



## Equality, diversity, and inclusion in IS education

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## ***Special Issue Editorial*** **Equality, Diversity, and Inclusion in IS Education**

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### **ABSTRACT**

This editorial piece introduces a special issue of the *Journal of Information Systems Education* (JISE) on the topic of equality, diversity, and inclusion (EDI) in IS education. A number of contemporary issues are raised, such as inequality and barriers pertaining to gender, ethnicity, disability, sexuality, and socio-economic status. A set of research questions relating to EDI within IS education is set out, thus inviting further work within this important and under-researched area of our field.

**Keywords:** Equality, Diversity, Inclusion, Cross-cultural learning, Gender issues, Barriers

### **1. INTRODUCTION**

Equality, diversity, and inclusion (EDI) in higher education are essential if we are to achieve fairness in society and balanced development. Article 26 of the United Nations Declaration of Universal Human Rights (1948) asserts that “Everyone has the right to education... Technical and professional education shall be made generally available and higher education shall be equally accessible to all... It shall promote understanding, tolerance and friendship among all nations, racial or religious groups.” In practice unfortunately,

this noble aspiration can be impeded by several factors. This special issue of the *Journal of Information Systems Education* (JISE) is interested in the intersections between issues such as gender, ethnicity, culture, (dis)ability, socioeconomic status, family lifecycle stage, sexuality, and age, and how they relate to information systems education or the use of technology in education.

In the interests of regional balance across the globe, the invited guest editors were from three different continents. The call for papers attracted a large response with submissions from Finland, Germany, Hong Kong, India, Ireland, Israel,

Malaysia, Palestine, Sri Lanka, United Kingdom, and USA. Given the inclusive theme of this special issue, it was disappointing that no submissions were received from South America or Africa.

The panel of expert reviewers was drawn from several academic institutions across different regions of the world. After two rounds of rigorous double-blind peer review, eight full research papers and two teaching tip contributions were accepted for publication in this special issue. The selected papers address important gaps in the current literature on IS education, focusing on issues that heretofore have received little attention within the principal pedagogical journals and conferences of our discipline.

## **2. CURRENT EDI ISSUES IN IS EDUCATION**

The onus on higher education institutions to ensure that all persons are treated equally has been enshrined in legislation in many countries for several decades. In the US, the Civil Rights Act of 1964 made it illegal to discriminate on grounds of race, color, religious beliefs, nationality, or gender. This was further extended by the Pregnancy Discrimination Act of 1978 and the Americans with Disabilities Act of 1990 amongst other laws. Within the EU, Article 19 of the Treaty on the Functioning of the European Union (TFEU), which originally dates from 1958, aspires to “combat discrimination based on sex, racial or ethnic origin, religion or belief, disability, age or sexual orientation.” It has since been strengthened by the Racial Equality Directive of 2000 and the Recast Directive of 2006. Similar legislation exists in Australia in the form of the Racial Discrimination Act 1975, Sex Discrimination Act 1984, Human Rights Commission Act 1986, Disability Discrimination Act 1992, and Age Discrimination Act 2004.

However, as we approach sixty years since the infamous “Stand in the Schoolhouse Door” incident that captured the world’s attention, there unfortunately remain within our educational processes and systems several inherent biases and barriers that militate against equality, diversity, and inclusion. In recent years, initiatives such as the Athena Swan Charter, Race Equality Charter, SEA Change, and the Universal Design for Learning (UDL) framework have helped to effect reforms and improvements. Additionally, groups such as the International Disability Alliance and World Autism Organisation, and global social movements (e.g., Black Lives Matter, Women’s March, and the LGBTQ+ Rights Movement) have also played their part by drawing public attention to systemic inequities and advocating for change. Universities across the world have, for the most part, been slow to respond until quite recently. It has now become politically expedient to be active as regards EDI issues, or at least to be seen to take a stance, not least because it is usually mandated by government policy or research funding bodies.

Looking specifically at the discipline of information systems, the under-representation of women both amongst the student body and the staff body is long a recognised issue (Zhang, 2007), which has been discussed in a number of previous articles in *JISE*. Discourse around the academic field of IS/IT is often dominated by the “hard” rationalist perspective of computer science, which traditionally has been less attractive to females (Cukier et al., 2002). The point is frequently made that female students and practitioners bring

valuable transversal skills and critical perspectives to the table, which are essential in IS decision-making and business systems analysis. However, the stereotype that “men are programmers and hackers; women are analysts and creative designers” does not hold up. It is a popular misconception that males fare better than females in science, technology, engineering, and mathematics (STEM) subjects in school. In actuality, research demonstrates that females perform at least as well as males in technical subjects, including computer programming (Geigner & Schambach, 1999; O’Dea et al., 2018). The reason that females are less attracted to IS/IT degrees often boils down to computer self-efficacy and the lack of role models, on account of there not being enough female teachers or professors within the field (Beyer, 2008; Crews & Butterfield, 2003; He & Freeman, 2010; Karsten & Schmidt, 2008; Woszczynski & Shade, 2010).

