Using Cluster Analysis to Profile Adolescent Media Use and Exploring the Relations

to Risk Behaviours: The Moderating Role of Age and Gender.

Antoinette Geagea

Bachelor of Arts in Psychology with Honours

Murdoch University

This thesis is presented in partial fulfilment of the requirements for the degree of

Bachelor of Arts (Honours), Murdoch University, 2012

I declare that this thesis is my own account of my research and contains, as its main content, work which has not been previously submitted for a degree at any tertiary education institution.

_____

Full Name of Degree: Bachelor of Arts in Psychology with Honours

Thesis Title: Using Cluster Analysis to Profile Adolescent Media Use and Exploring

the Relation to Risk Behaviours: The Moderating Role of Age and Gender.

Author: Antoinette Geagea

Year: 2012

Acknowledgements

I thank Almighty God for giving me the courage to undertake this degree, the clarity to write this thesis and the strength to persevere when the emotional tank was empty.

A special thanks to my supervisor, Bonnie Barber, who continually provided valuable time, support, guidance and encouragement of my ideas and writing throughout the thesis process. She handled the tears, panic and ramblings with sensitivity and humour.

My thanks to Stuart Watson for his generous help reading the ramblings of a mad woman and helping to turn them into coherent and intelligent ideas. Thanks also to Lyn Vernon for her support and help when my analyses was all very confused and wrong.

Thanks also to my family who encouraged and supported my decision to study and gave me space to get on with it at the expense of time spent with them.

A special thanks to Antonia Korn and Angus Baird for helping me understand the world of adolescent media use.

Finally and most importantly, thanks to my partner, Stuart Bailey for making it possible for me to pursue my dreams. His love, support and encouragement throughout my years of study kept me mentally focused and emotionally stable during the worst times. I hope I have made him proud.

Table of Contents

Abstract

This study examined how profiles of adolescent media use including TV viewing, console and online games, and internet use including social networking, were linked to risk behaviours. A sample of 960 year ten and 475 year twelve students from Western Australian schools responded to a computer-administered, self -report survey. Cluster analysis was used to group students into three media-use profiles labelled as TV & Games, Low Use and SNS & Internet. Differences among these media use profiles in alcohol use and delinquency were tested. The findings indicated significant media profile differences in alcohol use and delinquency. The TV & Games profile used alcohol and engaged in delinquency behaviours more than the SNS & Internet and Low Use profiles. Both year level and gender moderated the relations. There were a significant minority of adolescents who consumed media excessively and showed higher levels of alcohol use and delinquency behaviours. Boys in TV & Games and girls in SNS & Internet profiles at year 12 reported the highest rates of risk behaviours. The Low Use profile reported the lowest rates of risk behaviours across both year levels and genders.

Keywords: cluster, adolescents, media use, risk, alcohol, profiles.

Using Cluster Analysis to Profile Adolescent Media Use and Exploring the Relations

to Risk Behaviours: The Moderating Role of Age and Gender.

In the 21st century, adolescents live in an environment saturated with

technology and media. There are concerns that this media saturation leads to risk

behaviour and consequently has detrimental effects on psychological development

and wellbeing (Brown & Bobkowski, 2011; Gross, Juvonen, & Gable, 2002; Lee &

Chae, 2007). Identifying whether particular forms of media influence adolescents'

behaviour is an important goal for parents, researchers and policymakers. Literature

to date suggests that some types of media influence behaviour more than others with

television viewing as the most empirically researched medium (Barnes, Hoffman,

Welte, Farrell, & Dintcheff, 2007).

Much of the prior research on media use has examined individual media

types such as TV or game playing and tested links between frequency or hours of use

and a range of outcomes. This type of approach has been described as "variable

focused" because it studies relationships between variables, and does not consider

the patterns of co-occurrence of those variables that exist in sub-groups of people.

There has been scant research focused on more complex representations of how

today's youth are using media. Contemporary adolescents use many types of media

in various combinations to satisfy growing appetites for information, leisure and

communication. To capture these possible patterns, a "person-focused" approach can

be used (Peck, Vida, & Eccles, 2008) to explore constellations of media use which

may enhance understanding of media – related effects on adolescent risk behaviour

and reveal particular media-use profiles that are more vulnerable to risk behaviour.

Media Use

Electronic media use has become an important social factor in today's society due to its unprecedented growth, prevalence and pervasiveness. The globalisation of information and online communication has brought media users together at a level of connectedness and interaction not seen before. Media use is interactive, multi-modal, mobile and multi-domain and has removed the limitations of time and space that previously bound young people to their local environment. Social media have been posited as an influential player in the promotion and establishment of norms in adolescent risk taking behaviours (Larson, Wilson, & Rickman, 2009; Moreno, 2010) by extending adolescents' access to behavioural models far beyond the proximal influences of parents and offline peer groups.

The prevalence of media use. In 2007, it was estimated that Australian adolescents enjoyed an average of seven hours of total discretionary time per day. During this discretionary time, they spent a total of about five hours per day consuming media (Australian Communications and Media Authority, 2010). These media included TV content such as live free to air and pay TV, movies (DVDs on TV, Xbox etc) or online; computer use for offline activities like single/dual user games, handheld games (Nintendo DS) and online games such as World of Warcraft and other multiplayer games, characterised as TV & Games (screen-based viewing and gaming). Social networking sites (SNS) include Face book, my Space, Twitter; email, chatting and instant messaging (IMS) are generally considered to be communications activities. News and current affairs; e-book reading; YouTube and music (includes other audio content) via internet, MP3, IPOD or computer; surfing for personal interests, information and purchasing, are grouped as internet information and downloading is usually noted as internet surfing. These media

activities can be accessed simultaneously (e.g. TV viewing, social networking and instant messaging) and when multi-tasking is taken into account, usage increases to approximately 7 hours per day (Brown & Bobkowski, 2011). The concurrent use of specific activities, although not a dedicated diet, appears to reveal a pattern or profile of use.

Media use has been blamed for many social problems such as increased social violence and aggression which has been proposed as an externalising behaviour arising from playing computer games, TV and movie viewing. Anderson and Bushman (2001) suggested that violence viewing in media has been found to affect behaviour by influencing the creation of cognitive schemas as guides to action when that cue operates in a relevant situation (Anderson & Bushman, 2001; Roberts, Henriksen, & Foehr, 2009). Strasburger (2004) used the Instigation and Cue theory (Berkowitz, 1990) to guide the understanding of what influences or inhibits certain behaviours. This model suggests that the schemas are activated when the real life situation appears to justify violence and is efficacious such that it is rewarded or does not attract negative consequences. If it is useful, relevant to the individual, and is socially normative, it is more likely to cue aggressive behaviour (Farrington, 2004). Research to date has found that violence and antisocial content in media is presented in a sanitised, humorous or glamorous way (Strasburger, Jordan, & Donnerstein, 2010) which has behavioural effects such as desensitisation to violence and greater acceptance of antisocial norms in children and adolescents (Anderson & Bushman, 2001; Gentile, Anderson, Yukawa, Ihori, & Saleem, 2009; Strasburger, 2004). Conversely, a recent 2010 study by Ferguson which investigated delinquency and violent games use, found that use of this medium did not predict delinquency. Trait aggression, stress and family support were found to be influential factors in risk

behaviour and delinquency, not video games with violent content (Ferguson, 2010).

The literature remains equivocal on these findings and current research is required to

explore the contributions that clustered media domains (e.g. TV and games or social

networking sites and TV) may make to these externalising behaviours.

Increased social isolation and depression from frequent and heavy use of the

internet (Larson, 2001; Ohannessian, 2009) was supported by early studies from

Kraut et al. (1998) who showed children who used the internet (as little as 3 hours

weekly) reported higher levels of depression, lower levels of social connectedness

and increased social isolation (Kraut et al., 1998; Richards, McGee, Williams,

Welch, & Hancox, 2010). However, research has also reported a positive association

between media use (e.g. games, education) and family connectedness (Durkin &

Barber, 2002; Mesch, 2003). Specifically, Durkin et al (2002) found game players to

have lower levels of substance use, higher levels of self-esteem, higher school

attachment and closer family relationships in comparison to those who did not play

computer games. They found little evidence that game playing is associated with

negative psychological outcomes. Recent studies by Johnson (2010) reported that

children learned social skills from using email which increased social contact and

connectedness in their offline peer group while other studies showed that online

children demonstrated better language and more sophisticated meta-cognition than

offline children (Johnson, 2010; Valkenburg & Peter, 2007). Ohannessian (2009)

suggested that media use can serve as a protective factor for adolescents at risk of

negative psychological effects from isolation, abuse and dysfunctional family

situations. This protection comes in the form of online community support and

advice, escapist game playing or internet surfing by disengaging from the problem as

a coping strategy. The potential protective effects of media use for adolescents remain largely unexplored to date (Ohannessian, 2009).

Recent research has suggested that electronic media use, including television, is the most prevalent source of information, social attitudes and behavioural norms in society today (Strasburger et al., 2010). These sources have become avenues for information not previously available elsewhere in their offline world and are freely accessible little restriction or sanction (Flanagin, 2001). Media use forms an important part of the inventory of influential factors (DiClemente, Santelli, & Crosby, 2009; Johnson & Puplampu, 2008; Lloyd, 2002) in adolescent risk behaviours. Using Bandura's (1977) social learning theory, it has been proposed that behaviour learned directly and vicariously through media models, provides opportunities and reinforcements for adolescent participation in risk taking behaviours (Bandura, 1977, 2001; Igra & Irwin, 1996). These models of social behaviour, values and thinking have the power to create, shape and change the perceptions of what is normal behaviour in adolescents' personal and social context. Strasburger et al. (2010) characterised media as a 'super-peer' (Lloyd, 2002; Strasburger, 2004; Strasburger et al., 2010) with influence and power far more extensive and far reaching than conventional peers. This 'super- peer' offers adolescents glimpses into the adult world and provides 'normative' scripts for dealing with unfamiliar situations and emerging issues such as alcohol use, social behaviours and stress coping techniques that may not be readily available from peers or adult caregivers (Strasburger et al., 2010).

Modelled risk behaviour in media. An important milestone in adolescent development is identity formation. Media offer neutral, non authoritarian venues to gather both information and misinformation when seeking guidance on identity

exploration and formation. Today's adolescents look to online social network sites for shared opportunities for self expression, peer communication and ongoing feedback. These sites have become a platform for exploration and experimentation in a variety of behaviours, some risky, that form the normal transitional process to adulthood. However, when this experimentation becomes maladaptive and translates into a pattern of risky behaviours, it can compromise identity formation (Moreno, 2010). Recent studies have shown that social network sites have quickly become the forum for the disclosure and promotion of risk behaviours such as substance use, sexual activity and delinquency (Moreno, Parks, Zimmerman, Brito, & Christakis, 2009). These forums may have become the platform on which adolescents discuss engagement or intention to engage in risk behaviours. The Media Practice Model (Brown, 2006) identifies key factors in adolescents' use of media and argues that adolescents choose and use media based on who they are, or want to be, as part of their identity formation process. This model proposed that self disclosure, despite the questionable accuracy and reality of such information, made on social media sites, may act as an influential peer and may reflect what adolescents are actually doing in their offline life, or what they intend to do. In turn, the displayed information can influence peers to perceive the behaviours as normative and established (Moreno, 2010). For example, alcohol use reported on social network sites like Facebook influences alcohol use offline and conversely, offline alcohol use influences the rate of online self disclosure (Epstein, 2011; Moreno, 2010). Alcohol references on SNS , reported as high as 40% (Strasburger et al., 2010) can promote the illusion that drinking is without risk and may influence alcohol initiation - a process known as media cultivation (Bonomo, Bowes, Coffey, Carlin, & Patton, 2004; Stefanone, Lackaff, & Rosen, 2010).

