



Why HITnet kiosks didn't hit the mark for sexual health education of Western Australian Aboriginal youth

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Abstract

Objective: To assess the use, appropriateness of, and staff feedback on specific sexual health modules, which were installed on Heuristic Interactive Technology (HITnet) kiosks at Aboriginal Community Controlled Health Services (ACCHS). The HITnet kiosks were aimed at Aboriginal youth visiting these sites.

Methods: Modules on the HITnet kiosks were assessed for (1) cultural appropriateness using Yunkaporta's Aboriginal pedagogy framework and (2) compliance with the World Health Organization's (WHO) advice on key elements for comprehensive sexual health education for young people. Data measuring kiosk use were obtained through HITnet kiosk activity reports. An online survey of ACCHS staff was used to qualitatively assess use of, and staff perceptions of, HITnet kiosks.

Results: Kiosk modules were consistent with seven of the eight elements of Yunkaporta's framework and all of the WHO recommendations. The most popular module generated 3,066 purposeful sessions and the least popular module generated 724 purposeful sessions across nine sites in 2012. While teenagers were the most frequent of the kiosk user groups (39.5% in 2012), the majority of users (56%) were not in the target group (i.e. elders 4%, adults 25%, children 27%). Key issues reported by ACCHS staff (n=11) included: lack of clarity regarding staff responsibility for overseeing kiosk functionality; kiosks attracting "inappropriate ages"; and "lack of privacy" based on kiosk location, screen visibility, and absence of headphones preventing discreet access.

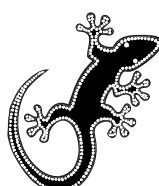
Conclusions: The modules were tailored to a young Aboriginal audience through technology thought to be appealing to this group. However, barriers to use of the kiosk included kiosk design features, location, and lack of clarity around responsibility for kiosk operation.

Implications: Aboriginal youth need easy access to sexual health messages in a 'safe', non-judgmental space. Information and communication that is accessible via personal and mobile devices may be a better vehicle than public kiosks.

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Introduction

Within the Australian context, health promotion has traditionally used a unidirectional approach for engaging audiences, through printed material, pamphlets and advertisements [1, 2]. Recent technological advances and social media have created opportunities for audiences to be engaged in a multidirectional interaction of sharing tailor-made information [1, 2].

In 2007, the Western Australian Department of Health (WA Health) identified the need for a sexual health education strategy, which would meet the needs of Aboriginal young people to make better informed choices about their sexual behaviour. At that time, rates of sexually transmitted infections (STIs) were disproportionately high among Aboriginal youth in rural and remote areas. Chlamydia notification rates among 15 to 19 year old Aboriginal people living in the Goldfields were 8,898 per 100,000 population and, in the Kimberley, were 8,333 per 100,000 population [3]. This was around six times the overall rate for Western Australians in that age group.

School-based sexual health education in WA is generally compromised by the fact that sexual health education is not compulsory in state government, Catholic, and independent schools. Among schools that do include sexual health education, there is variable quality and comprehensiveness, sometimes not reaching students who need it the most due to low school attendance rates, particularly in many rural and remote areas.

In 2007, Heuristic Interactive Technology (HITnet) kiosks, presented a novel opportunity for delivering consistent, evidence-based, engaging and visually appealing sexual health messages to Aboriginal young people. Pictured in Figure 1, the kiosks are developed by HITnet Innovations, and aim to bridge the digital divide for those marginalised by distance, culture, or socio-economic disadvantage [4]. These kiosks promote autonomous, intuitive learning through tailor-made interactive content, targeting a range of health issues, including sexual health [4].



Figure 1: Image of the HITnet Kiosks implemented into ACCHSs across WA

Between 2007 and 2010, WA Health purchased ten HITnet kiosks for Aboriginal Community Controlled Health Services (ACCHSs), located in Balgo, Broome, Geraldton, Halls Creek, Jigalong, Kalgoorlie, Kiwirrkura, Kununurra, Roebourne, and Wiluna [5]. These kiosks featured a large touch screen and speakers, with four sexual health modules specifically designed for young Aboriginal people. These modules were:

- *Condoman* (animated module about using condoms to reduce the spread of sexually transmissible infections and HIV, and prevent unplanned pregnancies)
- *Kaiyai girl* (filmed in the town of Broome with local actors showing how drugs and alcohol can affect decision making and personal control)
- *Let's talk about sex* (filmed in Perth with local actors and addresses issues surrounding teenage sexuality, puberty, relationships, STIs and pregnancy), and
- *Risky business* (animated module about the risks associated with unsafe sex) [5].

