical identification results. These results were analysed and experimented on in the module Raspberry 3 using OpenCV library and taken from some sample images on the Raspberry Pi's camera. The process of identifying the shrimp region and identifying the disease location of shrimp is shown in **Figure 7**. The process of identifying healthy shrimp is shown in **Figure 8**.

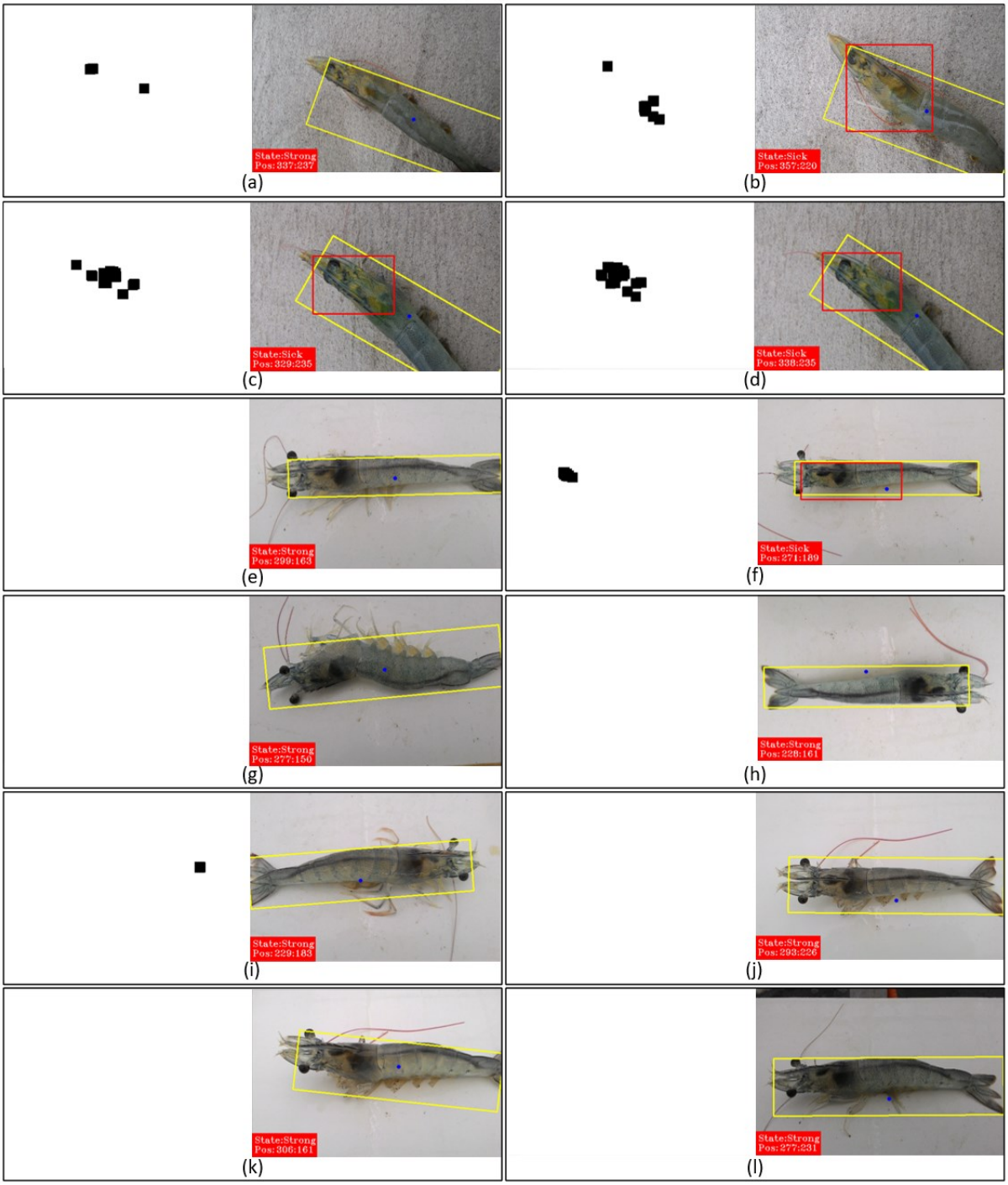


Figure 9 The result of determining the state for many samples using Otsu's algorithm

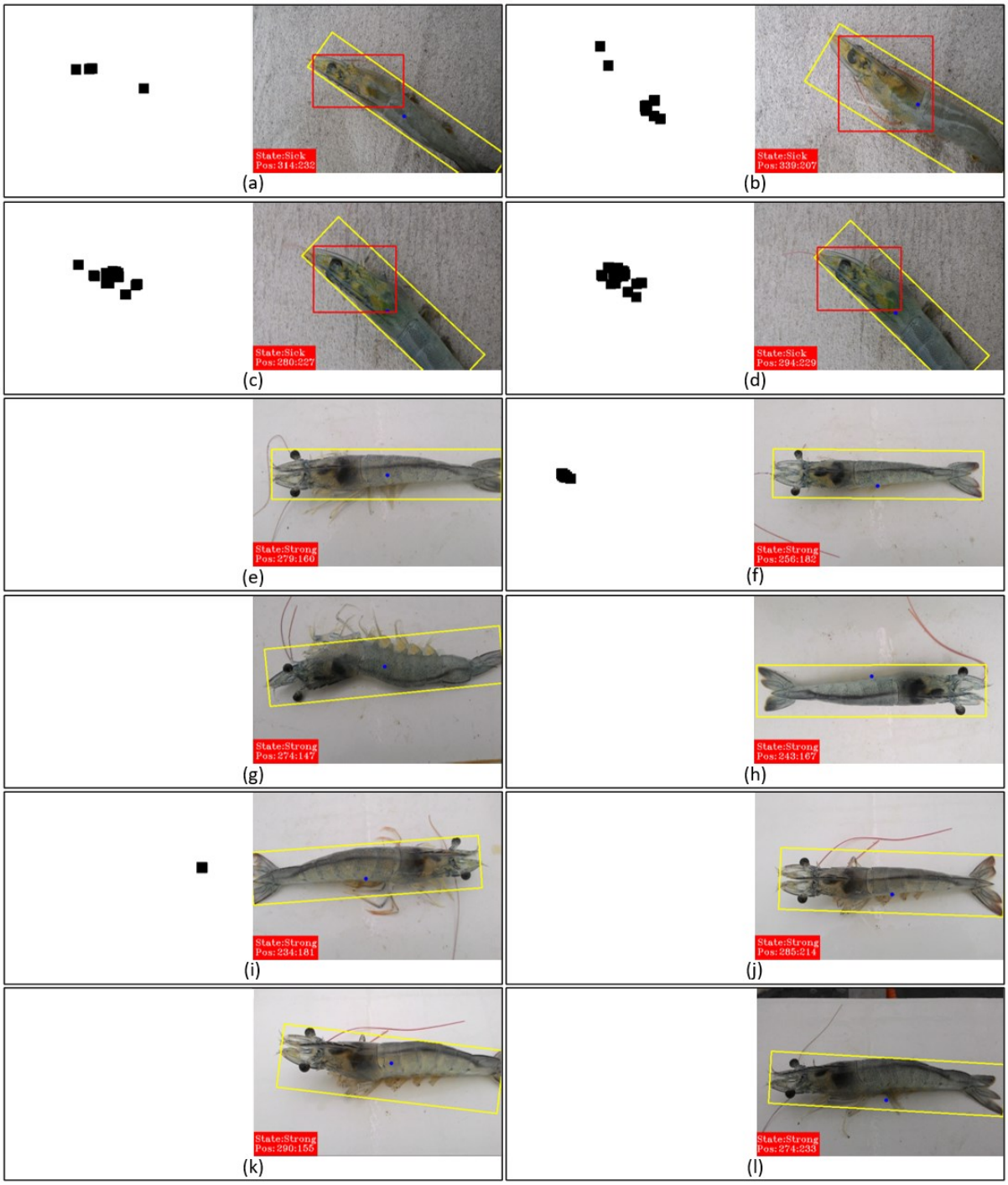


Figure 10 The result of determining the state for many samples using Niblack's algorithm

To examine the performance of the proposed method for identifying the YHV disease. These images are taken from many shrimps which different lighting condition and background. The results are not accurate in some cases when using the Otsu algorithm. In the above description, the incorrect segmental result is shown in **Figure 9(a)** and **Figure 9(f)** because of the difficulty in threshold determination and that based on the histogram. That is the reason leading to the calculation of the ratio

between shrimp areas and disease areas incorrect (**Table 1**). The results identified in shrimp YHV disease with 100% accuracy for Niback's algorithm. However, in **Figure 10(f)** and **Figure 10(i)** appears interference from the process of taking the colour threshold. This is a common occurrence, because the shrimp head colour is similar to diseased shrimp but a lighter colour. It also caused noise due to light conditions when collecting images. This study uses a simple algorithm to solve this problem based on the noise levels of the process of obtaining a colour threshold. In this process, if the ratio between the identification area and the shrimp area is low, it is considered as interference.