Age, gender and patterns of media use. Large studies by Foehr et al. (2005) on media use by US children and adolescents reported that the amount of media adolescents consume varies substantially by age. The study found that 11 to 18-year-old groups are using media the most, up to nearly 12 hours per day with boys exposed to approximately one hour more each day than girls, most of the difference arising from console and online video games (Cummings & Vandewater, 2007; Foehr, Rideout, & Roberts, 2005; Rideout, Foehr, & Roberts, 2010; Willoughby, 2008). Boys also watch more TV than girls (Ohannessian, 2009) while girls spend more time than boys on networking, emailing and chatting online (Willoughby, 2008).

The use of television tends to decline at mid adolescence (Marshall, Biddle, Sallis, McKenzie, & Conway, 2002). The explanation proposed for this decline is that in their quest for autonomy, older adolescents begin to engage in more solitary, or peer related activities away from the family group (Chapin, 2000), such as internet TV viewing, online movies or music. Different media serves different social and psychological functions at various stages of adolescent development (Fine, Mortimer, & Roberts, 1990). Larson et al. (1996) found that different media use was a function of age. TV viewing, which may be seen as a 'family' domain, usually involving parents and younger adolescents, whereas older adolescents spent more time listening to music, email, instant messaging, chatting and social networking as an 'autonomous' pursuit alone or with same age peers in their bedrooms (Chapin, 2000; Larson et al., 2009; Rideout et al., 2010).

Age differences were found to exist in the types of media consumed by adolescents as reported by Australian Communications and Media Authority in 2010 which looked at a comparison between Australian and US youth media use.

The report identified the most commonly used media as TV and other screen based viewing (32%), instant messaging (23 %), console and online gaming (19%) and social networking (14%). Differences were reported between 12 to 14 year olds who consumed media at a lower average of 1.5 hours per day than older users (15-18) who averaged a significantly higher amount of 2.5 hours per day (ACMA, 2010).

Gender differences were reported for media use. Games use was cited as more popular with boys while girls use the communication domains e.g. email and instant messaging significantly more than boys (AMCA, 2010; Willoughby, 2008). Within - group age differences were also found such that older boys showed more online multi-player games than younger aged boys, with gender differences also reported for online games, where boys showed significantly more time and incidence in playing online games than girls with an average of 1 hour and 47 minutes for boys compared to 55 minutes for girl players. These age and gender differences in media use support the premise that solitary and autonomous activities in later adolescence are undertaken as an individuation process from family activities which is considered a key developmental task in adolescent maturation (Chapin, 2000; Larson et al., 2009).

Prior research has exhaustively investigated television as the predominant media domain that influences adolescent behaviour. Today's media offers a plethora of options from which adolescents can choose without discrimination or discretion. The media diet serves different functions while satisfying individual needs across domains. Co-variation of media use occurs on a physical level, for example TV, console and multi player online games and movies now all use the same equipment to view and play media. The online functionality is satisfied by a single internet connection where social networking, instant messaging and participation in online

forums and chat rooms can be simultaneously accessed. These media combinations may have become the avenues by which adolescents seek information related to, or involve discussions on engagement or intention to engage in risk behaviours.

The Influences and Factors of Risk Behaviour

Adolescence is a time of experimentation, non conformity and distancing from parents, all of which entail taking risks to establish an identity and gain independence and a sense of autonomy (Schulte, Ramo, & Brown, 2009). Adolescent risk taking attracts both positive and negative outcomes – a cost/benefit analysis (Jessor, 1992) and involves a chance of subjective loss when enacted and incurs a possible cost to health or life (Fischer, Greitemeyer, Kastenmüller, Vogrincic, & Sauer, 2011; Igra & Irwin, 1996). While some adolescents take risks after consciously weighing up positive and negative outcomes, other adolescents engage with lack of conscious thought which often leads to uncertain outcomes and may eventuate in possible negative consequences (Igra & Irwin, 1996). Jessor (1992) suggested that adolescent risk behaviours can be functional, goal-directed and instrumental in making friends, gaining status with peers and establishing perceived autonomy from parents (Jessor, 1992). Behaviours such as experimentation in substance use, risky driving and authority rejection (parental, school and civil) are normal processes and can be adaptive in the context of gender and age across developmental stages (Schulte et al., 2009). However, when engagement in risk behaviours becomes maladaptive to developmental trajectories and translates into negative health or psychological outcomes, these behaviours can jeopardise normal development that is fundamental to transitioning from adolescence to functional adulthood (Igra & Irwin, 1996; Jessor, 1992).

Influential factors that occur at multiple levels and include the individual, family, peers and social factors, have been attributed to the normal adolescent development and are staples within the bio-psychosocial theory of adolescent risk behaviour (Irwin & Millstein, 1986). This model is useful in guiding our understanding of the developmental processes and the risk factors, which interact to influence adolescent behaviour as they navigate through to adulthood.

Bio-psychosocial Model of Risk behaviours

The bio-psychosocial theory of risk behaviour takes into account three perspectives: biological, cognitive and social (Igra & Irwin, 1996). The model suggests that at the individual level, adolescent risk behaviour may be the result of; pubertal and hormonal effects; cognitive immaturity in decision making, lack of emotional stability and low levels of inhibition and social factors such as family, school and peer interactions in his/her environment. The interactions between the adolescent and risk- taking peers (Chein, Albert, O'Brien, Uckert, & Steinberg, 2011), an alcohol accepting environment, and social media which promotes alcohol use and normalises risky behaviours (Brown & Bobkowski, 2011; Epstein, 2011; Moreno, 2010) increases the vulnerability to risk behaviour as a function of age.

Risk Behaviour - Alcohol Use

One risk behaviour that raises public concern is the high prevalence of alcohol use. Alcohol remains a socially acceptable drug and an integral part of the social fabric in Australia with under-age alcohol consumption among Australian adolescents considered normative, rather than the exception (Hayes, Smart, Toumbourou, & Sanson, 2004). Age of initiation to drinking is on average, 14.6 years for boys and 14.8 years for girls. Australian adolescents regard alcohol use as accepted by parents and the broader community. Culturally, there is a powerful

normative pressure toward drinking as a 'rite of passage' into adulthood (Bonomo et al., 2004). It is common for Australian adolescents to report alcohol use from the age of 12 onwards with prevalence of use increasing with age (Hayes et al., 2004). In 2008, a report from the Australian School Student Alcohol and Drug Survey indicated that 84% of Western Australian school students aged 12–17 years had experimented with alcohol at some time in their life. Fifty seven percent of 16 year olds and 66% of 17 year olds surveyed had consumed more than 10 alcoholic drinks in their lifetime. Of the 84% reporting some use, 63.9% of students aged 12–17 years had drunk alcohol in the last year, 40.2% in the last four weeks, and almost a quarter (23.6%) in the week prior to the survey (Haynes, Kalic, Griffiths, McGregor, & Gunnell, 2010). An important social issue in Australia is the rate of binge drinking, defined as drinking 5 or more alcoholic drinks on one occasion (Schulte et al., 2009; Windle, Shope, & Bukstein, 1996) amongst youth. Schulte et al (2009) reported increasing rates of these dangerous drinking behaviours with age, 10% at 8th grade to 26% at 12th grade. These patterns should alarm parents and policymakers as binge drinking in adolescence is considered a marker for persistent and hazardous alcohol use and delinquency (Barnes, Welte, & Hoffman, 2002; Hoffmann, 2006; Schulte et al., 2009).

Age and gender differences for onset and continued alcohol use have been reported with mixed findings in the literature. Schulte et al. (2009) reports little gender and age difference in onset of alcohol use as supported by data from Australian studies that show drinking initiation at 14.6 years for boys and 14.8 years for girls. However, a divergent path is seen with boys increasing use in later adolescence and into young adulthood while girls reduce normative patterns of alcohol use in late adolescence (Hoffmann, 2006; Schulte et al., 2009). Maturation

of cognitive processes such as attention and decision making occur earlier in girls and as these are implicated in drinking behaviours, it is likely that these differences are involved in the diverging of drinking paths for male and female drinkers (Schulte et al., 2009).

There are a number of risk factors within the bio-psychosocial model that contribute to adolescent alcohol use. These factors span from genetic and biochemical vulnerability to the social environment where availability of alcohol, media validation of drinking norms and lower legal drinking age influence the onset and ongoing use of alcohol. Windle et al. (1996) suggested that these factors do not occur independently of each other but cluster together to influence the use of alcohol with differential potency such that mixing with alcohol-using peers will pose a higher risk for younger adolescents at 14 years old relative to an 18 year old (Windle, 1990; Windle et al., 1996). The body of current literature suggests that there is a complex mix of bio-psychosocial factors of heritability, parental modelling, social environment and individual traits that have been shown to put adolescents at higher risk of alcohol use (Cloninger, 1999; Jernigan, 2001). The social environment is a significant influence on adolescent behaviour as extended peer groups and social models such as electronic media become increasingly influential in normalisation, expectation, initiation and persistence of this risk behaviour (Bonomo et al., 2004; Schulte et al., 2009).

Co-varying Risk Behaviours.

Risk behaviours tend to be clustered such that an individual engaging in one shows a greater likelihood of engaging in another (Barnes et al., 2002; Igra & Irwin, 1996; Jessor, 1992) with overlapping onset and persisting engagement across the years of adolescence. Alcohol use has been viewed as a 'gateway' behaviour to risk

(Barnes et al., 2007; Windle et al., 1996) and is associated with a larger spectrum of problem behaviours including delinquency, aggressive behaviours and illicit drug use. Conversely, delinquency and proneness to deviance are two related traits identified as risk factors for alcohol use (Barnes et al., 2002; Schulte et al., 2009)

Risk behaviour - Delinquency

Delinquency has been suggested to result from a variety of individual, social and peer factors. Social control theorists trace the origin of delinquency to a lack of proper socialisation. Hirschi (2002) argued that a lack of parent involvement and monitoring along with lack of belief and commitment to conventional behaviour may lead to delinquency (Hirschi, 2002; Onwudiwe, 2004). Socialisation follows a path from family modelling that teaches children societal moral codes in wider society where conventional behaviours are enacted, however, when these moral codes break down at the familial level, a proneness to delinquency is proposed to develop. There is a dynamic interplay of personality dispositions (e.g. external locus of control and low self-esteem); school detachment and disengagement (e.g. membership of a school minority) (Hoffmann, 2006), peer engagement in these behaviours and social models from which behaviour is learned (Hasking, Scheier, & Abdallah, 2011).

The emergence of media-promoted social moral codes may influence the adolescent consumer to seek similar 'others' for sensation-seeking information and modelling. Media, such as movies, music and YouTube, which are popular social media and likely to influence, tend to glamorise or make humorous risky behaviours which may directly or indirectly promote the intention or actual engagement in a diverse range of antisocial acts that are may be illegal and which violate social norms (Hasking et al., 2011; MacDonald, 2006) . Most adolescents transition through to adulthood with minor childhood- adolescent limited offending which has been

characterised by specific features of aggression and fighting, property destruction, stealing, and violating institution rules e.g. school truancy (Hasking et al., 2011). Studies on delinquency and age found that engagement peaks in mid to late adolescence and declines in adulthood (Barnes et al., 2002). There is consensus in the literature that adolescents engage in a general pattern of delinquency rather than a specific repertoire of acts, but there is a strong link to covariance of behaviours between delinquency, alcohol use and vandalism (Barnes et al., 2002; Farrington, 2009). Farrington (2004) reported comorbidity between delinquency and aggression disorder that share overlapping risk factors of temperament and impulsivity at the personality level as well as low IQ and educational performance. As delinquency engagement increases in adolescence, delinquents become more isolated from the socially conventional group and tend to flock together with other delinquents (Farrington, 2009). The Cambridge studies identified a downward spiral of increased delinquency and more delinquent friends leading to increased antisocial behaviours from adolescence to adulthood, with the cycle of peer influence persistent in adulthood (MacDonald, 2006).