In assessing the validity of this initiative, this paper will firstly review the HITnet kiosks with respect to their adherence to Aboriginal learning principles and the World Health Organization's advice on key elements for comprehensive sexual health education for young people. The paper will then present the findings of an evaluation examining the impact of HITnet kiosks in host ACCHSs.

Analysis of the HITnet Kiosks with respect to learning principles

HITnet's stated objective is to "[empower] marginalised communities by co-creating and disseminating culturally targeted information through an evolving digital ecosystem" [5]. Within this context, the cultural appropriateness of this digital medium will be assessed against the '8 ways' framework developed by Yunkaporta [6, 7]. This framework was chosen because it provides a comprehensive amalgamation of themes that Yunkaporta identified through a review of existing pedagogical literature pertaining to international indigenous populations.

Figure 2: '8 ways' Aboriginal pedagogy framework [6, 7]

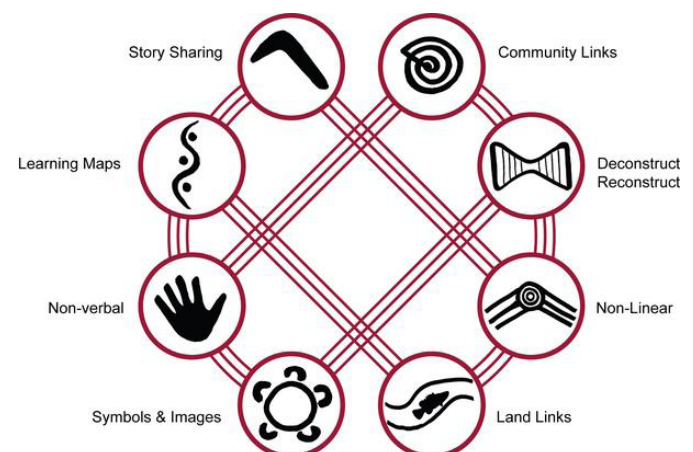


Table 1. Features of the '8 ways' Aboriginal pedagogy that are demonstrated in HITNet kiosk sexual health modules

'8 ways' Aboriginal pedagogy framework	Examples of how HITNet kiosk sexual health modules demonstrate these features
Story sharing: exchanging narratives as a form of knowledge transmission.	The <i>Risky business</i> modules used voice-over narratives to share the stories of animated Aboriginal characters. For instance, "Elvis often uses drugs when he parties. He works in the mines. He's well paid and gets good holidays so he goes to places like Thailand and Bali ..." and "Trace is a bit of rager. Comes from a hard background ... She was young and beautiful but easy. That's why Jono and the others were taking advantage of her".
Non-verbal learning: using body language such as gestures and expressions, and can include kinaesthetic (hands-on) activities.	The interactive nature of HITnet kiosks encouraged users to learn kinaesthetically (through 'doing'), instead of simply listening to pre-recorded information. Users chose which actions various characters in the modules would take and saw the consequences of these actions played out on the screen. They could then choose an alternative action and compare the consequences of each option.
Non-linear approaches: learning through "a complex cycle of learning composed of multiple processes that occur continuously", rather than with a fixed start and end [7].	Kiosks did not provide all users with a single curriculum comprising a fixed start- and end-point. Instead, the kiosks allowed users to choose from a range of modules and intra-module pathways depending on their own interests, knowledge, attitudes and readiness to engage with a subject. Thus, following a teen party scene in the <i>Kaiyai girl</i> module, a user could be presented with one of four alternative scenes based on their own choices – namely, (A) Missy didn't have sex; (B) Missy had sex with a condom; (C) Missy had sex with no condom but worried; and (D) Missy had sex with no condom and no care.
Community links: using acquired knowledge for the benefit of the broader community to which the learner belongs.	The kiosks were located in community controlled spaces and contained a number of messages highlighting the importance of the information to the broader Aboriginal community. For example, in the <i>Condoman</i> module the superhero explained, "My Indigenous brothers and sisters back home in Australia are in great danger and I have been sent to save them". In <i>Kaiyai girl</i> an aunty and uncle provided sexual health advice to the characters in their capacity as respected community members.
Symbols and images: conveying concepts and ideas visual-spatially.	All modules featured Aboriginal characters and Aboriginal-inspired artwork to increase the salience of the messages for the target audience.
Land links: relating lesson content back to the learner's local environment in recognition of the ancestral and personal significance of place.	<i>Kaiyai girl</i> and <i>Let's talk about sex</i> were filmed in Western Australia (Broome and Perth, respectively). As a consequence, some kiosk users would have been able to personally identify with the places and landmarks featured in the modules, such as the 'condom trees' in <i>Kaiyai Girl</i> . Given the state-wide dissemination of the modules, no specific community's ancestral links to land were showcased.
Deconstruct / reconstruct: acknowledging that "Aboriginal students master activities and texts beginning with the whole structure, rather than a series of sequenced steps" [7].	Information about sexual health was embedded in whole stories, rather than presented as a series of lessons' about contraception, STIs etc.
Learning maps: a technique used to assist people to visualise "where they are and where they are going in their [learning] journey" [6].	No example.