Not alone has the study and practice of IS/IT been quite male-dominated, but it has been dominated (in Western societies) by white males. The marginalisation of Black, Asian, Latino, and other ethnic groups is a noted issue (Holanda & Da Silva, 2021). With falling enrollments and increased competition, universities in Europe, US, and Australia have very actively targeted Asian markets in recent years to bolster income. Students from India, China, Malaysia, and Indonesia now make up a very substantial cohort of postgraduate IS/IT students in the Western world. This brings substantial challenges for educators, facing a multicultural classroom where students may hold different values and opinions about behavioral norms. IS graduates will be required to work in a multi-cultural globally distributed environment so diversity in the classroom can be leveraged to promote greater cultural awareness and generate thought-provoking alternative perspectives (Mitchell & Benyon, 2018; Woszczynski et al., 2006). Useful teaching approaches include simulation, role play, and the use of educational software to tease out problems through the lens of Western, non-Western and feminist ethical theories (Fleischmann et al., 2011). Materials, case study examples and vocabulary also need to be adapted so that they make sense to international students, taking into consideration language comprehension issues (Cox, 2001). Looking at assessment issues in IS education, test-mode familiarity (Wallace & Clariana, 2005) and perceptions of what constitutes academic dishonesty (Hayes & Intraon, 2005; Maxwell et al., 2008) can be impacted by a student’s nationality or ethnic background.

As regards supports for students with disabilities, much has been done to bring about improvements in opportunities, but much more can yet be done. For example, IS/IT degrees tend to attract a substantially higher number of applications from neuro-atypical students than do other disciplines. However, the general level of awareness amongst IS educators of the special needs of university students with autism spectrum disorder (ASD) remains quite low. Autistic students are often very comfortable with technology, but uncomfortable in social interactions such as group work or class discussions. They may also struggle with planning work schedules or meeting deadlines, and may feel quite alienated and intimidated by the sensorially challenging environment of a university campus with its crowded theatres and busy corridors. Additionally, students with ASD may find it difficult to comprehend things from other perspectives and can be quite inflexible in their thinking (Anderson et al., 2020;

Nuske et al., 2019). Yet, students with ASD are very often extraordinarily gifted and potentially can make outstanding contributions to the learning experience of their peers. For IS educators, the challenge is knowing how to recognise and manage the disability, while leveraging the tremendous ability of students with ASD. As yet, this is a poorly understood area in IS education research.

At this point in time, it could arguably be claimed that the student population attending most Western universities is more burdened than at any time in history. They typically are under considerable financial pressure, working part-time or full-time while also trying to pursue a degree. Many of them also have caring responsibilities (Goldrick-Rab & Stommel, 2018). There is a worrying rise in the incidence of mental health conditions across the world (Auerbach et al., 2018; Oswald et al., 2020), more so amongst first years, females, older students, and those who do not identify as being heterosexual. In particular, the latter cohort is at substantial risk of feeling minoritized and excluded (Yang et al., 2021a; Yang et al., 2021b). Traditional IS teaching and assessment approaches are failing to meet the needs of such diversity. The questions that we, as educators and pedagogical researchers, must strive to answer include:

- What are the barriers to and enablers of EDI in IS education?
- How can educational technologies be used to promote and facilitate EDI?
- What are the underlying causes of the under-representation of women and other groups in IS education amongst the student population and/or academic population?
- How can IS educators address the challenges of globalization and internationalization?
- How is performance and attainment in IS education, impacted by gender differences, disability, socio-economic status, etc.? What can we do to level the playing field and remove these inequities?
- How do we deal with issues of unconscious bias in IS teaching and assessment?
- How can we engage IS students within diverse groups?
- How do we avoid teaching and assessment approaches that may inadvertently exclude some students?
- How do gender, racial and sexuality issues impact IS education, e.g., self-efficacy, stereotypes, values, roles, etc.?
- How does on-line behavior and in-person classroom behavior differ according to gender, ethnicity, age, culture, (dis)ability, etc.?
- How can we better support IS students with learning disorders and other special needs, e.g., autism, dyscalculia?
- What innovative models of delivery can we use to better support students who have caring responsibilities, are economically disadvantaged, or have other characteristics that place them in a marginalized bracket?
- What are best practice guidelines for development of inclusive IS learning spaces and environments?

The papers in this special issue go some way towards addressing these questions.

### **3. OVERVIEW OF ARTICLES IN THIS ISSUE**

The accepted articles fall into three themes, namely (1) female participation, (2) barriers to inclusion, and (3) e-learning and emerging technologies. Additionally, there are two teaching tip contributions.