Table 1 Experimental results of the disturbance effect on disease identification in shrimp (S/D are the ratios of shrimp areas and disease areas. P is positive for YHV and N is negative for YHV)

Samples	Ratio of S/D using Otsu (%)	Ratio of S/D using Niblack (%)	YHV (manual)	YHV (Otsu)	YHV (Niblack)
1	3.67	6.25	**P**	**N**	**P**
2	7.23	9.80	P	P	P
3	5.25	7.03	P	P	P
4	8.13	10.52	P	P	P
5	0	0	N	N	N
6	6.54	4.11	**N**	**P**	**N**
7	0	0	N	N	N
8	0	0	N	N	N
9	1.68	1.49	N	N	N
10	0	0	N	N	N
11	0	0	N	N	N
12	0	0	N	N	N

In **Table 1**, Samples of shrimp diseases have high disease rate areas from 6% to 11% by Niblack's algorithm. Most of the samples without the disease had a ratio of 0%. Except for some cases, shrimp is not sick, but rates below 5% and the disease can be excluded based on experience. This value is the ratio of the noise area after the dilating and shrimp area identified. As described in **Figure 3** and **Figure 4**, Image segmentation techniques by Niblack's algorithm more accurate than Otsu algorithm. Therefore, the ratios of shrimp areas and disease areas of Niblack's algorithm area gives more accurate results.

Conclusions

In this study, we presented an image processing method for identifying the YHV location of shrimp. The experimental results showed that the adaptive threshold is more effective than the Otsu algorithm in identifying with less noise caused by the background. The proposed method for identification based on the characteristics of the YHV syndrome in shrimp is colour. The

results of this study may be contribute to the development of an automated shrimp classification system with various diseases in the food industry.

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Quoc Bao Truong has been working with CanTho University, Vietnam since 1998. He received his B.S. degree in Computer Science from Can Tho University, Can Tho, Vietnam in 1998 and his Masters degree in Computer Science from Natural Science University, National University of Ho Chi Minh, Vietnam in 2003. He obtained his Ph.D. in Mechatronics and Intelligent Control at Ulsan University, Ulsan, Korea 2011. Since then, he has been a senior lecturer in the Automative Engineering Department, College of Technology, Can Tho University. His research interests are computer vision, deepth learning, pattern recognition, and intelligent control for mobile robot.

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Differences in Interpersonal Communication Efficacy among Chinese and International Students: What are they and why do they matter?

Xintong Lu

Centre for Education Studies, University of Warwick, UK
Xintong.lv@yahoo.com
ORCID: 0000-0003-2658-3008

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Abstract

Within Chinese societies, as in western ones, interpersonal relationships, which can also be called social relations, are one of the most important needs for human beings. Within universities, Interpersonal Communication Efficacy (ICE) has been regarded as having a direct influence on the psychological health of undergraduate students. Based upon the theory of Bandura's self-efficacy and Xie Jing's ICE, this article compares the extent of ICE between domestic and international students in a Chinese university. The aim is to identify the similarities and differences between the two research groups, and the implications for the stakeholders (students, teachers, policy-makers, and researchers). A case study was conducted using a questionnaire survey. By employing the methods of quantitative analysis, the questionnaires of 390 respondents were analysed by using variance analysis of SPSS software. The findings of the study reveal that Chinese students are more likely to pay attention to interpersonal communication and are more interdependent than other international students. This implies the importance of teaching communication skills, improving interpersonal communication efficacy, and understanding teaching and learning across cultures within the ongoing internationalisation of education.

Keywords: Self-efficacy, interpersonal communication efficacy, higher education, intercultural communication, Chinese universities, wellbeing

Editor's Note

See **Errata** on p. 85 for corrections to text made October 2020.

Introduction

The ability to establish close relationships with people is ranked as the second most important need for human beings, coming after physical necessities including eating, sleeping, drinking and security (**Boz, 2018**). According to the Research Starter's topic (**2018**), interpersonal relations refer to 'a close relationship between two or more individuals that can be defined by social commitments such as business or familial, as well as other factors'. While, the cultural understandings of 'interpersonal relationship' are different and crucial. The cultural orientation with regard to interpersonal communication within the Western countries is individualism whereas the emphasis on social relationships within Asian Chinese context is originated from the idealism of collectivism (**Yum, 1988**). As Yum explains, within the western context, 'each communicator is perceived to be a separate individual engaging in diverse communicative activities to maximize his/her own self-interest, usually by means of some form of persuasion' (**Yum, 1988: 376**). This paradigm of interpersonal communication in the West is criticized as psychological, goal-oriented, linear rather than social, process-oriented, and cyclical (**Rogers and Kincaid, 1981**). Likewise, individuals rather than groups are more likely to be referred as the unit of analysis. In contrast to the western paradigm, interpersonal communication in the Asian Chinese context is social, collective, and cyclical. Communication habits in the West are more likely to be outcome-oriented, while communication in China tends to be process-oriented (**Lin and Clair, 2007**). This means that in Chinese society, instead of only focusing on achieving a result, the atmosphere of the conversation and an approachable means of conducting communication between people become more important. Because of the importance of interpersonal relationships and communication, Chinese people focus on the social networking and its maintenance to engage with the society and define themselves (**Liden, 2012**). In this sense, interpersonal relationships, as defined by Confucius, refers to Wu-Lun's five principles: honesty between leaders and employers, filial piety between parents and children, alternate responsibilities between siblings, responsibilities between husband and wife, and trust between friends (**Hsieh, 2016**).

Besides information exchange, maintaining mental health is another function of interpersonal relationships (**Wang, 2014**). However, the problem of communication between college students has been pointed out by numerous scholars (e.g. **Sun, 2004; He, 1992**). Sun conducted the research into psychological consultation within colleges and universities in Shanghai, finding that 40.5 percent of the content of psychological consultation is related to interpersonal relationship, which ranks as the top psychological problem of current college students (**Sun, 2004**). A large-scale interpersonal relationship study was carried out within eight

universities in southwest of China and invited 620 college students to complete the SCL-90 scale questionnaire (**He, 1992**). The study shows that 48.6 percent of the respondents have obstacles in interpersonal communication to some extent. Thus, it is noted that the importance of researching interpersonal relationship efficacy should be addressed with the aim of helping to lessen the problem of mental health and communication obstacles for students. In regard to the field of education, it is worth pondering whether the interpersonal communication efficacy of students is in relation to teaching and learning for both teachers and students. It would be also beneficial for teaching across cultures to identify the differences of the Interpersonal Communication Efficacy (ICE) between domestic students and international students who study within the domestic university.

As an interdisciplinary study of education and psychology, the study is a transcendence of old paradigms, presenting transdisciplinary outcomes, that gives future researchers a suggestion for a new paradigm. The term, "interpersonal communication efficacy" has been defined in Mandarin for a decade (**Xie, 2004**). Much work remains to be done so as to review both the theoretical and empirical development of this term. The researcher makes a contribution to the global academia, by bringing the term into the English academic vocabulary, and making a connection for western scholars to conduct further research into this new research paradigm.

By crossing the discipline of education and psychology, the purpose of this article is to compare the extent of ICE between domestic and international students in a Chinese university and its influence variables. This has been done by identifying the similarities and differences between the two research groups within the same research context. The research questions addressed here are:

- RQ1: What are the differences in Interpersonal Communication Efficacy between Chinese and international students?
- RQ2: What are the implications for the stakeholders?

Literature Review

Self-Efficacy

The early stages of psychological theory and empirical studies tended to pay attention to either obtaining knowledge or observing reactions, but ignored the influence between each other (**Bandura, 1977**). However, it is important to consider mental mechanisms in order to combine both aspects and explore the reasons for these behaviours. During this time, Bandura brought the concept of self-efficacy into the field of psychology by presenting the concept of reciprocal determinism (**ibid**). This concept

relates to human behaviour which is decided by the mutual relations between the environment, personal cognition and some other factors (**fig 1**).

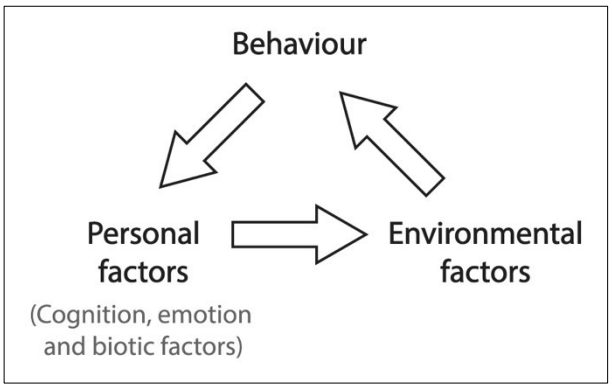

Figure 1 *Bandura's reciprocal determinism. Source:* ***(Bandura, 1986)***

According to Bandura, the three elements (**fig 1**) may influence each other in different sequences, and at different times (**Bandura, 1977**). Nevertheless, human's thoughts and beliefs are the most influential factors. Bandura pointed out this concept of self-efficacy, in particular, and revealed the power of consciousness in personal life - the belief in self-efficacy determines the human's goal, duration of exertion and the recovery capability when facing difficulty.

The benefits of having a high level of efficacy is summarized by Bandura as, 'an affirmative sense of efficacy contributes to psychological well-being as well as to performance accomplishments' (**Bandura, 1995: 12**). He explains that a student with high level of efficacy is more likely to have better school performance, stronger motivation and higher goals. As Wang writes, 'individuals with high levels of efficacy feel that they can control potential environmental threats to desired outcomes and consequently attend to environmental factors to manage them' (**Wang, 2014: 24**). Additionally, the improvement of efficacy can lower the level of anxiety, due to the greater willingness to solve problems and perceive themselves as having high ability (**Bandura, 1995**).