Gender differences in delinquency have been reported such that boys are more likely to engage in, and socialise with peers who engage in, these behaviours (Barnes et al., 2002). Differences in gender related media use, specifically movies, game playing, social networks and their associated forums, may influence and promote the development and persistence of delinquency (Anderson & Bushman, 2001; Durkin & Barber, 2002).

Profiles of Media Use

Media literature indicated that adolescent media use appears to fall into five main categories: TV and other screen based viewing; playing console and online

games; social networks; chat and instant messaging services and other online activities e.g. purchasing and general surfing (ACMA, 2010; Foehr et al., 2005; Rideout et al., 2010). These activities combine differently for individuals across domains and context which may influence his/her behaviours differently along with other environmental, biological and psychological factors within the dimensions of risk behaviour. It is the co-variation in adolescent media use which raised interesting questions about the effects that combinations of media use may have on their behaviour. It is plausible that clustering of these activities into a conceptual media use profiles may provide information as to the patterns of influence at play in contemporary media and how these influences may affect the user's offline risk behaviours.

The Present Study

Researchers of adolescent development generally agree that electronic media use has an influence on adolescent development (Larson et al., 2009; Lloyd, 2002; Strasburger et al., 2010). The present study aims to explore the profiling of combinations of media used by adolescents and to investigate the relations between these profiles and risk behaviour. Of particular interest is the moderating role of age and gender in the links between these behaviours. It may be that identifying the profiles of media use will guide our understanding of what accounts for the variation in behaviour in today's adolescents (Grant et al., 2003) as guided by the bio-psychosocial theory's factors of biological development (age and gender differences) and social environment (media use). Social learning theory informs our understanding of social modelling in media and its influence on such behaviours. To our knowledge, this is the only study to consider the unique contributions that combinations of media use may have on two problem behaviours of alcohol use and

delinquency while taking into account important potential variations for gender and age.

This study took a person-centred approach to identifying patterns of media use by classifying students into groups based on the combinations of media they most often activated over a weekly period. Cluster analysis techniques provide novel approaches to identifying patterns or profiles of variables within individuals which classifies them into homogenous subgroups based on the similarities found among the individuals in the sample (Peck et al., 2008). Where the variable approach assumes that the individual's score on a variable is referenced against the scores of others on that variable, a person centred approach looks at a person's scores across all the related variables and creates a profile of scores for that individual within the context of all the variables tested. As an exploratory study, a conceptual model, as shown in Figure 1, was used to guide the investigation of the relations between media use profiles and the engagement in alcohol use and delinquency behaviours and to probe the moderating effects of gender and age on the relations.

Gender and Year level

$\downarrow$

Profile of Media Use ———————————▶ Risk Behaviour
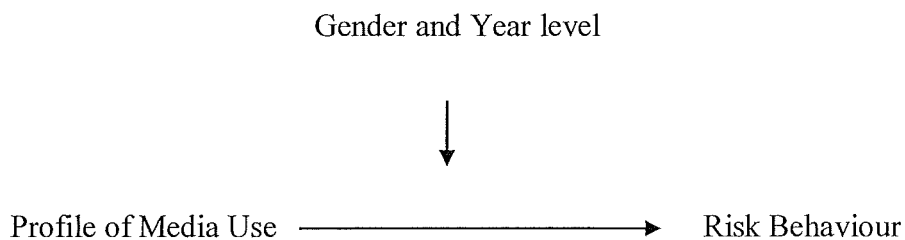
Figure 1. A conceptual model for the relations between media use and risk behaviours in a sample of Australian adolescents, (n = 1435).

Research Questions

This study posed two questions, firstly, is it possible to cluster media users from the Australian cross sectional sample of adolescents in year 10 and 12 into meaningful and homogenous groups with similar screen based domain engagement and patterns of weekly hours of use. The next question asked, if such groups/clusters could be generated, would these profiles reveal associations to alcohol use and delinquency risk behaviours; and would be they be moderated by age and gender, such that between- group differences reveal differing rates of behaviour at each year level and between boys and girls.

Method

Design

Data for this study were taken from the Youth Activity Participation Study of Western Australia (YAPS –WA, see Appendix A) which is a longitudinal study commenced in 2007 and spans five years of data collection. The study investigates adolescent involvement in extracurricular activities and developmental outcomes. The YAPS survey is a self report instrument based on a previous measure of activity participation (Barber, Stone, & Eccles, 2005) which was updated to capture and reflect Australian youth activity participation (Blomfield & Barber, 2009).

The YAPS survey design included a checklist format where participants were asked to report discretionary time involvement in both structured and unstructured activities over a twelve month period prior to survey. Structured activities such as sport include cricket, swimming, football that are common in the Australian culture, and non-sport activities (e.g. drama, art and cadets) formed the items for participatory activities available within and outside of school. Unstructured activities engagement during discretionary time covered items such as paid work,

caring for siblings, chores, TV watching, offline console and online gaming, social networking use, internet use for other activities such as music, YouTube and hobbies.

Participants

The final sample for this study, with complete data pertaining to this study, consisted of 1435 students made up of 960 year ten (570 female, 390 male) and 475 year twelve (275 female, 200 male) students. The participant age range was from 13 years to 19 years with a mean age of 15 years and 8 months ($SD = 1.07$).

Demographic Data

Demographic data such as gender and academic year were collected and formed part of the data used for analyses. Specifically, gender and year level (as a proxy for age) were coded for analyses as a two-level categorical variable with gender: female = 0, male = 1; and year level: year 10 = 2 and year 12 = 4.

Measures

Media use. Five media use domains commonly used by adolescents in 2009 were captured in section D of the YAPS survey which probed time use in unstructured activities: *watching television, computer console gaming* (offline), *internet gaming* (online), *internet usage - social networking* (e.g. social networking sites such as Facebook, MySpace, instant messaging , email and webchat) and *internet usage – other,* such as surfing for interest, eBay, information, downloading music, YouTube , iTunes (Lee & Chae, 2007; Richards et al, 2010) which have also been previously used in studies of media use and violence prevention (Barkin, 2008) .The YAPS survey asked participants to self-report their media use in the five domains as hours per week and the data from these media activity items formed the analysis base for this study.

Dependent variables: Adolescent risk behaviour was measured using 13 items in section K of the administered YAPS survey. The items included alcohol use, truancy, using drugs (Barber, Eccles, & Stone, 2001; Eccles & Barber, 1999), stealing from home and shops (Bartko & Eccles, 2003), damage to public property, contact with police, suspension and cheating in school (Bartko & Eccles, 2003), physical fighting (Bartko & Eccles, 2003) and seatbelt use. These items were anchored with 'about how often in the last 6 months have you...' and a response was required as only one choice of eight options on a Likert scale ranging from 1 = 'none' to 8 = '31 or more times'. Two subscales were created to capture the risk taking behaviour dimensions of interest for this study.

Alcohol use. A continuous variable was created by computing the mean of scores on item responses for three items from the risk behaviour group of items: drunk alcohol, had 5 or more alcoholic drinks on one occasion, and had been drunk. These items were adapted from the Barber, Eccles and Stone (2001) alcohol scale. Scale reliability for alcohol use was tested using Cronbach's alpha ($\alpha = .93$).

Delinquency. This dimension was measured using ten (10) items from the risk behaviours questions that were adapted from the MSALT studies. These included skipped school, damaged public property, used illegal drugs, had contact with police for something you did or they thought you did, suspended from school, gotten into a physical fight, cheated on exams or copied homework, taken money from home that was not yours, not used a seatbelt in a car, taken something from a store without paying for it. A variable was created by computing the mean of response scores and scale reliability was tested using Cronbach's alpha ($\alpha = .76$).

Procedure

Ethics approval to conduct the research was obtained from the Murdoch University Human Research Ethics Committee prior to data collection. Participants' data were drawn from wave three data collection of YAPS – WA conducted in the terms 3 and 4 of the 2009 academic year. Seventy-five high schools were invited by letter to participate (see Appendix B) in the survey, of which 34 responded positively. Data were collected from 1601 recruited participants (regional: n = 457, metropolitan: n = 1114) located in Government, Catholic and Independent schools in Western Australia.

Upon accepting the invitation to participate, the school was sent an information package outlining the purpose and goals of the study. Arrangements regarding dates and times of survey administration were then made between the research team and individual school. Recruitment and assembly of participants along with choice of venue for the survey administration was organised by the school, as they were best able to decide when survey administration would cause minimal disruption to classes. Information sheets including confidentiality and voluntary participation along with consent forms were issued to the recruited students and their parents (see Appendices D, E, F and G). Returned signed consent forms from parents and students were a prerequisite for participation in the study. All participants attending on the day of administration were offered a prize entry for music vouchers, sports packs and AFL memorabilia in return for participating in the survey along with an inclusion in the annual prize draw for a guitar, sporting equipment and sporting memorabilia.

The participants were reminded that participation was voluntary and that they may withdraw at any time during the survey session. An identification number was

allocated to each participant which enabled survey data to be matched to data

collected in previous years for that participant. They were then asked to commence

the survey which took approximately 45 minute to complete using 20 wireless laptop

computers which were connected to a server by a wireless router. Paper and pen

formats were made available if preferred by the school. Large groups over 20 were

administered the survey in multiple sessions during the appointed day. Computer-

based administration of surveys is a popular format successfully used in adolescent

studies due to its perceived anonymity and non judgement by researchers to

participant responses (Lautenschlager & Flaherty, 1990). Further, use of computers

reduced the need for post- survey data coding and entry by researchers. Participants

were supplied with instructions (see Appendix H) on how to proceed and session

supervision was carried out by the research team.

Missing Data

Cases where important items pertaining to this study were not answered such

as gender and year level were removed from the dataset. Responses made on media

use items that was considered to be nonsense such as media use over 80 hours per

week were removed in their entirety. This accounted for 11 cases from 1601

participants (< 1%).

Results

Analysis Plan

Results are presented in three sections. First, data preparation is described.

Second, the development of profiles of media use using PASW v18 Cluster Analysis

is explained. Third, risk behaviour differences among the profiles were examined

using univariate analysis of variance (ANOVA).

Outliers and Errant Data

The Mahalanobis Distance, D_i^2 and the critical chi-square values are commonly used in multivariate data analysis to determine errant data points (outliers) that positively or negatively affect the significance of findings (Penny, 1996; Stevens, 1984). The Mahalanobis distance was used to measure the influence of outlier cases by examining the mean distance of these cases from the means of the five media use variables. The critical value of 20.52, taken from Barnett and Lewis (1978) table of critical values (Allen & Bennett, 2008; Field, 2009), was applied on the basis that the dataset was large (n =1435) and there were five media-related variables being analysed. The Mahalanobis test identified ninety-three cases that exceeded the critical value and these were removed from the dataset prior to use in cluster and second order analyses.