#### **3.1 Teaching Tip Contributions**

This special issue of *JISE* begins with two very interesting teaching tips.

The first of these, by Wu He, Shenghua Zha, Silvana Watson, and Yuming He, is titled “Promoting Inclusive Online Learning for Students with Disabilities in Information Systems Courses.” It outlines a number of barriers to learning that disabled students may face in IS courses, and then presents practical suggestions and strategies to lower or eliminate those barriers.

The second teaching tip, “Vignettes to Support Diversity Training in Information Systems” by Carole Shook, presents seven discussion scenarios involving microaggressions and racial inequalities. Suggestions on how to beneficially use these vignettes in an IS classroom setting, based on evaluations of their prior usage in practice, are presented.

#### **3.2 Female Participation in IS Education**

Next up, two papers focus on the critical issue of low female participation in information systems education.

In their paper “Engaging Government-Industry-University Partnerships to Further Gender Equity in STEM Workforce Education Through Technology and Information System Learning Tools,” Kirk Knestis, Joselina Cheng, Claire M. Fontaine, and Rebekah Feng describe the National Science Foundation (NSF) Innovative Technology Experiences for Students and Teachers (ITEST) funded STEM CareerBuilder Project. STEM CareerBuilder was designed to promote higher levels of engagement in the information and communication technology (ICT) field. The authors reflect on the process of establishing a multi-partner, cross-sector program, providing a roadmap that highlights challenges encountered and potential solutions.

In “Understanding Interest in Studying IT - ‘Desire for Change’ Among Adult Women,” Fanny Vainionpää, Tonja Molin-Juustila, and Leena Arhippainen explore the issue of female participation in information technology (IT) from a student perspective. Collecting data from students undertaking an introductory IT course, they uncover nine themes (interest, identity, potential of the field, study opportunities, important people, desire for change, information, high school influence, and nature of the field) associated with student enrollment motivation. Further, they identify similarities and differences in enrollment motivation depending on student age and gender that can be incorporated into future recruitment initiatives.

#### **3.3 Removing Barriers to Inclusion**

The second theme in this special issue evaluates barriers to inclusion in information systems education, with three papers analyzing how IS educators can lead efforts to increase participation in the field, particularly of under-represented groups and how technology can provide a bridge for social

inclusion. Curtis C. Cain's article, "A Shifting Research Agenda: Historically Black Colleges and Universities Must Prepare Students for Careers in Computing, Informatics, and Engineering," looks at the role of historically black colleges and universities (HBCUs) in introducing diverse students to computing and related fields and preparing them for modern workforces, enabled by technology. Cain presents an interesting partnership between Howard University, a HBCU, with Google, as an example of how similar colleges and universities may pursue cooperative agreements with industry leaders to encourage diverse groups to pursue majors in technology-related fields.

Safa'a AbuJarour continues this theme with her article, "Integration Through Education: Using ICT in Education to Promote the Social Inclusion of Refugees in Germany," which evaluates how information and communication technologies (ICTs) may be used as a method of integration and social inclusion. Specifically, she conducts interviews with Syrian refugees settling in Germany, finding that education and e-learning are valuable tools for refugees, improving their ability to overcome challenges and become socially integrated with the host country. Recommendations are made for policy-makers to increase the availability of ICTs as a way of improving social inclusion for refugees.

Dinali Wijeratne and colleagues author the third article under this theme, "Learning Without Limits: Identifying the Barriers and Enablers to Equality, Diversity, and Inclusion in IS Education." While they find that inclusion remains a persistent problem in information systems, they find that educators have underdeveloped strategies to promote inclusion in the design and delivery of IS curriculum. They propose an innovative application of University Design for Learning, within the IS context, that is effective in developing more inclusive teaching practices. They provide recommendations for designing inclusive IS education at the undergraduate and graduate levels.

### **3.4 E-Learning and Emerging Technologies**

The third theme in this special issue addresses e-learning and emerging technologies and how these can be used to overcome issues related to EDI, with three papers addressing this topic.

The first of these, "Barriers to e-Learning During Crisis: A Capital Theory Perspective on Academic Adversity" by Xuefei "Nancy" Deng and Rui Sun, describes an in-depth analysis of the results of a study with 220 students. This paper was informed by capital theory analyzing the major barriers to e-learning. While technical barriers are often the sole area of focus, they are connected to other barriers presenting a multi-dimensional problem. The difficulty lies with how to overcome the new digital divide, beyond the technical, and they provide recommendations of increased instructor communication and investing in students' technical proficiency to address this issue.