There have been numerous studies about self-efficacy and student learning (**Pajares, 1996; Chemers et al., 2001**). Even though, it should be noted that Bandura's model has been critiqued through many different lenses. The methodological problem of self-efficacy theory is pointed out by Tryon who suggests that the data 'could likely be accounted for by social contingencies operating within his highly structured behavioural approach situation (**Tryon, 1981: 113**). William points out that the validity of self-efficacy theory might be decreased by the influence of the expected outcomes (**William, 2010**). The problem of its misuse in a wide variety of contexts, including education settings has also been mentioned by

Bandura himself and other scholars (**Bandura, 1986; Pajares, 1996; Feltzet al., 2008**). As Pajares wrote, the self-efficacy research conducted through general self-efficacy assessment seeks to measure the "confidence" through an omnibus instrument **(Pajares, 1996)**. The global scores achieved through general self-efficacy assessment decontextualise the correspondence between behaviour and self-efficacy. In that case, researchers are well advised by Bandura to make a context-specific judgement (**Bandura, 1986**). Within the field of education, it is critical to conduct academic self-perception assessment without identifying criterial tasks, although self-efficacy assessment in academic domain has become common (**Pajares, 1996**). These problems mentioned by the scholars helped the researcher to design the questionnaire with the consideration of a task specific and context specific approach.

Interpersonal Communication Efficacy

Interpersonal communication is the process of information exchange and emotion communication of people used by language signals or non-verbal signal in social activities. Its importance lies in the fact that human being cannot survive without society. Individuals live in a social group and establish distinct contact, of which interaction and relationship are built. Interpersonal communication is, thus, not only the bond by which interpersonal relationship are maintained and developed but the very foundation of certain social psychological phenomena such as public opinion, morale and fashion. It is also the requirement of individual's development. It is the behaviour of continual communication, idea dissemination and information absorption that enables human being to achieve individual development.

There are numerous studies of the impact of interpersonal communication on learners (**Al-mehsin, 2017; Eid, 2012; Yousuf, 2013; Yedidia et al., 2003**). The study of Al-mehsin aimed at examining the contribution of social skills and self-efficacy to the process of decision-making confirmed a positive correlation both between self-efficacy and the quality of decision-making and between social skills and the quality of decision-making among students in a Saudi Arabian university (**Al-mehsin**, **2017**). A research was conducted in three American medical schools aiming to determine whether the interpersonal communication has an impact on medical students' competency and performance (**Yedidia et al., 2003**). The authors reported that the communication skills of medical students were found to be related to medical students' performance skills and outcomes of care, addressing the necessity of integrating the teaching of communication skills into the school curriculum. Cleland, Foster and Moffat conducted a study of medical students' attitudes towards communication skills learning at the University of Aberdeen in the UK and

confirmed greater differences in communication skills teaching by gender and year of study (**Cleland et al., 2005**).

The idea of interpersonal communication efficacy was firstly pointed out by Xie in 2004, but only within China (**Xie, 2004**). Xie as summarised six dimensions of Interpersonal Communication Efficacy which is the foundation of this research, by conducting a large-scale research of 700 college students in five Chinese universities in Taiyuan City (**Xie, 2004**). According to Xie, the concept of Interpersonal Communication Efficacy can be understood from six principal sources of information:

- Group efficacy refers to the perception on the individual ability when completing a specific collective task (**Gibson, 1999**);
- Self-image efficacy is defined as the perception on 'self', which may be linked to personal attributes, inclinations, abilities and powers (**Harr'e, 1998**).
- Altruistic Efficacy enables people to easily gain others trust and make friends;
- Communication Efficacy enables people to be highly confident and sensitive in the process of information exchange;
- 'Self-worth Efficacy refers to the personal judgement of one's self, a subjective evaluation and a sense of self-respect (**Sheldon and colleagues cited in Wang, 2014**);
- Sentiment-control Efficacy is a socialised feeling, which is 'raised by thought and intercourse out of its merely instinctive state and become properly human. It implies imagination, and the medium in which it chiefly lives is sympathetic contact with the minds of others' (**Cooley, 1962: 177**).

However, it should be noted that the research generalisation is hindered by the limited scope of the research context; it is only generalisable to certain education settings. Meanwhile, within the study, there is a research bias caused by the imbalanced proportions of the respondents in grades and disciplines. Regardless, the six dimensions mentioned by Xie can be utilised as a reference to conduct research on interpersonal communication efficacy.

Until 2019, there were 39 studies of the ICE in China, even though the term has not been translated into English. Based upon the theory of Xie, Wang conducted a comparative research into interpersonal communication efficacy between Chinese and American students, aiming to identify the differences of interpersonal communication between two research groups (**Wang, 2014**). 305 undergraduate students in three Chinese universities

in Shanghai and 293 America students in American universities participated the questionnaire survey. The study found that compared with Chinese students, American students are more likely to show self-interest in interpersonal communication. And because the data from the Chinese group was generated from only three Shanghai universities the findings may be skewed, and therefore, the findings are less generalisable to certain contexts. The theoretical definition of Interpersonal Communication Efficacy is given by Wang,

> *"Interpersonal Communication Efficacy is a subjective judgement on whether an individual can reach a communication goal or not. It occurs before communication happens, and is an efficacy prediction on whether an individual can accomplish a goal or not"* (**Wang, 2014: 23**).

According to Wang, a high ICE enables students to have confidence in their ability to communicate interpersonally, and to finish tasks that are both skilled and challenging. On the contrary, low ICE will lead to a lack of confidence; hence, students are more likely to select highly simple tasks so as to make sure they succeed.

Methodology

The university where this research took place is among the top 30 university in the Chinese university ranking system. Located in Shanghai, it is a comprehensive research university which covers the disciplines of art, science, medicine, business, agriculture among other disciplines. The university pays attention to the development of international communication and has established a wide and deep relationship with over 200 universities including in America, Germany, UK and France. It has become international partners with many of those universities, by which students and teachers are able to work on exchange.

The research focused on identifying the differences and similarities in Interpersonal Relationship Efficacy between domestic and foreign students in the research university. A case study was adopted by utilising the questionnaire survey (**see Appendix**). The questionnaire covers 36 questions with six dimensions of ICE including group efficacy, self-image efficacy, altruistic efficacy, communication efficacy, self-worth efficacy and sentiment-control efficacy; each dimension has six questions. The questions were asked in random order, and both positive and negative descriptions were used. For example, the questions of self-image efficacy, Questions No.21, No.24, No.25, questions of sentiment-control efficacy, Questions No.6, No.14, No.27, questions of self-worth efficacy, question No.16, No. 20, No.22, No.23 and question of altruistic efficacy, questions No.2, No.31, were described in a negative way, whereas the rest of the questions were described positively. A Likert-type format was utilised with

six scales for respondents to tick, comprising numbers from one to six. Bigger numbers were more likely to be ticked when the description of the questions match with the perception on the behaviours and abilities of respondents.

Nationality	Male	Female	Respondents in Total	Education
China	96	144	240	Undergraduate
International	68	82	150	Undergraduate

Table 1 *Demographic information of the respondents.*

	Category	Total	Percent
Gender	Male	212	54.4%
	Female	178	45.6%
Discipline	Science	148	37.9%
	Humanities	46	11.8%
	Arts	46	11.8%
	Institute of International Education	150	38.5%
Level	Year 1	102	26.2%
	Year 2	65	16.67%
	Year 3	98	25.1%
	Year 4	125	32.1%
Nationality	Chinese	240	61.5%
	International	150	38.5%
Total		390	100%

Table 2 *Overall sample description.*

By using random sampling, questionnaires were hand out to both Chinese students and international students in May 2014. The respondents were all undergraduate students and mainly came from the disciplines of Science, Humanities and Arts. 240 Chinese students (F=144; M=96) responded to the questionnaires, whereas 150 international respondents (F=82; M=68) coming from the institute of international education completed it (**Table 1 and 2**). The response rates of Chinese and foreign

students were 80 percent and 73.5 percent respectively. Data was analysed using variance analysis of SPSS.

Findings and Discussion

No Remarkable Difference of ICE in Gender

Variance analysis was utilised to examine the difference in Interpersonal Communication Efficacy between male and female respondents. According to Table 3, the sig. (standing for significance level) is 0.987, showing that regarding ICE, there was no remarkable difference between male and female respondents. As for the results of ICE of male and female respondents, any differences are negligible. However, this is not aligned with the study of Cleland, Foster and Moffat; as they argue, female students are more likely to consider their communication skills lower than those of male students, while female students have a more positive attitudes towards communication skills teachings (**Cleland et al., 2005**).

	Sum of Square	df	Mean Square	F	Sig.
Between Groups	0.014	1.0	0.014	0.000	0.987
Within Groups	3642.306	70.0	0.033		
Total	3642.319	71.0			

Table 3 *Differences of ICE (Gender).*

The descriptive analysis and homogeneity test of variance was used to further identify whether differences exist within the six dimensions of the questionnaire. G.E., AL.E., C.E., W.E., I.E., S.E. within the tables mean Group Efficacy, Altruistic Efficacy, Communication Efficacy, Self-worth Efficacy, Self-image Efficacy, and Sentiment-control Efficacy respectively. As Sheldon and colleagues. wrote, 'Self-worth Efficacy refers to the personal judgement of one's self, a sense of self-respect and a subjective evaluation' (**see Wang, 2014**). Consistent with the statement of Cleland, Foster and Moffat who argue that, female students are more likely to consider their communication skills lower than those of male students (**Cleland et al., 2005**), this study indicates that the sig. of W.E. is 0.203, implying that the different results of ICE between male and female respondents can be found within Self-worth Efficacy. The sig. of S.E and sig. of I.E. are 0.874 and 0.834 respectively, implying that there are no remarkable gender differences between male and female respondents regarding Sentiment-control Efficacy and Self-image Efficacy. This is contrasted with the findings of Wang who mentions, 'there is no notable

contract on gender difference on the whole' (**Wang, 2014: 48**) while there are notable differences in sentiment efficacy.