Cluster Analysis

One of the aims of this study was to explore the theoretical concept of classifying participants into user profiles based on patterns of their weekly hours of electronic media use. Cluster analysis was used to guide grouping of participants into media use profiles (Bartko & Eccles, 2003; Marshall et al., 2002). Cluster analysis is a multivariate statistical procedure that works efficiently with large datasets and attempts to reorganise them into manageable and meaningful groups with homogenous characteristics (Aldenderfer & Blashfield, 1984; Hair, Black, Babin, Anderson, & Tatham, 2006). Clusters are formed when cases that share common properties are identified and clustered together. The premise upon which the clusters are created is that the characteristic similarity within the cluster is greater than the differences between the clusters (Aldenderfer & Blashfield, 1984; Ketchen & Shook, 1996).

The two main methods of cluster analysis used in contemporary social science research are hierarchical agglomerative and K-means (Aldenderfer & Blashfield, 1984). K- means clustering is an iterative, partitioning technique that allocates each data point to a cluster that has the nearest centroid - the mean of all points in the cluster. It uses squared Euclidean distances as a proximity measure to quantify the notion of 'nearest' for the data being clustered (Tan, Steinbach, & Kumar, 2006). A key feature of cluster analysis important to this study is that each case can only belong to one cluster at any iteration point and that all cases are allocated to a cluster at the final iteration, with no overlapping memberships (Aldenderfer & Blashfield, 1984).

Exploration of the data using cluster analysis should be initiated using a user-specified number of clusters based on theoretical foundations where possible. The literature has previously identified that media use among adolescents has gender and age properties. TV, music and gaming are predominantly younger and older male activities while girls in early adolescents may also engage in TV and console gaming, at later adolescence, are more actively engaged in social networking, emailing and instant messaging. The use of internet surfing, downloading and information gathering is accessed by both sexes and all ages (Rideout et al., 2010; Willoughby, 2008). This perceived demarcation of media activities was probed in the YAPS survey with interesting data reported by participants. These categories of media use offered a starting point for the generation of three media clusters for analysis (Tan et al., 2006). The data were tested using clustering solutions for 3, 4, 5 and 6 cluster solutions were selected. All scales were standardised to z scores to provide common units of measurement for the cluster analysis. Standardisation allows the use of items on different measurement scales in the same analysis without

higher weighting of items on larger scales (McGuire & Barber, 2010). The

hierarchical technique generated 3, 4, 5 and 6 clusters solutions, but the 4, 5 and 6

cluster solutions were abandoned as they were not viable for analysis due to small

group sizes. The three cluster solution was the most robust solution under the

hierarchical method: cluster 1 (n= 1372), cluster 2 (n = 24) and cluster 3 (n = 39)

(see Appendix I). This solution was used as a comparative reference for an

anticipated K-means solution. The K-means technique was used on the same data in

order to generate a more robust group of clusters with more viability in group sizes

compared to those produced in the hierarchical procedure. K-means procedure

generated comparable 3, 4 ,5 and 6 clusters with the three cluster solution found to

be the most viable based on group sizes: cluster 1 (n = 207), cluster 2 (n = 1035),

cluster 3 (n = 193). As both methods generated a workable 3 cluster solution,

validation for the choice of 3 cluster solution as the predetermined seed point was

satisfied (Aldenderfer & Blashfield, 1984; Marshall et al., 2002). K- means method

was selected as the classification tool that best captured the homogeneity within the

clusters from the media use variables (see Table 1). Table 1 contains the means and

standard deviations for each cluster and the results of a one-way ANOVA which

showed significant mean differences between clustered groups and media usage.

Following an omnibus test in which the three clusters differed significantly among

the means, Fisher's Least Significant Difference (LSD) post hoc tests were used to

determine the degree and significance of these differences (Toothaker, 1993). These

tests compared two groups at a time across all variations in the group and indicted

that all media types differed from each other significantly at $p < .001$ except

watching TV and SNS activity, $p > .05$. Cluster 1 was labelled as *TV & Games* (n =

207) was characterised by significantly higher mean hours of TV viewing, console,

handheld and online gaming. Cluster 2 was named *Low Use* (n = 1035) was

characterised by users who reported significantly lower mean hours of use across all

media domains. Cluster 3 named as *SNS & Internet* (n = 193) included students with

the highest levels of social networking, email, IMS and online chat, surfing and

downloading music.

Table 1

*Anova Results for K-mean Cluster Groups with Means and (Standard Deviations)
for Media Use Variables for Three Clusters*

	Membership in Media Cluster						
Variable	TV & Games		Low Use		SNS & Internet		F- values
	N = 207		N = 1035		N = 193		
Television viewing	17.08^a	(5.14)	4.26^b	(2.90)	6.97^c	(4.52)	1124.89*
Console Games	3.25^a	(3.97)	1.14^b	(2.27)	2.39^c	(3.94)	55.50*
Internet Games	1.20^a	(2.47)	$.55^b$	(1.70)	1.17^a	(2.73)	14.55*
Social Networks	3.98^a	(3.50)	2.56^b	(2.10)	12.74^c	(4.29)	1132.60*
Internet Other	2.09^a	(2.72)	1.16^b	(1.57)	3.61^c	(3.65)	110.39*

* all values significant at $p < .001$. Means with different superscripts differed at $p <$ .05

Once meaningful clusters were generated from exploration of data

(Aldenderfer & Blashfield, 1984), research questions could be formulated regarding

association between the media user clusters and risk behaviours specifically *alcohol*

use and *delinquency* with further investigation on the possible moderating effects of

age and gender.

A series of crosstabs was performed to identify whether media use patterns

differed by gender and year level. Standardised residuals were checked for z-scores

outside of +/- 1.96 for significance (Field, 2009). Cluster membership was not

distinguished significantly differently between year 10 and 12, χ^2 (2, n = 1435) =

5.35, p > .05. Gender distribution was significantly different among the clusters, χ^2

(2, n = 1435) = 21.07, p < .05 as presented in Figure 2.
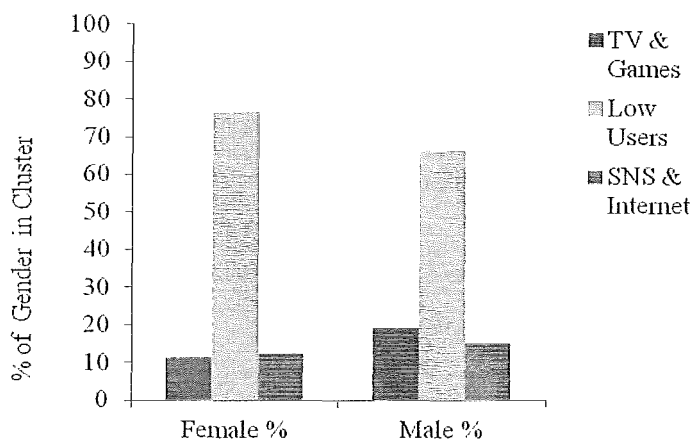
Figure 2. Gender distribution differences for membership in TV& Games, Low Use
and SNS& Internet clusters, with TV & Games gender differences significant at p
<.05.

For gender, participation in TV & Games differed between girls (z = -2.4)

and boys (z = 2.9) indicating boys were more likely to be in the TV& Games cluster

than expected by chance and significantly fewer girls than expected were found in

this cluster. Standardised residuals for the Low Use (for girls, z = 1.4, for boys, z = -

1.7) and SNS & Internet (for girls, z = -.8, for boys, z = 1.0) clusters were not

significant indicating that gender distribution was not significantly different than

expected in those two clusters.

Predicting Risk Behaviour

To answer the questions regarding the relations between media use and risk behaviours of alcohol use and delinquency, two 3(cluster) x 2(gender) x 2(year level) ANOVAs were conducted. Where omnibus tests yielded significant differences in the three clusters, follow –up LSD post hoc tests were used to examine comparisons among the clusters. Only significant contrasts were reported.

Risk behaviour – Alcohol use. Differences in alcohol use among the media use clusters, with moderator variables of year level and gender, were assessed using a 3 (cluster) x 2(gender) x 2(year level) ANOVA. There was a significant main effect for year, $F(1, 1409) = 107.83, p < .05$. Year 12 students ($M = 3.01, SD = 1.87$) reported significantly more alcohol use than year 10 students ($M = 1.96, SD = 1.41$). There was a main effect for cluster, $F(2, 1409) = 12.09, p < .05$. Alcohol use was significantly higher in the SNS & Internet cluster ($M = 2.78, SD = 1.83$) than TV & Games cluster ($M = 2.37, SD = 1.86$ and from the Low Use cluster ($M = 2.21, SD = 1.56$). TV & Games cluster did not differ significantly from Low Use on alcohol use. There was no significant main effect on gender. A two way interaction was found for year x cluster, $F(2, 1409) = 3.12, p < .05$. A two-way interaction was found for year level x cluster, $F(2, 1409) = 3.12, p < .05$. A three way interaction was found for gender x year level x cluster, $F(2, 1409) = 5.86, p < .05$ indicating that cluster effects on alcohol use differed by gender as a function of year level.

Higher order analysis. To probe the interactions, multi group analysis was conducted by year level using two, two-way ANOVAs for cluster x gender on alcohol. There was a significant main effect of cluster for year 10, $F(2, 941) = 6.10$, $p < .05$. The SNS & Internet cluster ($M = 2.37, SD = 1.52$) reported higher alcohol use than TV & Games cluster ($M = 1.94, SD = 1.48$) and the Low Use ($M = 1.89, SD$

= 1.37. There was no significant main effect of gender. There was a significant main effect for cluster at year 12, F (2,468) = 6.20, $p < .05$. The TV & Games cluster ($M = 3.52$, $SD = 2.26$) reported significantly higher alcohol use than Low Use cluster ($M = 2.84$, $SD = 1.73$). SNS & Internet ($M = 3.49$, $SD = 2.09$) differed significantly from Low Use cluster but did not differ significantly in alcohol use from the TV & Games cluster. There was no significant main effect of gender for year 12.

There was no significant interaction for gender x cluster at year 10 level, F (2,941) = .77, $p > .05$, where the relations between media use and alcohol were not conditioned by gender, however, as seen in Figure 3(b), there was a significant interaction for gender x cluster at year 12 level, F (2,468) = 4.25, $p < .05$ suggesting that the cluster differences in alcohol use depended on gender in year 12.

Figure 3 (a) Mean differences for gender by cluster interaction on alcohol use at year 10 level.

Figure 3 (b) Mean differences for gender by cluster interaction on alcohol use at year 12 level.

Simple effects analysis. To probe the interaction found for gender x cluster in year 12, the data were filtered, selecting the year 12 students. The year 12 sample was then split by gender and a one-way ANOVA was conducted for each gender to test for the effect of cluster. There was a significant effect of cluster for girls, F (2, 274) = 7.26, $p < .05$ such that girls in the SNS & Internet cluster ($M = 3.88$, $SD = 2.07$) used alcohol significantly more than girls in the TV & Games cluster ($M = 3.05$, $SD = 1.91$) and significantly more than girls in the Low Use cluster ($M = 2.72$, $SD = 1.59$). The Low Use cluster did not significantly differ from the TV & Games

cluster. There was also a significant effect of cluster for boys, $F(2,198) = 3.27$, $p <$ .05. Boys in the TV & Games cluster ($M = 4.16$, $SD = 2.57$) drank alcohol significantly more than boys in the Low Use cluster ($M = 3.00$, $SD = 1.91$). Differences between boys in TV & Games and SNS & Internet clusters ($M = 3.10$, $SD = 2.07$) approached significance at $p = .051$.

These results indicated that there were gender differences in the cluster effect that were conditioned by year level. At year 12, alcohol use differences among clusters varied as a function of gender, such that for boys, those in the TV & Games cluster reported the highest rates of alcohol use whereas for girls those in the SNS & Internet cluster reported the highest use. The moderating role of gender in cluster effect was not significant at year 10 for alcohol use.