Figure 2 visually depicts Yunkaporta's framework, which provides a tool box of approaches that may be used individually or in combination to enhance learning experiences. While acknowledging that the '8 ways' are both informed by, and support Aboriginal approaches to "knowing, being, doing, valuing and learning", Yunkaporta also recognises that the framework shares common ground with other learning approaches, including those traditionally associated with mainstream populations [7]. For instance, a large degree of overlap can be observed when one compares the '8 ways' framework with Knowles' principles of adult learning, which emphasises that learning should centre on experiential methods. These include discussion and simulation, and are sequenced in a way that is tailored to the needs of the

learner with clear real-world application [8].

Table 1 summarises the '8 ways' framework, and provides examples of how HITnet kiosk sexual health modules aligned with the framework.

The package of modules was also consistent with World Health Organization advice on key elements for comprehensive sexual health education for young people [8]. Table 2 below provides examples of how the modules incorporated each element.

The package of modules incorporated seven of the eight 'ways of learning' proposed by Yunkaporta and all of the WHO key elements for comprehensive sexual health education. It is therefore

Table 2: Features of WHO key elements for comprehensive sexual health education [8] demonstrated in HITnet kiosk sexual health modules

Key element	Examples of how HITNet kiosk sexual health modules demonstrate these features
Information about prevention of STIs and HIV, contraception, and the mechanics of fertility and reproduction	All modules discussed prevention of STIs and/or unplanned pregnancy.
Information about the role of pleasure, eroticism and satisfaction	In the <i>Kaiyai girl</i> module the main female character discusses a positive sexual experience in which a condom was used between consenting parties.
Discussion of gender differences and inequalities and human rights, and about the negative and positive effects of gender norms	The <i>Kaiyai girl</i> module featured a talk by an 'aunty' about the right to say 'no', resist pressure and "be the boss of your own body". One of the female characters discussed whether having condoms makes a woman look "easy". The <i>Risky Business</i> module featured a female character who was taken advantage of by men and had an unplanned pregnancy: "She never uses condoms. Doesn't want them to get sick of her – that's why."
Information on the importance of responsibility and joint decision-making, and training in communication and negotiation skills	The <i>Kaiyai girl</i> module featured a talk by an 'uncle' about safe sex: "It takes a real man to take responsibility – safety first." There was also a scene in which peers discussed the use of contraception in front of a 'condom tree', and female characters helped themselves to condoms. Later one of the female characters asked a sexual partner to use a condom.
Information on sexual and gender identity and sexual choice	The <i>Kaiyai girl</i> module featured a same-sex attracted male Aboriginal character. The <i>Condoman</i> module featured a sub-plot with two same-sex attracted male characters.

theoretically plausible that the modules should be effective at conveying sexual health messages to an Aboriginal target audience. The next section of this paper explores this hypothesis using data from a recent evaluation of HITnet kiosks.