	N	M.D.	S.D.	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
M	212.00	16.64	5.963	0.994	14.62	18.66
F	178.00	16.67	8.277	1.380	13.87	19.47
Total	450.00	16.65	7.162	0.844	14.97	18.34

Table 4 *Descriptive analysis and homogeneity test of variance on gender. M.D=Mean Value; M=Mean; S.D=Standard deviation*

	Sum of Square	df	Mean Square.	F	Sig.
G.E Between Groups	7.143	1	7.143	0.888	.365
Within Groups	96.571	12	8.048		
Total	103.714	13			
AL.E. Between Groups	4.900	1	4.900	0.632	.449
Within Groups	62.000	8	7.750		
Total	66.900	9			
C.E. Between Groups	14.083	1	14.083	0.335	0.576
Within Groups	420.833	10	42.083		
Total	434.917	11			
W.E. Between Groups	65.333	1	65.333	1.853	0.203
Within Groups	352.667	10	35.267		
Total	418.000	11			
I.E. Between Groups	2.083	1	2.083	0.046	0.834
Within Groups	452.833	10	45.283		
Total	454.917	11			
S.E. Between Groups	1.333	1	1.333	0.026	0.874
Within Groups	507.667	10	50.767		
Total	509.000	11			

Table 5 *Descriptive Analysis and Homogeneity Test of Variance on Gender (6 Dimensions).*

The different extent of ICE in six dimensions may also be found in **Table 6**. The result of Mean indicates that among the six dimensions, Self-worth Efficacy and Self-image Efficacy had the lowest score whereas the Altruistic Efficacy gained the highest score.

	N	M.	M.D.	S.D	95% Confidence Interval		Min.	Max.
					Lower Bound	Upper Bound		
G.E.	390	4.329	0.4912	0.1003	4.122	4.537	3.2	5.3
AL.E	390	4.461	0.3425	0.0647	4.328	4.594	3.9	5.2
C.E.	390	4.460	0.4044	0.0904	4.271	4.649	3.8	5.3
W.E	390	3.225	0.6822	0.1393	2.937	3.513	1.9	4.5
I.E.	390	3.225	0.6822	0.1393	2.937	3.513	1.9	4.5
S.E.	390	3.897	0.6720	0.1372	3.613	4.180	2.6	4.9
Total	390	3.933	0.7702	0.0642	3.806	4.060	1.9	5.3

Table 6 *Descriptive analysis and homogeneity test of variance on level (6 Dimensions).*

No Remarkable Difference of ICE in Grade

The similarity and difference of ICE in grade was also tested, using the variance analysis. The study of shows that there are remarkable differences of Interpersonal Communication Efficacy in grade (**Wang, 2014**). Cleland, Foster and Moffat also claim that, among medical students at the University of Aberdeen in the UK, first year and final year students are more likely to think communication skills important (**Cleland et al., 2005**). However, within this study, the sig. of grade is 0.516, shows that there is no remarkable difference in grade. As mentioned above, the sig. of gender is 0.987; it can be seen from the Table 3 and Table 7 that, the sig. of grade is lower than that of gender. This means that compared with gender, the grade may have a greater influence on ICE.

	Sum of Square	df	Mean Square	F	Sig.
Between Groups	1.366	3	0.455	0.764	0.516
Within groups	83.466	140	0.596		
Total	84.832	143			

Table 7 *Differences of ICE (Level).*

	N	M.	M.D.	S.D.	95% Confidence Interval		Min.	Max.
					Lower Bound	Upper Bound		
Year 1	102	3.823	0.8851	0.1475	3.523	4.122	2.3	5.3
Year 2	65	3.861	0.9840	0.1640	3.528	4.194	1.9	5.2
Year 3	98	3.978	0.5637	0.0940	3.787	4.169	3.1	5.0
Year 4	125	4.069	0.5615	0.0936	3.879	4.259	3.0	5.3
Total	390	3.933	0.7702	0.0642	3.806	4.060	1.9	5.3

Table 8 *Descriptive analysis and homogeneity test of variance on level.*

The descriptive analysis and homogeneity test of variance was utilised to compare the results of Chinese and international students regarding the difference of ICE in grade. The tables show that the sig. of Chinese students is higher than that of international students. It reveals that although there is no big difference in grades, the results of the ICE of Chinese students is more likely to vary with grades than those of international students.

	Sum of Square	df	Mean Square	F	Sig.
Between groups	5.314	3	5.105	2.408	0.074
Within groups	54.764	73	0.120		
Total	70.078	76			

Table 9 *Differences in ICE on grade-homogeneity test of variance (Chinese Students).*

	Sum of Square	df	Mean Square	F	Sig.
Between groups	22.049	3	7.350	23.595	0.518
Within groups	49.224	73	0.044		
Total	71.273	76			

Table 10 *Differences in ICE on grade-homogeneity test of variance (International Students).*

Remarkable Differences of ICE in Discipline

	Sum of Square	df	Mean Square	F	Sig.
Between groups	0.878	2	0.439	0.952	0.389
Within groups	49.779	108	0.461		
Total	50.657	110			

Table 11 *Differences of ICE (Discipline).*

Consistent with the findings of Wang (**Wang, 2014**), this study shows that there are remarkable differences across disciplines, since the sig. of discipline is 0.389. According to the result of the Descriptive Analysis and Homogeneity Test of Variance, the extent of Interpersonal Communication Efficacy of students in the discipline of Humanities is higher than those of students in the discipline of Science and Arts. **Table 13** further indicates that the extents of Sentiment Control Efficacy and Altruistic Efficacy are the highest, whereas the Self-worth Efficacy is the lowest. This shows that students are found to have the problem of lack of self-confidence in interpersonal communication.

	N	M	M.D.	S.D	95% Confidence Interval		Min.	Max.
					Lower Bound	Upper Bound		
Science	198	4.1100	0.63228	0.10395	3.8992	4.3208	2.47	4.97
Humanities	96	4.2411	0.59425	0.09769	4.0429	4.4392	2.86	5.21
Arts	96	4.0249	0.79364	0.13047	3.7603	4.2895	2.08	5.23
Total	390	4.1253	0.67862	0.06441	3.9977	4.2530	2.08	5.23

Table 12 *Descriptive analysis and homogeneity test of variance on discipline.*

	N	M	M.D.	S.D.	95% Confidence Interval		Min.	Max.
					Lower Bound	Upper Bound		
G.E.	390	4.3161	0.44474	0.10483	4.0949	4.5373	3.46	5.04
AL.E.	390	4.4643	0.41330	0.09019	4.2762	4.6524	3.63	5.23
C.E.	390	4.4367	0.37017	0.09558	4.2317	4.6417	3.85	5.21
W.E.	390	3.1339	0.63137	0.14881	2.8199	3.4479	2.08	4.07
I.E	390	3.8756	0.59491	0.14022	3.5797	4.1714	2.86	4.77
S.E.	390	4.4643	0.41330	0.09019	4.2762	4.6524	3.63	5.23
Total	390	4.1253	0.67862	0.06441	3.9977	4.2530	2.08	5.23

Table 13 *Descriptive analysis and homogeneity test of variance on discipline.*

	Sum of Square	df	Mean Square	F	Sig.
Between groups	90.292	2	45.146	74.447	0.000
Within groups	65.493	108	0.606		
Total	155.785	110			

Table 14 *Differences of ICE on discipline-homogeneity test of variance (China).*

	Sum of Square	df	Mean Square	F	Sig.
Between groups	5.501	2	0.751	1.228	0.299
Within groups	65.772	274	0.240		
Total	71.273	276			

Table 15 *Differences of ICE on major-homogeneity test of variance (International Students).*

Conclusions

This article has aimed to compare the extent of Interpersonal Communication Efficacy (ICE) between domestic and international students in a Chinese university, and its influence variables. By combining the theory of self-efficacy with interpersonal communication, the researcher compared the ICE in different grades, gender and disciplines. By crossing the discipline of psychology and education, the findings reveal the importance of distributing communication skills lessons, paying different attention to the individuals with various personal backgrounds, and improving students' interpersonal communication ability.

The study has demonstrated that the general ICE of male and female respondents has no remarkable difference. Among the six dimensions of ICE, the Self-worth Efficacy and Self-image Efficacy had the lowest score whereas the Altruistic Efficacy gained the highest score. This addresses to the importance of building students' confidence. There is no remarkable difference between Sentiment-control Efficacy and Self-image Efficacy. However, the different extent of efficacy between male and female students within the Self-worth Efficacy, Group Efficacy, Altruistic Efficacy, and Communication Efficacy can be found in the research. The influence of grade on ICE is bigger than the influence of gender, although in general, the ICE of different grades has no remarkable difference. Also, the results of the ICE of Chinese students is more likely to vary with grades than those of international students.