Risk behaviour – Delinquency. Differences in delinquency among the media use clusters, with moderator variables of year level and gender, were assessed using a 3(cluster) x 2(gender) x 2(year level) ANOVA. There was a significant main effect for year level, $F(1, 1412) = 4.26$, $p < .05$. Year 10 students ($M = 1.48$, $SD = .66$) reported a higher rate of delinquency than year 12 ($M = 1.35$, $SD = .52$). There was a significant main effect for cluster, $F(2, 1412) = 8.94$, $p < .05$. Delinquency engagement was significantly higher in the TV & Games cluster ($M = 1.56$, $SD = .74$) than Low Use ($M = 1.39$, $SD = .59$). Low Use cluster reported significantly lower delinquency engagement than SNS user profile ($M = 1.53$, $SD = .61$). TV & Games did not significantly differ from SNS & Internet for delinquency. There was a main effect for gender, $F(1, 1412) = 5.25$, $p < .05$. Boys ($M = 1.48$, $SD = .70$) reported higher delinquency engagement than girls ($M = 1.41$, $SD = .57$). There were no significant two-way interactions found. A significant three-way interaction was

found between cluster x year x gender, $F(2, 1412) = 4.28$, $p < .05$ indicating that cluster effects on delinquency differed by gender as a function of year level.

Higher order analysis. To probe the interactions, multi-group analysis was conducted by year level using two, two-way ANOVAs for cluster x gender on delinquency. For year 10, there was a main effect for cluster, $F(2, 944)$, 3.99, $p < .05$. The TV & Games cluster ($M = 1.57$, $SD = .75$) reported higher delinquency than the Low Use cluster ($M = 1.44$, $SD = .64$). The SNS & Internet cluster ($M = 1.59$, $SD = .67$) reported higher delinquency than the Low Use cluster but did not differ significantly from the TV & Games cluster. There was no main effect of gender. For year 12 students, there was a significant effect for gender, $F(1,468) = 6.27$, $p < .05$. Boys ($M = 1.41$, $SD = .65$) reported higher delinquency than girls ($M = 1.30$, $SD = .40$). A significant main effect of cluster was found for year 12 level, $F(2, 468) = 7.14$, $p < .05$. The TV & Games cluster ($M = 1.53$, $SD = .75$) reported significantly higher delinquency engagement than Low Use ($M = 1.30$, $SD = .48$. Low Use cluster was significantly lower on delinquency than SNS & Internet ($M = 1.44$, $SD = .48$), however, the SNS & Internet cluster did not significantly differ from the TV & Games cluster. There was a significant interaction for gender x cluster at year 12, $F(2, 468) = 6.97$, $p < .05$. Gender significantly conditioned the relation between media use cluster and delinquency at year 12 level as seen in Figure 4(b) but no such interaction was evident for year 10, $F(2, 944) = .30$, $p > .05$ (see Figure 4(a)). This suggested that cluster differences in delinquency depended on gender at year 12.
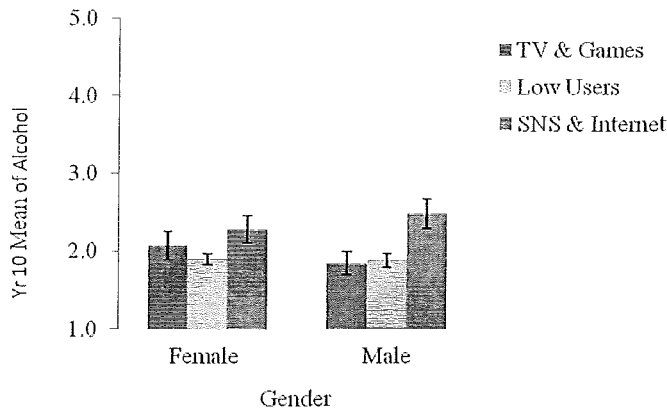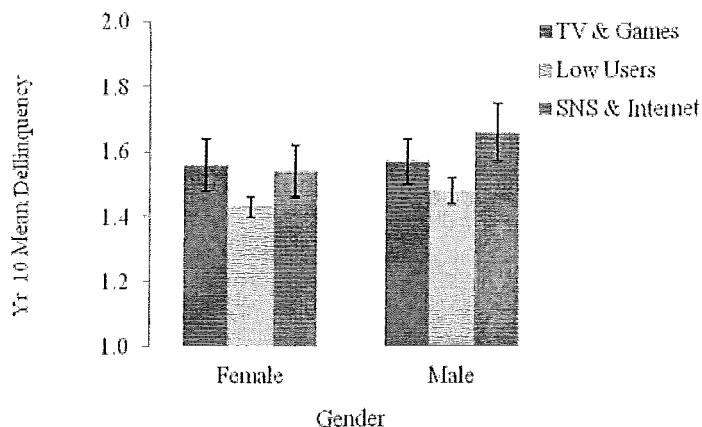
Figure 4(a). Mean differences for gender by cluster interaction for delinquency at year 10 level.
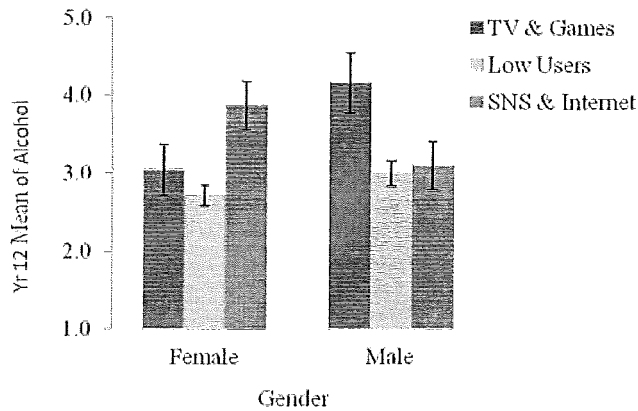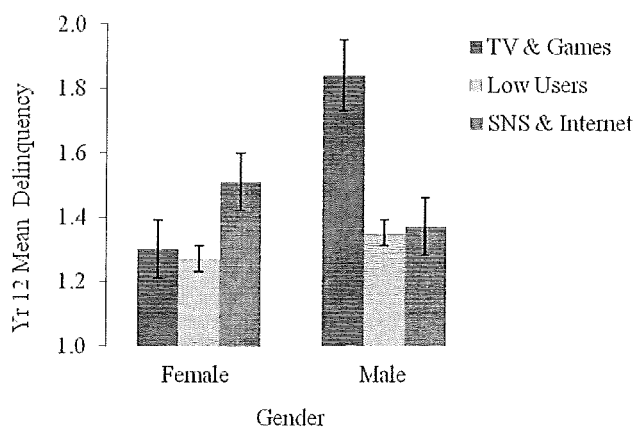

Figure 4(b). Mean differences for gender by cluster interaction for delinquency at year 12 level.

Simple effects analysis. To probe the interaction found for gender x cluster in year 12, the data were filtered, selecting the year 12 students. The year 12 sample was then split by gender and a one way ANOVA was conducted for each gender to test for the effect of cluster. There was a significant effect of cluster for girls, F (2, 272) = 5.57, $p < .05$. Girls in the SNS & Internet cluster ($M = 1.51$, $SD = .49$) showed significantly higher delinquency compared to girls in the TV &Games cluster ($M = 1.30$, $SD = .36$ and the Low Use cluster ($M = 1.27$, $SD = .38$). There were no

significant differences between girls in the TV & Games and Low Use clusters.

There was a significant effect of cluster for boys, $F(2,196) = 6.04, p < .05$ such that

those in TV & Games cluster ($M = 1.84, SD = 1.00$) showed higher delinquency

engagement than boys in the Low Use ($M = 1.35, SD = .59$ and those in the SNS &

Internet cluster ($M = 1.37, SD = .47$). There were no significant differences between

boys in the Low Use and SNS & Internet clusters.

These results indicated that there were gender differences in the cluster effect

that were conditioned by year level. At year 12, delinquency engagement differences

among the clusters varied as a function of gender such that for boys, those in the TV

& Games cluster reported highest rates of delinquency whereas for girls, those in the

SNS & Internet cluster reported highest delinquency. The moderating role of gender

in cluster effect was not significant at year 10 for delinquency.

Discussion

This study was partially exploratory in nature. The data from the YAPS –

WA survey presented an opportunity to explore the relations between media use and

adolescent risk behaviours by creating media use profiles that reflected the

participants' weekly patterns of media use. Students were successfully clustered into

three homogenous subgroups using the K-means cluster analysis method, thus

creating profiles of media use to meet the first aim of the study.

The second aim was to explore the relations between the generated profiles

(TV & Games, Low Users and SNS & Internet) and adolescent alcohol use and

delinquency. The results indicated that the media profiles differed significantly in

their reported rates of risk behaviours. These relations were found to be significantly

moderated by year level and gender. First, the results are discussed and will follow on with considerations of the strengths and limitations of this study. Future directions for this research will be proposed in the concluding comments.

Profile Clusters

The first question posed in this study was regarding the clustering of media users from the sample of Australian adolescents into profiles. This was answered when cluster analysis successfully generated three robust and distinct media use groups. Adolescents who watched more TV also spent more time playing console and internet games and were clustered together in one profile called TV & Games. Users of social networking were also high users of internet downloading and surfing and therefore were clustered into a homogenous profile called SNS & Internet. A third profile included the students who reported the lowest hours of use on all types of media and were labelled the Low Use cluster. There were interesting differences evident, which may not have surfaced if the study were only focused on variables simply showing frequency or number of hours of use. Generally, gender differences in cluster membership across the media domains were as anticipated, with more boys being represented in the TV & Games profile than girls (19% boys, 11% girls), and are consistent with previous studies on media use (Cummings & Vandewater, 2007; Durkin & Barber, 2002). The Low Use profile was representative of the normative patterns of media use by adolescents and was as expected with 76% of girls and 66% of boys belonging to this profile.

Cluster Differences for Risk Behaviour

The second question in this study asked if there were differences among the media use profiles and adolescent risk behaviours. The results revealed that significant relations existed between profiles of media use and adolescent alcohol

use and delinquency behaviours. The combinations of media accessed simultaneously and regularly may be associated with the normalisation of accepted attitudes and modelling of alcohol use and delinquent behaviours for Australian adolescents (Brown & Bobkowski, 2011). However, because YAPS – WA does not include details about the sites and content that adolescents were exposed to or were accessing via media activities, the ability to test such links was limited.

Media profiles and alcohol use. There were significant differences among media profiles in alcohol use. Overall, the students in the SNS & Internet profile reported the highest rates of alcohol use. These results were consistent with prior literature on the links between media use and alcohol use (Brown & Bobkowski, 2011; Epstein, 2011). Adolescent alcohol use may be influenced by alcohol-promoting media via social networks which can act as platforms for discussion regarding intention or engagement in alcohol use behaviours among offline and online peers (Moreno (2010) suggesting that the normalising of these behaviours by alcohol-using online participants may influence other online 'friends' and offline peers to engage in drinking. There was a significant first order effect with year 12 students using alcohol more than those in year 10. Further, there were gender differences in the clusters that were conditioned by year level such that for boys, the TV & Games profile reported the highest rates of alcohol at year 12 where as for girls, in year 12 the SNS & Internet profile was highest. Research has suggested that an influential factor in alcohol use is alcohol-using peer groups and the normative expectations of friends. Girls are also influenced by their peer groups and possibly more so by their romantic partnerships which may increase normative expectations to drink when socialising with alcohol-using peer groups (Chapin, 2000).