Antonios Kaniadakis and Eranjan Udayanga Padumadasa in their paper ask "Can e-Learning Enable the Transition to University for Computing and Electronic Engineering Students from Low Socio-Economic Status? A Socio-Cultural Approach." This paper presents an ethnographic study of an e-learning initiative with students that currently hold Business and Technology Education Council (BTEC) qualifications. What makes this paper unique is their focus beyond the issue of access, looking into how students engage with e-learning.

Although the e-learning project analyzed in this study did not meet its intended outcomes, the paper highlights the need for programs to be correctly embedded within organizational structures and be aware of students transitioning from other pathways into university studies and their unique needs.

The third paper under this theme, "Supporting Inclusive Learning Using Chatbots? A Chatbot-Led Interview Study" by Sambhav Gupta and Yu Chen, highlights the challenges and opportunities that chatbots can bring to supporting inclusive university environments. The paper emphasizes the advantages of chatbots in supporting disadvantaged students through the provision of well-defined responses, because chatbots are accessible, interactive, and confidential. However, one drawback is that they currently lack interpersonal emotional communication skills which are beneficial to providing pastoral care for such students.

## **4. CONCLUSION**

EDI is more than just targets, numbers, or representation. It is about acknowledging the intersectionality of individuals and the role that they play within the higher educational sector. Our IS student community is richly diverse in so many ways – gender, sexuality, (dis)ability, culture, nationality, ethnicity, religious beliefs or non-beliefs, age, socio-economic status, professional background, and prior learning – and this is what makes teaching so challenging but at the same time so invigorating and interesting.

Equity is about just and fair inclusion of all, with an equitable organisation allowing everyone to participate and prosper. The goals of equity in the higher educational sector must build conditions that allow all students to reach their full potential. Diversity is about acknowledging individual differences, and the unique blend of skills, knowledge, and perspectives that people bring. Like many aspects of society, as diversity evolves and develops, so too does understanding. Inclusion relates to how we can maximise the benefits of diversity. An inclusive higher educational sector is one where diversity of its people is allowed to show.

As IS educators, it is incumbent on us to become informed about the EDI issues that our students are facing, and practical measures that can be taken to address those issues, rather than marginalized students continually having to "make noise" to be heard. All journeys begin with small steps. We hope that this special issue will contribute to improving the educational experience of IS students, especially those who have been disadvantaged and discriminated against by existing practices.

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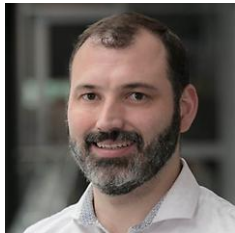
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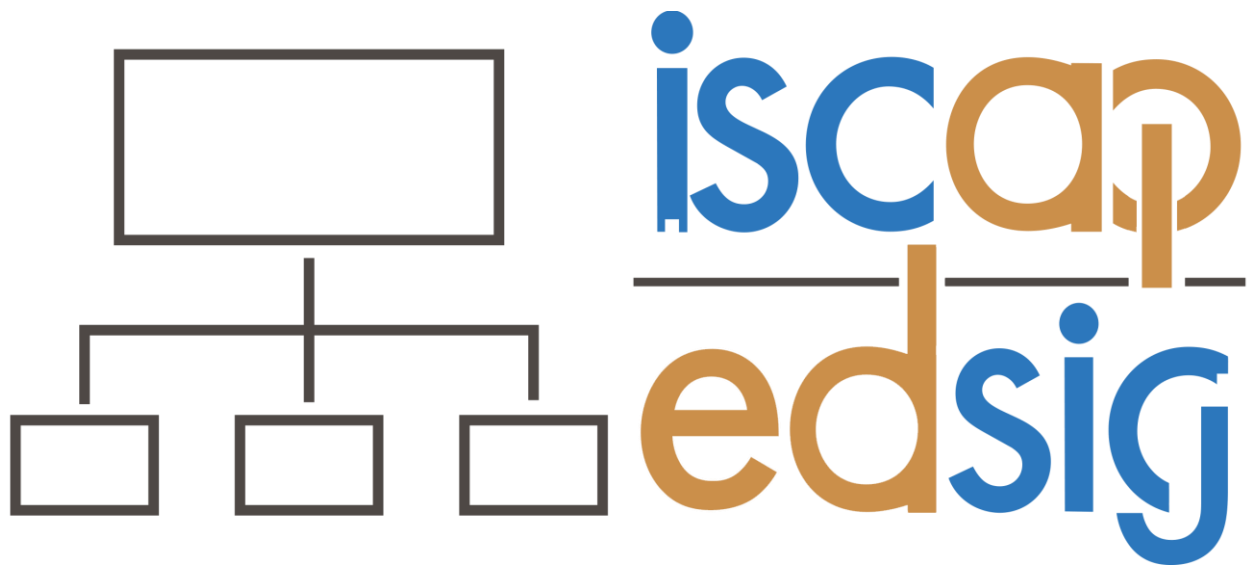


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