There are noteworthy differences in disciplines within Chinese or international students; the extent of ICE of students in the discipline of Humanities is higher than those of students in the discipline of Science and Arts. The extents of Sentiment Control Efficacy and Altruistic Efficacy are the highest, whereas the Self-worth Efficacy is the lowest. This study reveals that Chinese students are more likely to pay attention to interpersonal communication and are more interdependent than those of international students, implying the importance of the understanding of cultural difference and addressing different needs of individuals when teaching. As Rogers and Kincaid claim, compared to the interpersonal communication in the West which is psychological, goal-oriented, and linear, interpersonal communication in the Asian Chinese context is social, collective, and cyclical (**Rogers and Kincaid, 1981**). The findings are consistent with the two previous authors (**Yum, 1988; Rogers and Kincard, 1981**), indicating that the different cultural understandings of 'interpersonal' are crucial. This draws attention to the need for cultural awareness with regard to the ongoing internationalization of education, helping both teachers and students to understand teaching and learning across cultures.

Meanwhile, the importance of improving ICE is addressed. ICE can be considered as an evaluation way to help the students who have interpersonal relationship problem. For example, within this research, the interpersonal communication of students in the discipline of Science and Arts may need to be paid more attention by teachers and parents. This study addresses the importance of communication skills teaching and suggests that teachers should consider the factors of the year of study, gender, cultural backgrounds when teaching students across cultures.

The limitation of the study is that the efficacy test is a process of self-assessment which may cause bias. The results should be combined with the perception of surrounding people. As Wang argues,

> *"…frequent reference is made to the characteristics of self but, since most research is conducted through self-assessment, one of the problems regards the extent to which the individual's self-beliefs coincide with characteristics that are actually possessed*." (**Wang, 2014: 25**).

Likewise, the findings of the study are only generalisable to certain research contexts, addressing the importance of context-specific viewpoint of social-science research.

The implication for stakeholders, is that it demonstrates that teachers may need to employ different strategies to communicate with students across cultures. Teaching students with different cultures and backgrounds through various approaches can also be used by teachers as an effective pedagogy. For the policy-makers or school and university leaders, the knowledge of communication skills and the awareness of cultural differences can be designed into the curriculum. There should be designed more teaching lessons on communication skills for students with different backgrounds (years of study, gender, cultural background). With the ongoing internationalization of education, it is hoped that more research and publications should be done by researchers with the aim of identifying the differences of interpersonal communication across cultures. Much work remains to be done so as to review both the theoretical and empirical development of the term, interpersonal communication efficacy. The research findings achieved through self-assessment may cause research bias, and therefore, instead of only doing self-assessment, more research methods and strategies should be used to conduct the research and avoid bias.

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Appendix: Survey Questionnaire

Directions: The following questionnaires are designed to examine the intercultural differences and similarities in 'Interpersonal Communication Efficacy' between Chinese and international college students. The data will only be used for research analysis and the confidentiality can be assured. Your time and effort for doing the questionnaire are greatly appreciated.

Gender: Male □ Female □

Major: Science □ Humanities □ Art □
Institute of International Education □

Years: Year 1 □ Year 2 □ Year 3 □ Year 4 □

Strongly disagree = 1, **Disagree** = 2, **Somewhat disagree** = 3,
Somewhat agree = 4, **Agree** = 5, **Strongly agree** = 6

1. You can easily make friends with others in a gathering or a party. 1 2 3 4 5 6
2. You never cheat anybody. 1 2 3 4 5 6
3. You always consider more for others. 1 2 3 4 5 6
4. You do what you have promised to others. 1 2 3 4 5 6
5. When you describe something, other people can understand you well. 1 2 3 4 5 6
6. You mind others not returning your personal items borrowed from you back. 1 2 3 4 5 6
7. When you are invited to a party, you often accept it. 1 2 3 4 5 6
8. You are the one that others can rely on. 1 2 3 4 5 6
9. You keep in touch with your friends for years. 1 2 3 4 5 6
10. When you are in trouble, you will come to your friends for help. 1 2 3 4 5 6
11. You only talk with your friends who share common tastes with you. 1 2 3 4 5 6
12. When someone is unfriendly to you, you know how to tackle the problem. 1 2 3 4 5 6
13. You are active in making friends. 1 2 3 4 5 6
14. When seeing your teachers, you often feel nervous. 1 2 3 4 5 6

15. You are not influenced by others' opinions.	1 2 3 4 5 6
16 You grudge others who are more successful than you.	1 2 3 4 5 6
17. You are obliged to share your friends' trouble.	1 2 3 4 5 6
18 When there are different ideas, you often keep to your own.	1 2 3 4 5 6
19. People often say you are vigorous.	1 2 3 4 5 6
20. When you hate somebody, you are vindictive.	1 2 3 4 5 6
21. You find it difficult to get attention and praise from others.	1 2 3 4 5 6
22. You sometimes regret what you have done.	1 2 3 4 5 6
23. When you are criticized, you will resent him/ her.	1 2 3 4 5 6
24. You are nervous when you talk with somebody and want to leave a good image.	1 2 3 4 5 6
25. When you meet somebody for the first time, you often think they do not like you.	1 2 3 4 5 6
26. You care a lot about your family's opinions on you.	1 2 3 4 5 6
27. Your mood often changes from joy to depression.	1 2 3 4 5 6
28. You often help others solve problems.	1 2 3 4 5 6
29. You are well-learned in your friends' mind.	1 2 3 4 5 6
30. You care about your friends' qualities.	1 2 3 4 5 6
31. You never do harm to anybody.	1 2 3 4 5 6
32. You gain more consideration from others.	1 2 3 4 5 6
33. It is easy for you to get along with your teachers and parents.	1 2 3 4 5 6
34. You often organize class activities.	1 2 3 4 5 6
35. You get along well with people when you do not share the same taste.	1 2 3 4 5 6
36. You get along well with others.	1 2 3 4 5 6

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Errata

The title of three tables in this article were amended in the main text above October 2020 at the request of the author to correct minor inaccuracies. These were amended as follows:

Table	Original Text	Amended Text
11	Differences in ICE on grade-homogeneity test of variance (international students)	Differences of ICE (Discipline)
13	Descriptive analysis and homogeneity test of variance on discipline (discipline)	Descriptive analysis and homogeneity test of variance on discipline
14	Differences of ICE (China)	Differences of ICE on discipline-homogeneity test of variance (China)

Exchanges apologises for any inadvertent confusion these errors may have caused.

Organising a Multidisciplinary Postgraduate Colloquium: A Critical Reflection

Matthew Bradbury*†, Melissa J. Kenny‡, Richard O. Kirk*, David Purser*‡, Liam Steadman*‡, and Gregory Watson*‡

Address

* Department of Computer Science, University of Warwick, UK

† WMG, University of Warwick, UK

‡ Warwick Institute for the Science of Cities, University of Warwick, UK
Correspondence: M.Bradbury@warwick.ac.uk, M.Kenny.1@warwick.ac.uk, R.Kirk@warwick.ac.uk, D.J.Purser@warwick.ac.uk, L.Steadman@warwick.ac.uk, G.A.Watson@warwick.ac.uk

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Abstract

The Warwick Postgraduate Colloquium in Computer Science (WPCCS) is an annual event for research students in the Department of Computer Science at the University of Warwick. The aims of the colloquium are to provide: (i) an experience of a conference setting for students, (ii) a place to practise presentation skills, (iii) a place to receive feedback and suggestions on their research, and (iv) an opportunity to learn about research being performed by other attendees. WPCCS has been held annually since 2003, but since 2016 many changes have been made to the event; in particular the introduction of networking aids (such as conference guides and lanyards), a new venue, the introduction of guest speakers and various efforts to encourage attendance. Meanwhile the number of submissions has increased, placing strain on the colloquium's schedule and budget. In this paper the organising committees from 2016, 2017, and 2018 reflect critically on the experience WPCCS delivers to the attendees. We present an examination of what worked well, what did not work, and what we would like to try in the future, with the aim that these experiences are useful to the organisers of similar events.

Keywords: critical reflections, multidisciplinary, colloquium, student-led, postgraduate

Introduction

The Warwick Postgraduate Colloquium in Computer Science (WPCCS) (**University of Warwick, 2018a**) is a one-day colloquium held annually at the University of Warwick. Run by doctoral students, the colloquium aims to engage students within the Department of Computer Science (DCS) (**University of Warwick, 2018b**) by inviting them to present their research to an audience of their peers. Each student either provides a poster or is allocated a short presentation slot followed by Q&A. The event aims to provide research students the opportunity to practice submitting to, preparing for, and presenting at an academic conference, whilst simultaneously fostering collaboration between researchers. Academics and external guests are also encouraged to attend the event, with many having participated as guest speakers and audience members.

Whilst originally focused on computer science, the conference has expanded over its sixteen-year history to reflect the multidisciplinary research that the Department of Computer Science interacts with. Two of the current, significant, collaborations are discrete mathematics and urban science. Discrete mathematics is a branch of mathematics which is particularly applicable to theoretical computer science, for which the department has an ongoing relationship with the Warwick Mathematics Institute and the Warwick Business School. Urban science is the study of interdisciplinary solutions to the world's urban challenges, and can be approached from the perspectives of economics, architecture, human and physical geography, history, urban planning and politics. Particular emphasis within the department is placed on geo-informatics (analysis and mapping of spatial data), large scale data analytics and data management. These can enrich the study of cities from all perspectives, enabling multidisciplinary research with computer science.