Summary of 'Evaluation of the HITnet kiosks provided to Aboriginal community controlled Health services in Western Australia'

Between 2007 and 2010, 10 HITnet kiosks were purchased by WA Health and disseminated to ACCHSs across WA. The initiative required a significant financial investment (initial capital cost in excess of \$10,000 per unit, excluding maintenance). WA Health Sexual Health and Blood-borne Virus Program evaluated the program in 2013 in order to assess its effectiveness and inform decisions around future investment. The findings in this section are drawn from the evaluation report [5]. The purpose of the evaluation was to determine the appropriateness of the kiosks and investigate the question: 'How do patients at the ACCHSs engage with the HITnet kiosks, and how do staff perceive the kiosks in terms of appropriateness?'

The evaluation adopted two approaches to address the question; firstly, an analysis of automatically generated HITnet kiosk data reports on the use of all sexual health modules, and secondly, an online survey of ACCHS staff. The evaluation team were unable to conduct focus group interviews with ACCHS staff and clients due to difficulties in recruiting an appropriate sample during the data collection phase. The Western Australian Aboriginal Health Ethics Committee, and the Kimberley Aboriginal Health Planning Forum Research Subcommittee approved this evaluation.

The online survey was distributed to the ACCHSs, with 11 employees from four ACCHSs completing the survey. No responses were obtained from the other six ACCHSs despite multiple invitations to participate. Of the 11 employees that completed the survey, four were Aboriginal health workers, five were either nurses or doctors, and two were management staff. Seven (64%) respondents reported that they did not know who was responsible for reporting technical problems with the kiosks. Respondents primarily reported that the HITnet kiosks were located in the clinic waiting room (82%), with two respondents reporting the reception area or other clinic areas as alternative locations. Seventy three percent of respondents reported that "there are usually many people located in the area where the HITnet machine is located", and 64% reported that the HITnet kiosks were in the best location and were used at least once a day. There were no responses to the survey item, "If you think the HITnet is not needed, please explain why."

Despite the respondents' views that the kiosks were well situated, HITnet kiosk reports suggested that the machines were underutilised. For nine of the sites, HITnet kiosk reports provided data that were collected when the kiosks were active (i.e. turned on), and when clients were interacting with the kiosks (data reports were unable to be generated for the tenth site). HITnet kiosk users were required to enter their sex (male or female), and age group (child, 0 to 12 years; teen, 13 to 19 years; adult, 20 to 39 years; elder, 40 years and over) before interacting with a module. HITnet Innovations staff extracted these data from the kiosk via an internet server, or manually in areas where internet access was limited.

Purposeful sessions are those in which the user had meaningful engagement with the module, as tracked by their interaction and determined by an algorithm in the software program of the kiosk. In 2011, the number of days in which at least one purposeful session was recorded on a HITnet kiosk ranged from 15 to 271 days (see Figure 2). The median was 146 days across all nine locations, which is the equivalent of about five months per year. In 2012, this increased by 31% to a median of 191 days per location.

The median number of purposeful sessions (1,949 in 2011; 1,937 in 2012), and the average session time spent on the kiosk (8 mins 39 sec in 2011; 8 mins 27 sec in 2012) was similar in 2011 and 2012. *Kaiyai girl* was the most popular module, generating a total of 3,066 purposeful sessions across nine sites in 2012 (i.e. an average of 1.36 sessions in each site per working day). Other modules generated fewer purposeful sessions: *Condoman* (1,205 purposeful sessions), *Let's talk about sex* (980 purposeful sessions), and *Risky business* (724 purposeful sessions) (see Figure 3).

There are a number of possible reasons for the low number of purposeful sessions. Users were required to enter their age group into the kiosk and the kiosk reports showed that while teenagers were the most frequent of all the user groups (39.5% in 2012), the majority of users (56%) were not in the target group (i.e. elders 4%, adults 25%, children 27%). These users were perhaps less likely to be engaged by the module content, or less skilled in the use of kiosk technology. In the survey, two respondents cited "attracts inappropriate ages" as a potential deterrent to kiosk use. As each site only had one kiosk, inappropriate use (e.g. children 'playing' with the kiosk) carried an opportunity cost, in the sense that it may have prevented the target audience from using HITnet.