There was a moderating effect of year level and gender between SNS &

Internet and alcohol use profile compared to the TV & Games and Low Use profile

which presents an important area for investigation as to the dynamics of these online

interactions for year 12 girls in the SNS profile. These significant profile, gender and

year level effects may be explained by three influential social factors operating in the

contemporary adolescent's world: media sites such Facebook and online games

forums which act as a platform upon which peers discuss drinking intention or

engagement and where alcohol use is glamorised, promoted and normalised by

online peers; secondly by the modelling of drinking practices by influential social

models like sports and movie stars in alcohol-promoting advertisements (Anderson,

de Bruijn, Angus, Gordon, & Hastings, 2009). Although this study did not ask

specifically about media content, a meta- analytical review presented by Anderson et

al (2009) showed numerous longitudinal studies reporting findings that alcohol

advertising exposure predicts both onset and increased levels of consumption in

adolescents (Anderson et al., 2009; Strasburger et al., 2010); and finally, by

culturally accepted drinking practices that persist across the adolescent period and

into young adulthood in Australia. Future studies may seek to identify co-varying

influences such as content, social models used in advertising and online media

currently popular with adolescents such as YouTube that may increases the exposure

and engagement in alcohol use for male TV & Games users and female SNS &

Internet users.

Media profiles and delinquency behaviours. This study found significant

differences between media profiles for adolescent delinquency. Overall, at the profile

level, those in the TV & Games profile reported the highest rates of delinquency

engagement when controlling for year level and gender but not significantly different

from SNS & Internet profile. These results indicate that adolescent delinquency may have similar operating factors as alcohol use such as online peer disclosure or discussion regarding the intention to engage in sensation seeking activities such as 'hooning', car drag racing for maximum thrill and little safety and 'tagging', which is graffiti on public property. It has been suggested that media offers a glamorous and humorous view of these low level delinquency behaviours which normalise and support a new social moral code by which adolescents model their behaviour (Fischer, et al., 2011). When risky activities are seen on TV, music videos, YouTube and other media outlets, these behaviours may be perceived as normative and appear to attract few negative consequences, and therefore become more accepted and modelled (Strasburger, 2004).

The year level differences in reported delinquency revealed that younger adolescents (year 10 cohort) were more likely to engage in delinquency than the older cohort at year 12, which is consistent with previous research that has found that sensation seeking, authority rejection and individuation from family peaks at mid adolescence and wanes through late adolescence to adulthood (Barnes et al., 2002). Male and female students differed in reported delinquency in this study, as boys showed higher rates than girls which is also consistent with prior research (Barnes et al., 2007). The interactions between age, gender and the profiles were significant and were probed. The nature of the differences showed that, in comparison to year level 10 where there were no significant interactions for age, gender and profile were seen, at the year 12 level, reported delinquency was highest for boys in the TV & Games profile compared to the Low Use and SNS & Internet. The moderating effect of year level and gender between TV & Games compared to the SNS and Low Use profiles deserves further attention. Research is required to understand how content in

games, movies and TV may affect adolescent exposure to normative messages and

adopted attitudes to risk behaviours such as delinquency. It may be that the

individual's prior socialisation or personality predispositions to risk behaviours that

may direct them to use media as a tool to air their risky activities or that media or its

content is conditioning the relation to risk behaviours.

These results provided an interesting insight into how various media use

profiles are related to adolescent behaviour. The results identified that the TV &

Games profile was consistently and significantly related to more frequent

engagement in delinquency. One possible explanation for this distinct group's high

rates of reported delinquency may be that the effects of the games with content that

is violent, aggressive and rewarded, and movies, videos and other visual media may,

in fact promote higher levels of learned antisocial, aggressive or deviant behaviour

and are influential in increasing offline enactment of these behaviours (Anderson &

Bushman, 2001; Strasburger, 2004). Although game play has been found to predict

positive cognitive and psychological indicators in general (Durkin & Barber, 2002;

Ohannessian, 2009), this study may have identified a TV & Games profile that

encompasses relatively high levels of consumption of TV, movies, online and offline

games that links into potential vulnerability to negative influences. It is possible that

an individual's aggressive personality trait, offline peer groups and prior

socialisation, interacting with normalised scripts from media may have promoted and

influenced delinquent behaviour (Ferguson, 2010).

The body of research and literature on risk behaviours suggested a co-varying

pattern between the drinking and delinquency which is predictive of persistence and

increase in risk engagement (Barnes et al., 2002). The findings in this study suggest

that for delinquency and alcohol use, specific groups of media users, boys in the TV

& Games and girls in the SNS & Internet profile at year 12 level may be more vulnerable to the media exposure and related risk engagement than other adolescent media users.

The findings of this study confirm that alcohol use is prevalent in Australian adolescents across all media use profiles, however higher rates of drinking are significantly linked to year 12 boys in TV & Games and year 12 girls in SNS & Internet profiles. Delinquency revealed similar findings with boys in TV & Games and girls in SNS & Internet profiles indicated as the significant media profiles driving the engagement in these risk behaviours. Year level and gender were found to significantly moderate the relations. A possible explanation for these findings is that adolescents use media as a socialisation tool for communication, leisure, networking and interacting with 'similar' others. It also place a significant role in seeking and forming identity (Brown, 2006) as online users use the anonymity of media to disclose information about risky activities that will gain status, attention and make friends with 'like' peers (Jessor, 1992). The disclosing user may gain social reinforcement from online peers, which then increases the amount of disclosure and engagement. The next important step in research is to understand the role that social networking content plays in influencing the onset, persistence and increase in use of alcohol across the adolescent period.

This study sought to understand the link between media use and adolescent risk behaviours. Media has been posited as an influential 'peer' from which adolescents gain valuable information about themselves, their peers and their environment (Strasburger et al., 2010). The rate of access, the speed at which information is available is unprecedented and as such, media use deserves further

attention as one of the influential social factors within the bio-psychosocial

framework of adolescent risk behaviours in contemporary society.

Media can offer both benefits (improved social skills, extended peers groups,

better offline social interactions) and costs (in misinformation, cyber-bullying and

sexual predation) to adolescents (Moreno, 2010), however, researchers of adolescent

development and behaviour will need to increase momentum in the investigation of

the impacts of social media as an important dimension of the adolescent's

environment. The study confirms that most adolescents use media in a healthy and

constructive way as seen by the Low use group but there is a substantial minority in

the TV & Games and SNS & Internet profiles that merit further attention.

Strengths and Limitations

Strengths of this study were firstly, the data allowed for the analyses for two

year cohorts –year 10 and 12 participants which allowed for consideration of

developmental differences. The large sample for this study which was derived from

thirty four schools across the state was an important strength as it provided a broader

representation of the adolescent population in Western Australia. Further, the

diversity and scope of the YAPS survey allowed for the accumulation of a large

dataset dating back to 2007 with a comprehensive cross section of students in both

regional and metropolitan schools and a diverse coverage of ethnic, socioeconomic

and cultural groups. Finally, when dealing with children and adolescents in studies

of this size and scope, gaining their trust, attention and honesty is difficult, YAPS –

WA administered the survey electronically using wireless laptops which was quick,

efficient and cost effective. The students participated yearly in the data collection

and as such a professional, trusting and respectful relationship was established which facilitated more honest and attentive responses to the survey.

Interpreting the results in this study should be considered in light of certain limitations. The cross-sectional nature of this study meant that data were obtained at one point in time and causal direction could not be established as the relation between media use and risk behaviour may occur bi-directionally. It is recognised that other factors may be operating, such as selection bias, in the media used by adolescents, it is plausible that risk-taking adolescents may choose media activities that serves their purpose of seeking 'similar' others (MacDonald, 2006) or for social reinforcement of their behaviour and conversely, adolescent media users may be exposed to risk-related content that may indirectly influence their offline behaviours. Other factors that should be considered in any causal interpretation of the results are the user's prior socialisation and offline peer groups which this study did not probe. These factors play a significant role in the onset, engagement and persistence of risk behaviour and cannot be underestimated when exploring the link between media use and risk behaviour. To overcome these limitations, longitudinal research is favoured so that media use and risk engagement may be tracked over time for participants to evaluate causal direction.

Participants' self reported use of media use is used in much of the prior research on media use and has been found to provide valid and reliable measures of adolescent behaviour. However when adolescents are asked to self-report alcohol and delinquency behaviours , there was the possibility of social desirability response bias (Latendresse et al., 2009) when responding to the risk behaviour questions in the survey and this bias cannot be underestimated as adolescents fear judgement and sanction when asked to report their own deviant behaviour or substance use

(Lautenschlager & Flaherty, 1990). Ethnicity differences for media use and risk behaviours could not be determined due to missing data and limits the usefulness of our results for understanding ethnically and culturally diverse groups of media – using adolescents and differences in the associated risk behaviours.

Future Directions

This study calls for further investigation into the use of cluster analysis on the data available from the YAPS study. The data offers a rich and untapped resource for a person- centred approach to studying the relationships based on media content and sites accessed rather than frequency of use across different media. Further, longitudinal studies may procure more information about causality between media use and risk behaviours by using data from each of the cohort groups e.g. year 10 and following these participants over time to track changes in media use profiles and the relation to risk behaviours. Finally, a body of literature on alcohol use and delinquency has suggested strong correlations between these co-varying behaviours in adolescence (Barnes et al., 2002; Farrington, 2004), further studies may test for these correlations and risk behaviour outcomes.

Conclusion

This study sought to identify patterns of media use among adolescents and to create profiles that could be tested for relations to two prevalent risk behaviours: alcohol use and delinquency. The findings presented enhance our understanding of how today's media use is a complex constellation of activities simultaneously and easily undertaken, either selectively or indiscriminantly, by adolescents and the possible direct or indirect influences that these activities may have on risk behaviour. The media use profiles generated allowed us to answer questions about who engages

in media at high levels and offered a plausible explanation for their risk behaviour engagement. However, here is more to be done to fully understand the motivations for excessive media use and the factors that operate at the individual, familial and social levels for the user and the related mechanisms that drive their risk taking behaviours.

Adolescent risk behaviours are considered to be influenced by three primary socialisation sources; the family, their peers and the social world. Social learning theory offered a possible explanation for how media has become an influential social avenue from which current, interesting and influential information is gathered and from which deviant norms, attitudes and behaviours may be modelled.

The study has shown that media use is an integral part of life for adolescents today and the majority of our youth engage and consume media within healthy levels at an average of 1 to 2 hours a day, however a significant minority of adolescents in this study, characterised by boys in TV & Games and girls in SNS & Internet profiles at year 12 level, consumed media excessively and showed higher than normal levels of alcohol use and delinquency behaviours.

References

Aldenderfer, M. S., & Blashfield, R. K. (1984). *Cluster analysis (Vol. 44). Series:*

    Quantitative applications in the social sciences. Beverly Hills, CA: Sage

    University Paper.

Allen, P., & Bennett, K. (Eds.). (2008). *SPSS for the health and behavioural*

    sciences. Melbourne, Victoria. Thompson Learning Australia.

Anderson, C. A., & Bushman, B. J. (2001). Effects of violent video games on

    aggressive behavior, aggressive cognition, aggressive affect, physiological

    arousal, and prosocial behavior: A meta-analytic review of the scientific

    literature. *Psychological Science, 12*(5), 353-359. doi:10.1111/1467-

    9280.00366

Anderson, P., de Bruijn, A., Angus, K., Gordon, R., & Hastings, G. (2009). Impact

    of alcohol advertising and media exposure on adolescent alcohol use: A

    systematic review of longitudinal studies. *Alcohol and Alcoholism*, 44(3),

    229-243. doi:10.1093/alcalc/agn115

Australian Communications and Media Authority (ACMA). (2010). *Trends in media*

    use by children and young people. Insights from the Kaiser Family

    Foundation's Generation M2 2009 (USA), and results from the ACMA's

    Media and communications in Australian families 2007. Melbourne,

    Victoria: Australian Communications and Media Authority Retrieved from

    http://www.acma.gov.au/WEB/STANDARD/pc=PC_312210.