The colloquium has been held annually since 2003. For the three events held between 2016 and 2018 (**Bradbury, 2016; Kirk, 2018; Watson, 2017**), the colloquium's organising committee has remained relatively unchanged, and has been allocated a budget ranging from £1400 to £2100 per year. These events each received between 50 and 75 submissions, of which 10 to 25 per colloquium were poster submissions. Presentations at each event were divided into specific topic tracks (such as High Performance Computing, Machine Learning and Urban Science), with each track possibly spanning multiple sessions, and up to three sessions running concurrently at any one time (forming a timetable block). Therefore, in contrast to a traditional conference which covers a single discipline or sub-discipline, the scope of research presented at WPCCS is highly diverse. This diversity raises challenges that require careful consideration, such as the structuring of the day and engagement with attendees. This paper reflects

on the recent changes, growth, failures, and successes of the colloquium from the perspective of the 2016, 2017 and 2018 organising committees, and concludes by proposing a series of recommendations for those running similar events in the future.

2 Reflections

2.1 Content and Structure of the Colloquium

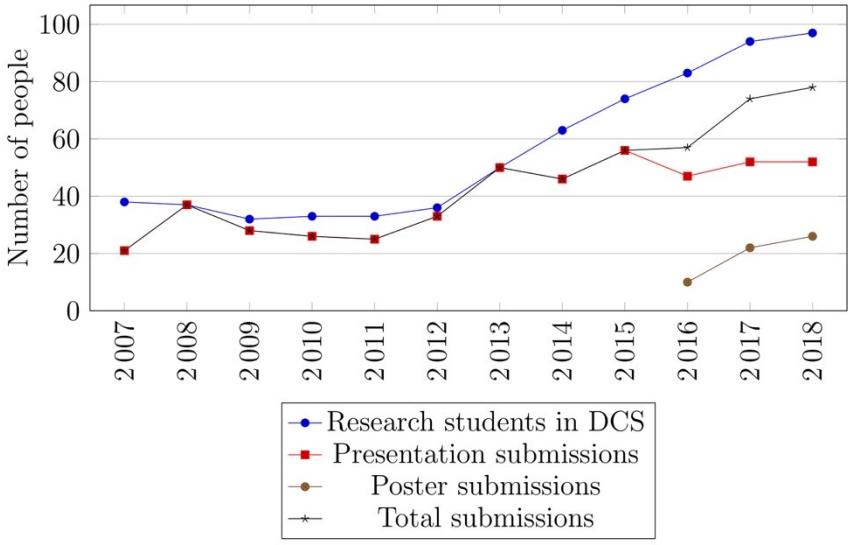


Figure 1: Poster and Presentation Submissions to WPCCS and total postgraduate research students in the Department of Computer Science (DCS) (**Warwick Strategy & Policy Group Analytics Office, 2007–2018, Table 2.7**)

Over the past few years the number of research students submitting to WPCCS has steadily increased (as shown in Figure 1), with the event always accepting all submissions received before the submission deadline. As the colloquium has grown, the schedule of the day has changed to allow time for guest speakers and an increased number of presentations. A key change in permitting this growth has been reducing the length of student presentations from 20 to 15 minutes, including Q&A. From 2017 onwards, students were asked to prepare a 10-minute presentation and allow for a further 5 minutes of questions at the end of their talk. This allowed for an increase in the number of students that could present and permitted the inclusion of guest talks. However, reducing the length of presentations had the effect of reducing the quantity of work able to be discussed in presentations, and forced some students to narrow the focus of their talk. This has been to the detriment of attendees less familiar with the topic.

A fuller schedule has been accommodated by increasing the overall length of the colloquium. Traditionally, student presentations began at 9am. However, in 2017, a registration period and introductory guest talk were added, and student talks began at 10:05am. The growth in the number of

submissions in 2018 necessitated a further change, with registration opening at 8:30am and the first student presentations beginning at 9:50am. From feedback and analysis presented in Section 2.6, this did not seem to negatively affect attendee satisfaction, as careful considerations were taken with the change in schedule. Firstly, three student presentations and a guest talk preceded the first break. This ensured attendees were not seated for a prolonged period and were provided refreshments early in the day. Secondly, ensuring lunch began promptly between 12:15pm and 12:30pm maintained attendees' alertness during these sessions. Finally, providing a third refreshment break mid-way between afternoon talks again maintained alertness, attendee retention, and allowed for further networking. Using breaks to divide the day into shorter and longer blocks allowed each session to focus on a single topic containing between three and six talks. In some cases, a single topic contained enough submissions to require spanning multiple, consecutive sessions.

The addition of three guest talks to the colloquium in 2017, and 2018, required an additional 90 minutes to be added to the timetable of the day. The first guest talk was scheduled for the start of the day, the second was placed after the first break and the third after lunch. These talks were aimed at all attendees and were intended to provide an engaging talk for all members of the audience. They also served to bring all of the participants together, rather than allowing each to focus purely on their own track. In practice, a number of the guest talks were too technically complex for some members of the multidisciplinary audience, and attendance was notably lower at the guest talks than the surrounding blocks (Figure 2). The organising committees believed this could not be remedied since finding suitable speakers for the multidisciplinary audience was already very difficult. This was made even more difficult by the limited travel budget and resources made available to the colloquium.

The number of submissions is likely to rise in future years, so scheduling presentations is likely to become more problematic. One way to curtail this is to increase the number of concurrent sessions to four throughout the day. However, this would require more session chairs and splits the audience between more rooms. Another option may be to spread the colloquium over two days. Whilst this would reduce the number of simultaneous tracks to two and allow for longer presentations, the increase in costs and additional day required for attendees may make it infeasible. A second day of commitment may reduce attendance on each of the days.

2.2 Attendance and Engagement

As can be seen in Figure 1, the number of submissions has increased over time, driven mainly by an increase in research students registered to the department. However, attendance and engagement has been a challenge when organising the colloquium. Of particular note, the attendance of academic staff has been low as noted particularly by the feedback from the 2016 colloquium. Students have often attended only their own talk or session, or have chosen to send a poster without attending the conference at all. Importantly, the number of students within the department who do not engage with the colloquium at all has increased since 2014.

Figure 2 shows the number of students in attendance over each part of the day, across all rooms (typically three concurrent sessions running for all four blocks of the day), demonstrating that in particular attendance was very poor in 2016. Whilst the number of attendees per session improved for 2017 and 2018, the engagement of students and remains disappointing, particularly with guest talks. Despite potential attendance from over 90 research students and over 35 academic staff in the department, external attendees and those from other departments, the total number does not peak above 50 attendees.

Due to the historical low attendance and engagement, an increased emphasis was placed on improving engagement in 2017 and 2018. In particular, encouraging staff to attend was important both for the feedback they provide to students with whom they do not routinely interact, and the opportunity for increased research collaboration.

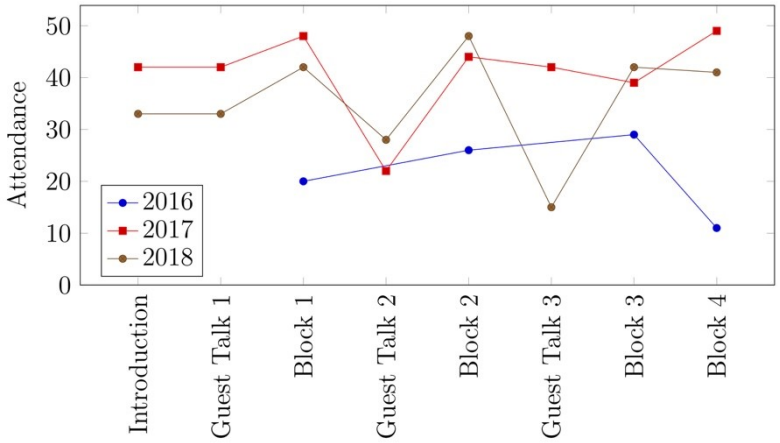


Figure 2: Attendance throughout the 2016, 2017 and 2018 events, showing the number of people across all rooms. In the introduction and guest talks one room is used, whilst three are used concurrently during each block (except block 4 in 2016 where two were in use). Attendance includes staff and students; as breakdowns were not collected consistently across all years.

Two approaches were trialled in 2017: (i) providing handwritten and hand delivered invitations to staff, and (ii) inviting staff members to provide a 5-minute introduction to each session. Writing and delivering approximately 50 invitations was a time intensive task for the organising committee, but it was effective in some cases. However, this was deemed to have too little benefit for the cost, so was not repeated for the 2018 event.

Inviting staff to provide introductions at each session was more effective at encouraging staff to attend the event. This ensured at least one staff member was present in each session, and in some cases colleagues attended together. Feedback from student attendees noted that staff introductory talks were short and uninspiring, often feeling contrived and insincere. For this reason, staff introductory talks were not continued in 2018.

The apathy felt by staff towards the event is also reflected in student participation. The committee each year has noted that some students have either refused to engage with the process or have submitted posters as a method for not attending the colloquium (students submitting posters are still encouraged to attend the colloquium). This is particularly apparent in 2016, which has the lowest submission rate (69%) since 2007, when the size of the department was much smaller. In 2017, to combat students attending only their talk or session, attendance was made mandatory for the entire event unless exceptional circumstances prevailed. Some students felt this was overly prescriptive and so in 2018 the rule was maintained but enforced to a lesser extent. Accordingly, there was a noticeable reduction in the number of student attendees and those who did attend were unlikely to remain for the entirety of the event.