One respondent also cited "lack of privacy" as a potential deterrent to use. The size of the kiosks, and the prominence of their location in publicly accessible areas of ACCHSs, had the potential to allow people other than the users to see the screen. Furthermore, in order for the HITnet kiosk to be accessible to people with poor hearing, it was necessary for the volume of the speakers to be loud. Thus privacy was further compromised, as the volume of the kiosks also allowed people other than the user to hear the audio of the modules accessed. These factors may have prevented potential

Figure 2: Number days kiosks were active, per location, 2011 and 2012

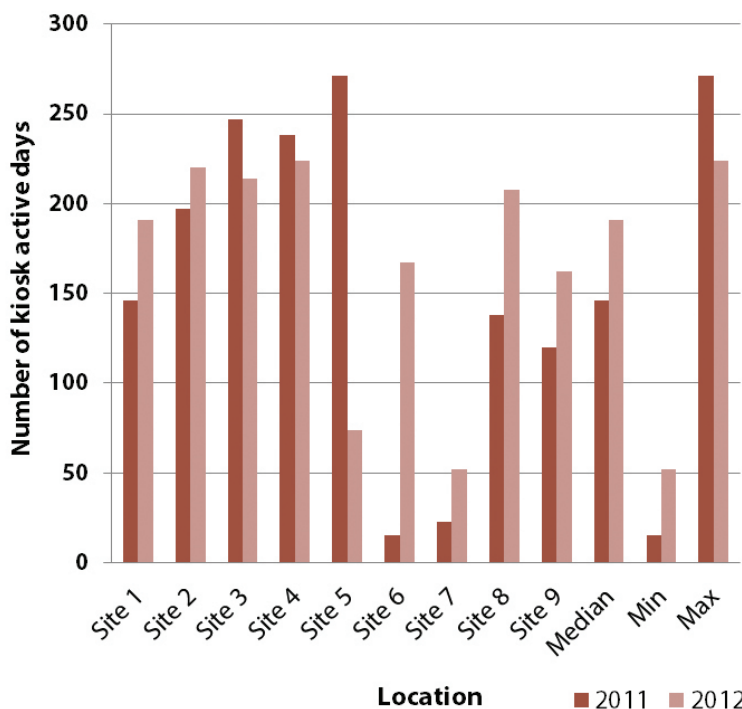
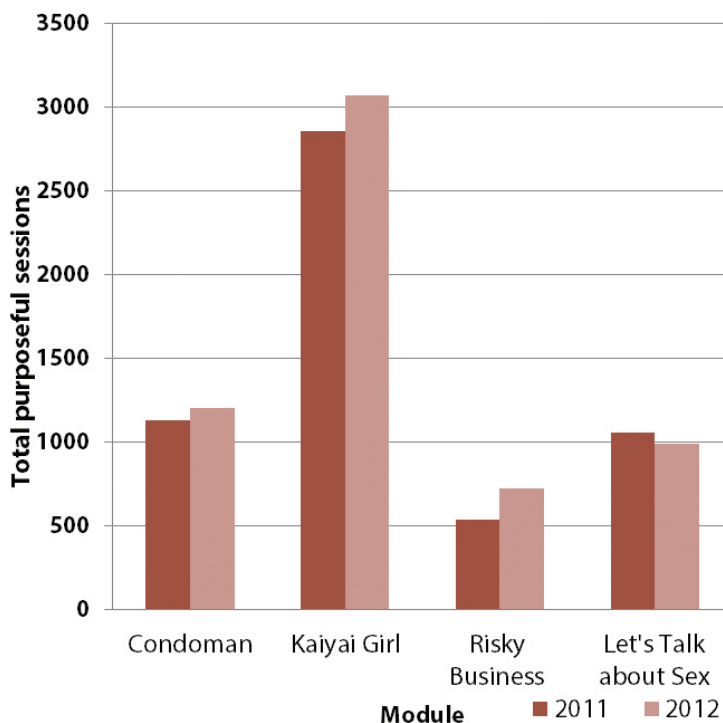


Figure 3: Total number of purposeful sessions in all locations, per module, 2011, 2012



users from using the HITnet kiosks, and/or limited the amount of time spent on the kiosk. Additional barriers that were cited regarding kiosk use included: "low literacy" (one respondent); and "unaware of purpose" (one respondent).