Bandura, A. (1977). General theory: social learning theory. *Englewood Cliffs, NJ:*

    PrenticeHall.

Bandura, A. (2001). Social Cognitive Theory of Mass Communication. *Media*

Psychology, 3*(3), 265-299. doi: 10.1207/s1532785xmep0303_03

Barber, B. L., Eccles, J. S., & Stone, M. R. (2001). Whatever Happened to the Jock,

the Brain, and the Princess? *Journal of Adolescent Research, 16*(5), 429-455.

doi: 10.1177/0743558401165002

Barber, B. L., Stone, M. R., & Eccles, J. S. (2005). Adolescent Participation in

Organized Activities. In K. A. Moore & L. H. Lippman (Eds.),*What Do*

Children Need to Flourish? Conceptualization and measuring indicators of

positive development. Vol. 3,(pp. 133-146). New York: Springer Science and

Business Media.

Barkin, S. L. (2008). Is Office-Based Counseling About Media Use, Timeouts, and

Firearm Storage Effective? Results From a Cluster-Randomized, Controlled

Trial. *Pediatrics (Evanston), 122*(1), e15-e25. doi: 10.1542/peds.2007-2611

Barnes, G. M., Welte, J. W., & Hoffman, J. H. (2002). Relationship of alcohol use to

delinquency and illicit drug use in adolescents: Gender, age, and racial/ethnic

differences. *Journal of Drug Issues, 32*(1), 153-178. Retrieved from

http://search.proquest.com/docview/208842808?accountid=12629

Barnes, G., Hoffman, J. H., Welte, J. W., Farrell, M. P., & Dintcheff, B. A. (2007).

Adolescents' time use: Effects on substance use, delinquency and sexual

activity. *Journal of Youth and Adolescence, 36*(5), 697-710. doi:

10.1007/s10964-006-9075-0

Bartko, W. T., & Eccles, J. S. (2003). Adolescent Participation in Structured and

Unstructured Activities: A Person-Oriented Analysis. *Journal of Youth and*

Adolescence, 32(4), 233-241. doi: 10.1023/a:1023056425648

Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A

cognitive-neoassociationistic analysis. *American Psychologist, 45*(4), 494-

503. doi:10.1037/0003-066X.45.4.494

Blomfield, C. J., & Barber, B. L. (2009). Brief report: Performing on the stage, the

field, or both? Australian adolescent extracurricular activity participation and

self-concept. *Journal of Adolescence, 32*(3), 733-739.

doi:10.1016/j.adolescence.2009.01.003

Bonomo, Y. A., Bowes, G., Coffey, C., Carlin, J. B., & Patton, G. C. (2004).

Teenage drinking and the onset of alcohol dependence: A cohort study over

seven years. *Addiction, 99*(12), 1520-1528. doi:10.1111/j.1360-

0443.2004.00846.x

Brown, J. D. (2006). Emerging Adults in a Media-Saturated World. In J. Arnett, & J.

Tanner (Eds.), Emerging adults in America: Coming of age in the 21st

century (pp. 279-299). Washington, DC, US: American Psychological

Association, xxii, 340 pp.

Brown, J. D., & Bobkowski, P. S. (2011). Older and newer media: Patterns of use

and effects on adolescents health and well-being. *Journal of Research on

Adolescence, 21*(1), 95-113. doi:10.1111/j.1532-7795.2010.00717.x

Chapin, J. R. (2000). Adolescent sex and the mass media: a developmental approach.

Adolescence, 35(140), 799-811.

Chein, J., Albert, D., O'Brien, L., Uckert, K., & Steinberg, L. (2011). Peers increase

adolescent risk taking by enhancing activity in the brain's reward circuitry.

Developmental Science, 14(2), F1-F10. doi: 10.1111/j.1467-

7687.2010.01035.x

Cloninger, C. R. (1999). Genetics of Substance Abuse . In M. Galanter, & H. D.

    Kleber (Eds.), *Textbook of Substance Abuse Treatment* (2nd ed.) (pp. 59-66).

    Washington, DC: American Psychiatric Press.

Cummings, H. M., & Vandewater, E. A. (2007). Relation of adolescent video game

    play to time spent in other activities. *Archives of Pediatrics and Adolescent*

    Medicine, 161(7), 684-688.

DiClemente, R. J., Santelli, J. S., & Crosby, R. A. (2009). *Adolescent Health :*

    Understanding and Preventing Risk Behaviors Retrieved from

    http://UWA.eblib.com.au/patron/FullRecord.aspx?p=433714

Durkin, K., & Barber, B. (2002). Not so doomed: Computer game play and positive

    adolescent development. *Journal of Applied Developmental Psychology,*

    23(4), 373-392. doi:10.1016/S0193-3973(02)00124-7

Eccles, J. S., & Barber, B. L. (1999). Student Council, Volunteering, Basketball, or

    Marching Band. *Journal of Adolescent Research, 14*(1), 10-43. doi:

    10.1177/0743558499141003

Epstein, J. A. (2011). Adolescent computer use and alcohol use: What are the role of

    quantity and content of computer use? *Addictive Behaviors, 36*(5), 520-522.

    doi:10.1016/j.addbeh.2011.01.001

Farrington, D. P. (2004). Conduct Disorder, Aggression, and Delinquency

    In R. Lerner, L Steinberg (Eds.), *Handbook of Adolescent Psychology* (2nd

    ed.) (pp 627 – 664). Hoboken, NJ, US: John Wiley & Sons Inc.

Farrington, D. P. (2009). Conduct Disorder, Aggression, and Delinquency

    In R. Lerner, L Steinberg (Eds.), *Handbook of Adolescent Psychology, Vol 1:*

    Individual bases of adolescent development (3rd ed.). Hoboken, NJ, US: John

    Wiley & Sons Inc.

Ferguson, C. J. (2010). Violent Video Games, Catharsis Seeking, Bullying, and

Delinquency: A Multivariate Analysis of Effects. *Crime and Delinquency*.

doi: 10.1177/0011128710362201

Field, A. P. (2009). *Discovering Statistics Using SPSS (and sex and drugs and*

rock'n'roll). LONDON, England: SAGE Publications Ltd.

Fine, G. A., Mortimer, J. T., & Roberts, D. F. (1990). Leisure, work, and the mass

media. In S. Feldman & G. Elliot (Eds.), *At the Threshold: The developing*

Adolecent (pp. 225-252). Cambridge, MA , US : Harvard University Press.

Fischer, P., Greitemeyer, T., Kastenmüller, A., Vogrincic, C., & Sauer, A. (2011).

The effects of risk-glorifying media exposure on risk-positive cognitions,

emotions, and behaviors: A meta-analytic review. *Psychological Bulletin,*

137(3), 367-390. doi:10.1037/a0022267

Flanagin, A. J. (2001). Internet use in the contemporary media environment. *Human*

Communication Research, 27(1), 153-181. doi: 10.1111/j.1468-

2958.2001.tb00779.x

Foehr, U., Rideout, V. & Roberts, D. (2005). *Generation M: Media in the lives of 8-*

18 year-olds. Menlo Park: Henry J. Kaiser Family Foundation.

Gentile, D. A., Anderson, C. A., Yukawa, S., Ihori, N., Saleem, M., Ming, L. K., . . .

Sakamoto, A. (2009). The effects of prosocial video games on prosocial

behaviors: International evidence from correlational, longitudinal, and

experimental studies. *Personality and Social Psychology Bulletin, 35*(6), 752-

763. doi:10.1177/0146167209333045

Grant, K. E., Compas, B. E., Stuhlmacher, A. F., Thurm, A. E., McMahon, S. D., &

Halpert, J. A. (2003). Stressors and child and adolescent psychopathology:

Moving from markers to mechanisms of risk. *Psychological Bulletin, 129*(3), 447-466. doi:10.1037/0033-2909.129.3.447

Gross, E. F., Juvonen, J., & Gable, S. L. (2002). Internet Use and Well-Being in Adolescence. *Journal of Social Issues, 58*(1), 75-90. doi: 10.1111/1540-4560.00249

Hair, J., Black, W., Babin, B., Anderson, R., & Tatham, R. (2006). *Multivariate Data Analysis*. Sixth Edition. New Jersey, USA: Pearson Education.

Hasking, P. A., Scheier, L. M., & Abdallah, A. b. (2011). The three latent classes of adolescent delinquency and the risk factors for membership in each class. *Aggressive Behavior, 37*(1), 19-35. doi: 10.1002/ab.20365

Hayes, L., Smart, D., Toumbourou, J.W., Sanson. A., Parenting influences on adolescent alcohol use. Research Report no. 10. Melbourne: Australian Institute of Family Studies, Commonwealth of Australia, 2004.

Haynes, R., Kalic, R., Griffiths, P., McGregor, C., & Gunnell, A. (2010). *Australian School Student Alcohol and Drug Survey: Illicit Drug Report 2008—Western Australian Results*. Perth: Drug and Alcohol Office; 2010.

Hesketh, K., Wake, M., Graham, M., & Waters, E. (2007). Stability of television viewing and electronic game/computer use in a prospective cohort study of Australian children: relationship with body mass index. *International Journal of Behavioral Nutrition and Physical Activity, 4*(1), 60. doi: 10.1186/1479-5868-4-60.

Hirschi, T. (2002). *Causes of Delinquency*. Brunswick, NJ : Transaction Pub.

Hoffmann, J. P. (2006). Extracurricular activities, athletic participation, and adolescent alcohol use: Gender-differentiated and school-contextual effects.

Journal of Health and Social Behavior, 47(3), 275-290.

doi:10.1177/002214650604700306

Igra, V., & Irwin, C. (1996). Theories of adolescent risk-taking behavior. In R.

DiClemente, W. Hansen, L. Ponton (Eds.), *Handbook of Adolescent Health

Risk Behavior (pp.* 35-51) . New York: Plenum Press.

Irwin, C. E.,Jr., & Millstein, S. G. (1986). Biopsychosocial correlates of risk-taking

behaviors during adolescence: Can the physician intervene? *Journal of

Adolescent Health Care,* 7(6S), 82S-96s.

Jernigan, D. H. (2001). *Global status report: Alcohol and Young People.* Geneva:

World Health Organization.

Jessor, R. (1992). Risk behavior in adolescence: A psychosocial framework for

understanding and action. *Developmental Review, 12*(4), 374-390.

doi:10.1016/0273-2297(92)90014-S

Johnson, G. M. (2010). Internet Use and Child Development: The Techno-

Microsystem. *Australian Journal of Educational & Developmental

Psychology, 10*, 32-43.

Johnson, G. M., & Puplampu, K. P. (2008). Internet use during childhood and the

ecological techno-subsystem. *Canadian Journal of Learning and

Technology, 34*(1), 19.

http://search.proquest.com/docview/204847012?accountid=12629

Ketchen, D. J., & Shook, C. L. (1996). The application of cluster analysis in strategic

management research: an analysis and critique. *Strategic Management

Journal, 17*(6), 441-458.

doi: 10.1002/(sici)1097-0266(199606)17:6<441::aid-smj819>3.0.co;2-g

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukophadhyay, T., & Scherlis,

W. (1998). Internet paradox: A social technology that reduces social

involvement and psychological well-being? *American Psychologist, 53*(9),

1017. doi: 10.1037/0003-066X.53.9.1017

Larson, R. W. (2001). How U.S. children and adolescents spend time: What it does

(and doesn't) tell us about their development. *Current Directions in*

Psychological Science, 10(5), 160-164. doi:10.1111/1467-8721.00139

Larson, R. W., Richards, M. H., Moneta, G., Holmbeck, G., & Duckett, E. (1996).