Several feature changes in 2017 and 2018 are believed to have improved the quality of the attendees' experience and, hopefully, improved engagement. In 2017, the colloquium changed from its original venue within DCS to the newly built Oculus Teaching Building (**AV Services, 2018**) at the University of Warwick. This change of location meant that the colloquium was no longer held in the same building many students and staff worked in. Therefore, many attendees remained at the colloquium for longer periods which led to higher attendance per session than in previous years. The venue also enabled the use of digital signage, where four large TV screens are combined to give the effect of a single display. This was used to detail the schedule and layout of the conference to ease navigation and highlight guest speakers.

Alongside a change of venue, professionally designed posters and colloquium guides were introduced to market the event. Additionally, name badges were replaced with lanyards as they provided a better keepsake in the hope of encouraging repeat attendance and, combined

with the colloquium guides, it was hoped these would encourage greater networking between researchers. In 2018, an additional room was booked and made available for participants to practice their presentation. Overall, the 2017 and 2018 committees believed these features combined made the colloquium more alike a traditional conference, which is beneficial for those who have yet to attend one.

An alternative possibility for increasing attendance at the colloquium is to change when the event is held. WPCCS traditionally takes place on the final Friday of each academic year. This day ensures research students and staff are able to attend, as it is prior to the summer holidays and after the examination season. Moving the colloquium to earlier in the academic year would make it less likely to clash with conferences and personal summer holidays. However, this would mean first-year research students would not have an opportunity to give a presentation due to being in an early stage of their research. An advantage would be that they are exposed to more experienced work and become aware of what is expected of them early on.

2.3 Broadening Engagement

The multidisciplinary aspects of WPCCS have encouraged more engagement with the broader research community at the University of Warwick. In particular, research by students and staff from the departments of Statistics (**University of Warwick, 2018c**) and Engineering (**University of Warwick, 2018d**), as well as WMG (**University of Warwick, 2018e**) and the Warwick Mathematics Institute (**University of Warwick, 2018f**), may align with attendees of WPCCS. In 2016, attempts were made to encourage submissions and increase engagement with the aforementioned departments by email advertising; ultimately this was unsuccessful. However, 2018 saw three students from external departments present their work, although each was already engaged with DCS in some way. An external company with funding links to DCS expressed interest in attending the event, however their lack of specialised knowledge with many of the subject areas present at the colloquium meant they did not attend. Whilst the specialised language used in the abstracts discouraged attendees from industrial partners, this is typical of academic conferences and the highly specialised nature of PhD research.

Students at the nearby Universities of Oxford (**University of Oxford, 2018**) and Birmingham (**University of Birmingham, 2018**) were invited to attend a discrete mathematics track. Seven people were individually invited, who had previously engaged with events held at the University of Warwick. Of these, two responded, confirming that they had also passed the invitation around the relevant department, but none attended. Particular focus was given to this track as it is a research theme for which DCS is nationally and

internationally renowned. The lack of interest is likely due to the student-run nature of the colloquium, the distance between the universities and the lack of funding to cover travel expenses. As such, networking opportunities have been missed.

In addition to those outside DCS, undergraduates from within the department were invited to attend. In particular, third and fourth year undergraduates, and those who took part in the Undergraduate Research Support Scheme (URSS) (**Student Careers & Skills, 2018b**), were encouraged to attend. However, as the event occurs on the final day of the academic year, most undergraduate students had left for the summer and therefore did not attend.

2.4 Organisation and Communication of the Committee

As the colloquium has grown in size and scope, so too has the organisational effort required. The 2016 colloquium was organised by a single student with help from a group of five students who reviewed abstracts and chaired sessions. The 2017 and 2018 colloquia necessitated a larger organising committee of seven students with a range of academic backgrounds and skills, who also reviewed abstracts and chaired sessions.

Increasing the size of the organising committee has allowed for organisational tasks to be split amongst the committee members. This has, however, raised issues around the coordination and communication of the team; several methods have been used to aid this. Initially, WhatsApp (an instant messaging application) was used with a single group containing all committee members. This allowed for quick responses to questions amongst the team, however it did not facilitate conversations on multiple topics simultaneously. Furthermore, the quantity of messages in the conversation (1758 messages) meant finding answers to previously asked questions was difficult. Instead of WhatsApp, Slack (a messaging platform for teams) was used by the 2018 organising committee. Slack allows for multiple conversations containing different members of the committee. Whilst this solved the issue of multiple conversations happening in the same thread, using a platform which was not ubiquitous caused several issues. Namely, the tool used required committee members to install and check regularly an application which they did not already use. This meant members often missed messages, were unreachable and did not receive important notifications. From this experience, the 2018 committee acknowledged the need for a single platform that permits multiple conversations or workspaces and is mainstream enough for members to check it regularly.

Retaining knowledge and experience between committees is an important issue that remains unresolved. Before 2016, each year's colloquium was organised by a single student. Since 2016, however, the organising committee of each colloquium has remained relatively unchanged. Planning for changes in skill sets between committees is important. One example of this is the design skills used to create the colloquium booklet and leaflets. Since 2016, a report has followed each colloquium (a condition of Research Students Skills Programme funding) with the aim of transferring knowledge from one committee to the next.

Finally, the need for a central repository of communications with students, staff and external bodies has increased with the growth of the colloquium. Thus, in 2017, a single University-managed email account for all contact with the organising committee was established. This meant communications could be referenced by future committees. Since then the account has been passed on to future committees under a generic WPCCS name.

2.5 Funding

Similar to previous years, in 2016, WPCCS received £1100 from DCS. This money allowed the event to purchase a wider variety of food, as well as offer a series of awards and a subsidised evening meal. In addition, £300 was received from the Research Students Skills Programme (**Student Careers & Skills 2018a**) at the University of Warwick. This programme provides training, resources and support to postgraduate researchers to develop professionally and personally. Their extra funding allowed for the colloquium to give attendees the opportunity to produce a poster rather than a presentation. As mentioned previously, the option to produce a poster was particularly suited to those who could not attend the colloquium. Due to a disappointing turnout at the subsidised evening meal, the colloquium was £398.25 under budget. It was clear that future work should focus on improving attendance numbers of the entire colloquium.

In 2017, to aid the move to the Oculus Teaching Building and improve the experience for colloquium attendees, DCS increased their funding from £1100 to £1500. The committee again received £300 from Research Students Skills Programme, which allowed them to include features often seen in more traditional conferences than in student colloquia, such as a professional grade colloquium guides (**WPCCS, 2018**) and lanyards. With both attendance and submissions increased, expenditure on posters increased by 53%.

Accommodating this attendance increase in 2018 proved problematic; more money was required for printing a higher volume of posters and

adding more pages to the colloquium guide, yet the income from funding sources was initially the same. The committee investigated alternative suppliers, however this was prohibited under university spending rules. The committee was limited to university suppliers and had to work to reduce outgoings.

As 2018 was the 50th anniversary of DCS, the department gave the event an additional £300 of funding for anniversary-related expenditure. This extra funding allowed for the event to host an exhibition of the history of the department and provide celebratory cupcakes for attendees. The use of the additional funding for a novel colloquium attraction, in this case the 50th anniversary exhibition, was well-received by attendees, and is something that is felt should be repeated in future events.

2.6 Feedback

Feedback has been collected after each WPCCS event for several years. Figure 3 shows the average feedback received relating to specific areas, from 2016 through to 2018. Each year, attendees were asked to rank various aspects of WPCCS as Awful, Poor, Neither Good nor Poor, Good, or Excellent. These ranks are presented in Figure 3 as an ordered score, where 1 represents Poor and 5 represents Excellent, averaged across all responses. Some years did not ask for feedback for particular categories, and accordingly these results are missing from the graph.

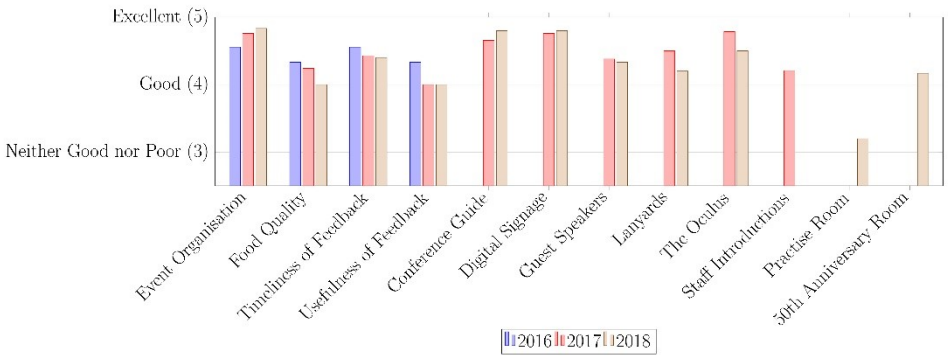


Figure 3: Feedback from the three WPCCS events (on a scale of 1–5).

For the colloquium guide, digital signage and event organisation, a small positive increase in feedback can be observed. This can most likely be attributed to the significant overlap in the organising committee between 2016 and 2018. As for why the increases can be observed, we hypothesise the following:

The digital signage used during the 2017 event was low resolution. For the 2018 event, the content was rendered at a significantly higher 8K resolution, a four-fold increase from 2017.