Discussion and Conclusion

This is the first known published study to examine the effectiveness of the HITnet technology with respect to sexual health messaging in the Western Australian Aboriginal context. Although HITnet kiosks met seven of eight 'ways of learning,' and had the potential to be a successful health promotion strategy in Aboriginal community settings, their use in WA ACCHS sites was low. The findings suggest that while the modules were tailored to a young Aboriginal audience aged 16 years and over, through the use of technology thought to be appealing to this target group, a number of factors may have impeded the efficacy of the intervention. First, the kiosks were frequently switched off, and in some ACCHSs there was lack of clarity about who was responsible for ensuring kiosks were operational. Second, the kiosks were able to be used by people who did not belong to the target group (e.g. young children, non-Aboriginal people), and this may have impacted on the ability of the target population (particularly Aboriginal teenagers) to access the kiosks. Third, the kiosks were located in prominent locations. When combined with design features such as large screens and an absence of headphones, kiosk location may have deterred the target audience from using the kiosks to learn about sensitive subject matter.

WA Health's decision to use HITnet kiosks was an attempt to fill a knowledge gap among Aboriginal young people living in rural areas. This decision was based on theoretical understandings of culturally appropriate learning strategies, and an appraisal of available technology that could be used to fill the knowledge gap in the context of resource constraints. This paper has scrutinised empirically the appropriateness of the HITnet technology in imparting sexual health messages to the target population. The lessons learned will be used by WA Health to inform future practice and service planning in this under-researched space.

The HITnet kiosk reports need to be interpreted with caution because the age and sex of kiosk users was self-reported and may not have accurately reflected the demographic of actual users. In addition, the kiosks did not record Aboriginality, whether the user of the kiosk was a first-time or repeat user, or whether the user was a client or ACCHS staff member. Correspondingly, the small sample size of the online survey may limit the generalisability of these findings.

The generalisability of the findings may also be limited by the fact that audio jacks have been added to newer model HITnet machines to enable headphone usage. Kiosks have also been further developed to become 'Community Hub' kiosks, which include

apps and content capabilities that are downloadable to personal devices. Local community content also has the capacity to now be uploaded using social media. Health Worker training modules have also been developed. These improvements have the potential to increase the extent to which the kiosks are utilised.

Future research should examine the experiences of organisations that have adopted newer versions of this technology. The fast-changing nature of technology means that seemingly innovative methods can quickly become obsolete or irrelevant as new products emerge [10]. It is important to note that while HITnet kiosks were at the cutting edge of health promotion technology when purchased by WA Health, there has since been a rapid growth in social media, personal communication and mobile technologies. These technologies allow information to be accessed in a private manner, personalising the experience for the user and enabling real-time communication with other users.

There remains an urgent need to find innovative solutions to disseminate sexual health messages to young Aboriginal people in Western Australia. The Aboriginal to non-Aboriginal rate ratio for chlamydia notifications among 15-19 years olds remains high. In 2013, the rate ratio was 4.9 in the Goldfields, 7.1 in the Kimberley, 6.0 in the Mid-West and 4.9 in the Pilbara regions of Western Australia [11]. Furthermore, 15 to 19 year olds comprise the majority of cases in a syphilis outbreak currently spreading across in northern Australian Aboriginal communities [12].

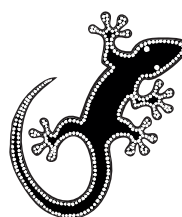
Social media initiatives provide a unique opportunity for future health promotion strategies, particularly with respect to sensitive subjects such as sexual health. This is because they can reach audiences in a way that is personalised, private, instantaneous, interactive, and relatively affordable. Emerging research suggests that Aboriginal people, including those living in remote areas, have a high uptake of social media [13]. Social media may serve as an effective alternative to HITnet kiosks, especially with respect to sexual health messaging. However, more research is needed to ascertain the channels through which young Aboriginal people engage with new and emerging technologies to access and communicate sexual health information.

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