



RESEARCH ARTICLE

Towards more culturally inclusive domestic toilet facilities in Australia



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Abstract

The topics on toilets, defecation and perianal cleansing may be perceived as taboo subjects in daily discussions but are markedly important from health and hygienical perspectives. In multicultural countries like Australia, no research attention has been given to domestic toilet hygienical requirements from the perspective of the society's cultural traditions or religious teachings. The Western sitting lavatories with toilet paper facilities are the most common toilet systems available in Australian homes, which may be contradictory to persons coming from non-Western backgrounds. Squat latrines used widely in many Asian countries are acknowledged to be more conducive for maintaining a healthy bowel system, but are unattractive to Westerners and also unsuitable for those with physical disabilities. Similarly, water is regarded as the most hygienical option for perianal cleansing in many cultures but is rarely used in Western cultures. This paper investigates the experiences of seven Muslim families living in Brisbane with respect to whether or not the Australian toilet systems in their homes meet their personal and familial requirements. This paper further explores whether modifications were made to their domestic toilets to meet these essential needs. Some design recommendations are presented, which are based on the extant literature on this topic as well as the findings from this study. These design options provide an opportunity for future research focussed on a universal toilet design solution that is adaptable and able to meet the needs of all users, especially for those countries with a multicultural population.

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1. Introduction: current world toilet habits

Home design is a unique, collaborative yet challenging exercise for architects, designers and builders because it involves design issues relating to personal and familial spatial requirements. These spatial necessities include a

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balance of private and social spaces as well as functional rooms or utility spaces (Othman, 2016; Heathcote, 2012; Smith, 1994; Lawrence, 1987; Altman and Chemers, 1984). Many of these specific requirements are derived from various influences such as generational cohorts' preferences (Mollaie and Othman, 2013), cultural traditions (Altman and Chemers, 1984) or religious teachings (Omer, 2010). These influences are reflected in the various measures taken to achieve particular objectives, including extending hospitality, ensuring privacy and maintaining modesty (Othman et al., 2015, 2014a, 2014b).

Housing designs have transformed considerably over the centuries. Likewise, toilet designs have changed from ancient latrines with basic flush system (Cromwell, 2015; Koloski-Ostrow, 2015; French and Duffy, 2014; Samuels, 2014; Matsui et al., 2003; Pathak, 1995) to advance electronically powered sitting bidets (Cromwell, 2015; Gregory and James, 2006). These days, various versions of sitting and squat toilet designs are developed and manufactured by plumbing companies to meet with different needs from toilet users from diverse cultures and backgrounds (Gregory and James, 2006). Such products are now available to meet with the clients' specific needs. Squat latrines, for example, are still widely used, mainly in Asian countries such as in India, Malaysia, Japan and China because of their long cultural traditions of using this toilet system (Ling, 2015b). Mullick and Kumar (2012, p. 617) further developed possible inclusive universal and accessible squat latrines that "offers an ergonomic solution that helps maintaining comfortable squat posture throughout the defecation" and can be used by almost all users. Medical practitioners and researchers argue that the current Western sitting toilet design does not offer proper posture to complete defecation (Ling, 2015a; Sikirov, 2003; Rad, 2002, p. 116) Despite an estimation of 4 billion people (two-third of world population) who still use squat latrines, this toilet system is still relatively unknown to Westerners from countries like North America, Europe and Australia (Ling, 2015b).

Cultural traditions and religious teachings have significant influences in the design, location and the way users use the toilets. The Indian traditional *vaastu shastra*, for example, involves careful site planning and orientation of rooms prior to designing a home (Patra, 2009, 2006). In *vaastu shastra*, toilets are recommended to be built along the Northern and Southern axes and located towards the Western sides; avoiding constructing any toilets, septic tanks or kitchen towards the North East side (Patra, 2014, 2009, 2006). Traditional Buddhist's *feng shui* teachings on the other hand, recommend that toilets are not located at the centre of the house because it is considered as the central focus or heart of *chi* that provides balance and vitality of a family (Too, 1999). Physical hygiene and cleanliness at home are part of important doctrines in many cultural traditions and religious faiths. Many religions relate cleanliness as an embodiment to a person's 'moral-existential system' and spiritual purity (Preston and Ritter, 2012; Zhong et al., 2010; Zhong and Liljenquist, 2006; Looy, 2004; Rozin et al., 1999).

Water has been widely used for bodily cleansing as part of religious ritual washing and symbolises one's purification (e.g. Islam, Judaism and Zoroastrianism), sacredness (e.g. Hinduism and Shinto), wealth (e.g. Buddhism) and cleansing

of one's sin (or seeking spiritual refreshment and blessing) (e.g. Christianity) (Ahmad, 2015; Østergaard, 2012; Zhong et al., 2010; Abrams, 2003; Too, 1999). Toilet paper on the other hand, was initially used by the Chinese around 589 CE, as mentioned by Yan Zhitui, a Chinese scholar, painter and calligrapher (Needham, 1985). The use of toilet paper was only introduced to the Western countries in late 1800s (Cromwell, 2015; Ament, 2007). Joseph Gayetty first commercialised toilet paper in the United States in 1857, which was then followed by Zeth Wheeler who produced perforated toilet paper in 1871 and further by John Kimberly who established Kimberly-Clark Corporation in 1872 (Ament, 2007).

In recent years, a great deal of research focussing on the development of water-efficient and environmentally friendly toilets as well as more hygienical excreta disposal methods, especially in the third world countries (EOOS and The Water Engineering and Development Centre [WEDC], 2014; Ryoo et al., 2011). In 2001, the World Toilet Organization, a non-profit organization, was founded aiming to improve toilet and sanitation conditions across the globe (World Toilet Organization [WTO], 2015). World Toilet Day is celebrated on 19 November every year as an effort to raise this awareness on the importance on access to appropriate toilets and proper sanitation systems (World Toilet Organization [WTO], 2015). The "Reinvent The Toilet Challenge" was further initiated by Bill & Melinda Gates Foundation through the Water, Sanitation and Hygiene Program in 2011 aiming to provide better "sustainable sanitation solutions to the 2.5 billion people worldwide who do not have access to safe and affordable sanitation" (Bill and Melinda Gates Foundation, 2015; EOOS and The Water Engineering and Development Centre [WEDC], 2014, p. ii).

2. Research problem and aim

Australia has experienced a number of waves of human migration since the arrival of European settlers on The First Fleet at Botany Bay, Sydney on 24 January 1788 (Collingridge, 2008). This migration of people from various parts of the world has resulted in people bringing with them different cultural backgrounds, traditions, languages and religions (West and Murphy, 2010). At present, Australia's 23 million population consists of a multifaceted society with almost 300 different ancestries (Australian Bureau of Statistics [ABS], 2012a) and more than 300 different languages spoken (Australian Bureau of Statistics [ABS], 2012b). With the rapid transformation of Australian society, research is needed to provide new knowledge regarding social and cultural influences that affect the designs and suitability of Western domestic toilets for those of non-Western backgrounds living in Australia. This can contribute to the social sustainability measures to the current and future Australian housing system. Recent published research by this paper's authors in explored how Muslim families (Othman et al., 2014a) and international Muslim students (Othman et al., 2014b) in Brisbane live and adapt to the current Australian housing through the empirical tripartite principles of privacy, modesty and hospitality model. Another research examines the adaptability and livability

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