In 2017, session rooms were arranged in cabaret style. A common piece of feedback for the year was that this did not work in many sessions, with some people having to stand uncomfortably around the room. This was fixed in 2018 by arranging chairs in theatre style rows facing the presenter, which allowed for more chairs in the session rooms.

The 2016 event acted simply as a means for postgraduate researchers to present their work to their peers. The addition of activities and sessions in 2017 and 2018, such as guest speakers and the 50th anniversary exhibition, may have caused attendees to praise the event organisation.

However, feedback on the quality of food saw a decline from 2016 to 2018. This is unusual, as food ordered between the three events was very similar, with the only significant change being the quantity of food ordered due to the increase in expected attendees in later events. In addition, 2018 saw the introduction of vegan options and a salad buffet alongside the previously available pizza and sandwich options. Feedback on the timeliness and usefulness of abstract reviews also saw a decline in positive feedback. The organising committees attributed this to the significant increase of submissions placing a greater workload on the organising committee.

Feedback obtained from 2016 and 2017 was used to alter later events, such as:

'PhD students should attend the whole session' - From 2017 attendance at the event was compulsory for all students.

'More staff need to attend to give feedback' - Staff were invited to get significantly more involved in the event in 2017, which increased the absolute numbers of staff attending.

'A more generous number of prizes and individual value may help attract more students' - The prize total was increased from £100 in 2016 to £140 in 2017, and £160 in 2018. The number of awards was increased from 5 in 2016, 12 in 2017, and 14 in 2018.

'I would like to see all of these again' (in reference to the lanyards, guest speakers and media introduced in 2017) - The 2018 event was heavily based on the 2017 event, including the most well-received concepts introduced in 2017.

'To maximise the opportunity to see work, I would suggest to increase the number of posters and the duration, and to reduce the number of talks' - The ratio of posters to presentations was increased slightly in 2018.

2.7 Awards

For several years, WPCCS has issued awards during the closing speech at the end of the colloquium. They have been chosen by the organising committee after all sessions have concluded. Initially, five awards were given: one for Best Presentation in Colloquium, one for Best Poster in Colloquium plus three runners up. Winners have been given modest cash prizes and a certificate. In more recent years, as the number of presenters and posters at the colloquium has grown, the number of awards has increased. In 2017 and 2018, an award was given per session, in addition to Best Presentation in Colloquium and Best Poster in Colloquium. Accordingly, the budget for prizes has also grown, with session prizes consisting of £10 Amazon gift vouchers and the Best in Colloquium prizes consisting of £20 Amazon gift vouchers.

However, in 2018, several sessions consisted of few presenters that were not members of the organising committee. Since organising committee members were exempt from awards, some sessions were left with just two presenters eligible for awards. Feedback for the 2018 colloquium highlighted this imbalance and complained that people in some tracks had a higher chance of winning compared to others. This happened despite the committee's attempts to maintain consistent numbers of presenters across sessions and is a consideration for future organising committees. Furthermore, in earlier colloquia when few prizes of a higher value were awarded, some feedback requested more prizes of smaller denominations. In more recent years, when this has been implemented, some feedback has requested few prizes of higher value again. We suggest, as prizes give incentive to present at the colloquium, a large number of lower value awards is preferable.

3 Conclusion

WPCCS has been successfully held for over 16 years. In the past three years significant attempts have been made to improve the experience of attending. Factors such as providing a colloquium guide, guest talks and the change of venue have increased engagement with students and staff. However, engagement with some groups of attendees remains low and efforts to improve this have been met with varied success. Future committees need to endeavour to ensure attendance is the result of encouragement and interest rather than requirement.

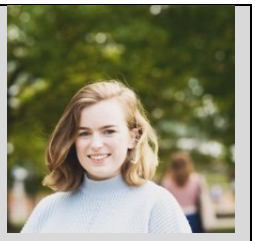
For a broad and multidisciplinary colloquium, such as WPCCS, we recommend scheduling guest talks which are accessible to a diverse academic audience. Furthermore, engagement may be encouraged with the inclusion of unique features such as the 50th anniversary exhibition. A risk to events like WPCCS is disorganisation; setting clear responsibilities

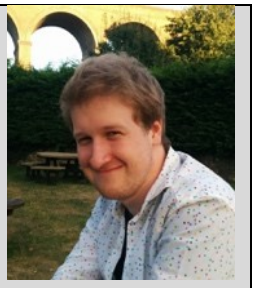
and expectations for the organisation of the event is important. In particular, communication between team members can become overwhelming if the correct tools are not used — what constitutes correct may vary with the experiences of different organising committees. It is also important to perform knowledge transfer between committees of previous and future years. Maintaining consistency of feedback mechanisms is also important to ensure data collected is comparable between years. For WPCCS, further effort is required to broaden engagement, particularly with other departments and universities; despite the obvious relevance and opportunities their participation may bring, several factors seem to prevent their engagement.

In our opinion WPCCS has met the aim of providing an event that enriches the experience of multidisciplinary research students in the early stages of their academic career. Changes in the last three years have led to improvements in the overall experience for those attending the colloquium. However, some changes can still be made to improve the experience.

Matthew Bradbury is a research fellow at WMG in the University of Warwick. He was awarded his PhD from the Department of Computer Science at the University of Warwick in 2018. His research interests include security and privacy issues in wireless sensor networks, connected vehicles and space systems. He was awarded Best in Session at InfoCom 2017 for his work on Source Location Privacy. Matthew served on the WPCCS committee from 2016 to 2018, and chaired the committee in 2016.

Melissa Kenny is a postgraduate researcher in the Warwick Institute for the Science of Cities. Her research investigates the role of urban planning as a tool for building resilience against climate risk in coastal cities. Melissa served on the WPCCS 2018 committee.

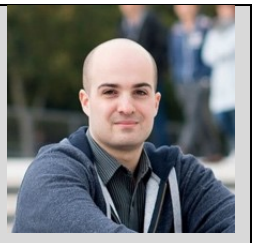




Richard Kirk is a postgraduate researcher within the Department of Computer Science at the University of Warwick. Richard's research focuses on data structure abstraction within High Performance Computing, looking at how this can be done without effecting the performance of applications on highly parallel systems. Richard served on the WPCCS committee from 2017 to 2018, and chaired the committee in 2018.

David Purser is a postgraduate researcher in the Department of Computer Science at the University of Warwick. His research investigates how computer programs can be formally verified to respect the privacy of the data on which they act. David served on the WPCCS 2017 and 2018 committees.

Liam Steadman is a postgraduate researcher in the Department of Computer Science at the University of Warwick. His research focuses on methods for speeding up analysis and processing of spatio-temporal datasets, with a particular emphasis on the applications of such methods in industry. Liam served on the WPCCS 2017 and 2018 committees.



Gregory Watson is a postgraduate researcher at the Department of Computer Science at the University of Warwick. His current research includes using deep learning and foreground modelling to improve person re-identification. Gregory served on the WPCCS committee from 2016 to 2018, and chaired the committee in 2017.

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Articles and Authors Index for Exchanges: Volumes 1.1 – 6.2

Johnson, Gareth J.

Institute of Advanced Study, University of Warwick, UK
gareth.johnson@warwick.ac.uk
Twitter handle: @llordllama
ORCID: 0000-0003-3953-6155

Abstract

This article provides a practical guide to the scholarly work and authorial contributors to the Exchanges journal since its inception. It incorporates two forms of index. Firstly a volume by volume listing of articles, authors, subjects and links. Secondly, an author index, providing information on the issues to which each has contributed.

Keywords: index, author, titles, exchanges, journal

Introduction

Since the days when it was originally published with the subtitle *the Warwick Research Journal*, Exchanges has always incorporated a considerable volume of scholarly work, reflection, opinion and original thought. However, to date any formal indexing of the journal has been largely left to external services and platforms. To help readers, scholars and prospective authors better identify works of interest within our pages, as Editor-in-chief I have decided to create this formal index of articles and authors. Readers will find it is broken down into two sections. Firstly a chronological listing by journal volume of articles incorporating: information on authors, titles, keywords and URIs (uniform resource indicators). In this latter case the internationally renowned DOI (digital object identifier) system of links relatively recently adopted by Exchanges is provided.

Secondly, an author index is provided, giving details of the issues in which each person has published articles with us. What has been surprising in compiling this part of the index has been the number of authors who have chosen to publish with us more than once; although I would note a few of these are editorial contributors like myself.

I hope readers find these listings to be a useful contribution to the journal, and an aid in rediscovering some of the fascinating and informative articles we've had the pleasure to share with you. I expect future volumes will include supplementary and complementary versions of these indexes.

Volume 1 Issue 1 (October 2013): doi.org/10.31273/eirj.v1i1

Volume 1 Issue 2 (April 2013): doi.org/10.31273/eirj.v1i2

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[Article retracted for © reasons]

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Editorial, Rome, postcolonialism, feminism, interdisciplinarity
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Gareth has been Exchanges' managing editor-in-chief since early 2018, with a varied prior career within academic libraries, drug research and project management. He originally read for a degrees in biomedical technology (Sheffield Hallam) and a masters in information management (Sheffield), before completing a doctorate in communications, culture and media at Nottingham Trent University. His research interests focus on the power-relationships and evolution of scholarly academic publication practices, viewed through critical social and political economic frameworks. Gareth is an outspoken proponent for greater academic agency through scholar-led publishing, along with being an expert in interpersonal and online communication, and distributed team-working practices.

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