Changes in adolescents daily interactions with their families from ages 10 to

18: Disengagement and transformation. *Developmental Psychology, 32*(4),

744-754. doi:10.1037/0012-1649.32.4.744

Larson, R. W., Wilson, S., & Rickman, A. (2009). Globalization, societal change,

and adolescence across the world. In R.Lerner, L. Steinberg (Eds.),

Handbook of Adolescent Psychology, 3rd Ed *(pp.* 590-622). Hoboken, NJ,

US: John Wiley & Sons Inc.

Latendresse, S. J., Rose, R. J., Viken, R. J., Pulkkinen, L., Kaprio, J., & Dick, D. M.

(2009). Parental socialization and adolescents' alcohol use behaviors:

Predictive disparities in parents' versus adolescents' perceptions of the

parenting environment. *Journal of Clinical Child and Adolescent*

Psychology, 38(2), 232-244. doi:10.1080/15374410802698404

Lautenschlager, G. J., & Flaherty, V. L. (1990). Computer administration of

questions: More desirable or more social desirability? *Journal of Applied*

Psychology, 75(3), 310-314. doi:10.1037/0021-9010.75.3.310

Lee, S. J. (2009). Online Communication and Adolescent Social Ties: Who benefits

more from Internet use? *Journal of Computer-Mediated Communication,*

14(3), 509-531. doi: *10.1111/j.1083-6101.2009.01451.x*

Lee, S., & Chae, Y. (2007). Childrens internet use in a family context: Influence on

family relationships and parental mediation. *CyberPsychology & Behavior,*

10(5), 640-644. doi:10.1089/cpb.2007.9975

Lloyd, B. T. (2002). A conceptual framework for examining adolescent identity,

media influence, and social development. *Review of General Psychology,*

6(1), 73-91. doi:10.1037/1089-2680.6.1.73

MacDonald, R. (2006). Social exclusion, youth transitions and criminal careers: Five

critical reflections on risk. *Australian and New Zealand Journal of*

Criminology, 39(3), 371-383. doi:10.1375/acri.39.3.371

Marshall, S. J., Biddle, S. J. H., Sallis, J. F., McKenzie, T. L., & Conway, T. L.

(2002). Clustering of sedentary behaviors and physical activity among youth:

a cross-national study. *Pediatric Exercise Science, 14*(4), 401-417.

McGuire, J. K., & Barber, B. L. (2010). A person-centered approach to the

multifaceted nature of young adult sexual behavior. *Journal of Sex Research,*

47(4), 301-313. doi:10.1080/00224490903062266

Mesch, G. S. (2003). The family and the internet: The Israeli case. *Social Science 4,*

84(4), 1038-1050. doi:10.1046/j.0038-4941.2003.08404016.x

Moreno, M. A. (2010). Social networking sites and adolescents. *Pediatric Annals,*

39(9), 565-8. doi:10.3928/00904481-20100825-07

Moreno, M. A., Parks, M. R., Zimmerman, F. J., Brito, T. E., & Christakis, D. A.

(2009). Display of health risk behaviors on MySpace by adolescents:

Prevalence and associations. *Archives of Pediatrics and Adolescent Medicine,*

163(1), 27. Retrieved from

http://search.proquest.com/docview/198430459?accountid=12629

Ohannessian, C. M. (2009). Media use and adolescent psychological adjustment: An

examination of gender differences. *Journal of Child and Family Studies,*

18(5), 582-593. doi:10.1007/s10826-009-9261-2

Onwudiwe, I. D. (2004). Theoretical perspectives on juvenile delinquency: Root

causes and control. *Corrections Today, 66*(6), 153-156. Retrieved from

http://search.proquest.com/docview/215696283?accountid=12629

Peck, S. C., Vida, M., & Eccles, J. S. (2008). Adolescent pathways to adulthood

drinking: sport activity involvement is not necessarily risky or protective.

Addiction, 103, 69-83. doi: 10.1111/j.1360-0443.2008.02177.x

Penny, K. I. (1996). Appropriate critical values when testing for a single multivariate

outlier by using the Mahalanobis Distance. *Journal of the Royal Statistical*

Society, 45(1), 73-81.

Richards, R., McGee, R., Williams, S., Welch, D., & Hancox, R. (2010). Adolescent

screen time and attachment to parents and peers. *Archives of Pediatrics &*

Adolescent Medicine, 164(3), 258. Retrived from

http://search.proquest.com/docview/198460657?accountid=12629

Rideout, V., Foehr, U., & Roberts, D. (2010). *Generation M2: media in the lives of*

8-to 18-year olds. Menlo Park, CA: Henry J Kaiser Family Foundation.

Roberts, D. F., Henriksen, L., & Foehr, U. G. (2009). Adolescence, adolescents, and

media. In R. Lerner, L. Steinberg, (Eds.), *Handbook of Adolescent*

Psychology, 3rd Ed (pp.314-344). Hoboken, NJ, US: John Wiley & Sons

Inc.

Schulte, M. T., Ramo, D., & Brown, S. A. (2009). Gender differences in factors

influencing alcohol use and drinking progression among adolescents. *Clinical

Psychology Review, 29*(6), 535-547. doi: 10.1016/j.cpr.2009.06.003

Stefanone, M. A., Lackaff, D., & Rosen, D. (2010). The relationship between

traditional mass media and "social media": Reality television as a model for

social network site behavior. *Journal of Broadcasting & Electronic Media,

54*(3), 508-525. doi:10.1080/08838151.2010.498851

Stevens, J. P. (1984). Outliers and influential data points in regression analysis.

Psychological Bulletin, 95(2), 334-334-344. doi: 10.1037/0033-

2909.95.2.334

Strasburger, V. C. (2004). Children, adolescents, and the media. *Current Problems

in Pediatric and Adolescent Health Care, 34*(2), 54-113.

Strasburger, V. C., Jordan, A. B., & Donnerstein, E. (2010). Health effects of media

on children and adolescents. *Pediatrics, 125*(4), 756-767.

doi:10.1542/peds.2009-2563

Tan, P. N., Steinbach, M., & Kumar, V. (2006). Cluster analysis: Basic concepts and

algorithms. In P. Tan, M. Steinbach, & V. Kumar (Eds.), *Introduction to

Data Mining*, (pp.487-568). Pearson Addison-Wesley

Toothaker, L. E. (1993). *Multiple comparison procedures* (Vol. 89). Newbury Park,

CA: Sage Publications, Inc.

Valkenburg, P. M., & Peter, J. (2007). Preadolescents and adolescents online

communication and their closeness to friends. *Developmental Psychology,

43*(2), 267-277. doi:10.1037/0012-1649.43.2.267

Willoughby, T. (2008). A short-term longitudinal study of internet and computer

game use by adolescent boys and girls: Prevalence, frequency of use, and

psychosocial predictors. *Developmental Psychology, 44*(1), 195-204.

doi:10.1037/0012-1649.44.1.195

Windle, M. (1990). A longitudinal study of antisocial behaviors in early adolescence

as predictors of late adolescent substance use: Gender and ethnic group

differences. *The Journal of Abnormal Psychology, 99*(1), 86-91.

doi:10.1037/0021-843X.99.1.86

Windle, M., Shope, J. T., & Bukstein, O. (1996). Alcohol use. In R. DiClemente, W.

Hansen, L. Ponton (Eds), *Handbook of Adolescent Health Risk Behavior (pp.*

115-159). New York: Plenum Press.

Appendix A

Youth Activity Participation Survey
Western Australia
2009

Thank you for choosing to participate in this survey. As the survey is completely confidential please try and answer all the questions as openly and honestly as you can. If you do not feel comfortable answering any of the questions please feel free to leave them blank.
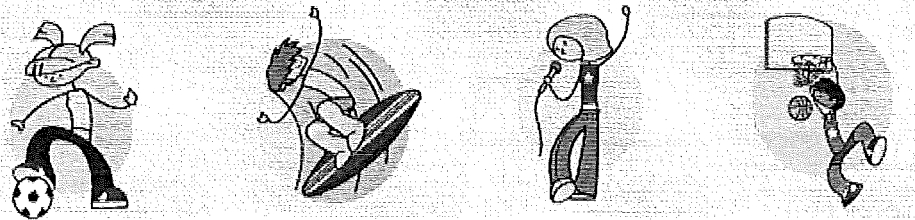
ID Number ✍_____

Date of Birth (dd/mm/yy) ✍_____/_____/_____

What year are you in at school?   ☐ Year 9 ☐ Year 10 ☐ Year 11 ☐ Year 12

If you are in Year 12, how many T.E.E. subjects are you doing? ✍_____

Do you board (live) at your school?   ☐ Yes   ☐ No

What is your gender?   ☐ Male   ☐ Female

What suburb/town do you live in? ✍_____ Post Code: ✍_____

What education have your parents completed?
(Please tick all boxes that apply for each parent.)

Mother	Father	
☐	☐	Did not finish High School
☐	☐	Finished High School
☐	☐	Finished University

Youth Activity Participation Survey – Western Australia

Section A – Sports Participation

Q1) Have you participated in any organised school sports /teams outside of physical education classes in this school year? (*Please circle all the sports you do and indicate how many hours per week you participate in each of the sports you have selected*).

If you don't participate in any school-based sports please go onto the next page.

Example:

Activity	Approx hrs/week
(Hockey)	2 hrs per week

School-Based Sports (not Phys Ed)

Activity	Approx hrs/wk	Activity	Approx hrs/wk
SPORTS			
Athletics		Rugby	
Basketball		Soccer	
Cricket		Softball	
Cycling		Swimming/Diving	
Football (AFL)		Tennis	
Hockey		Touch Rugby	
Netball		Volleyball	
Other (please specify) ✍		Other (please specify) ✍	

Q2) Have you participated in any of the following **organised sports outside of school** in this school year? (*Please circle all the activities you do and indicate how many hours per week you participate in each of the activities you have selected*).

If you don't participate in any out-of-school-based sports please go onto the next page.

Example:

Activity	Approx hrs/week
(Soccer)	1.5 hrs per week

Out-of-School Sports

Activity	Approx hrs/wk	Activity	Approx hrs/wk
SPORTS			
Athletics		Horse riding/Pony club	
Baseball		Karate/Taekwondo	
Basketball		Netball	
BMX		Rugby	
Body Boarding		Soccer	
Boxing		Squash	
Cricket		Surfing	
Cycling		Swimming/Diving	
Football (AFL)		Tennis	
Golf		Touch Rugby	
Gymnastics		Volleyball	
Hockey		**Other** (please specify)	
Other (please specify)		**Other** (please specify)	

4

Q3) Please specify which sporting activity you spend the most time in
(If you do not participate in any sporting activities please go to section B on page 10)

✎_____

Q4) Is this a school-based activity? (e.g. school team)

☐ Yes   ☐ No

Q5) How many hours per week *(not including school time)* do you spend in this activity?

✎_____ Hours

☐ **Not currently active** (not participating right now, for example the sport is out of season)

Q6) How many months/years have you been participating in this activity?

✎_____ Years   ✎_____ Months

Q7) Do you participate in this activity on your own or with a group of other people around your age?

☐ On my own

☐ In a group

Q8) Other participants in this activity are

☐ The same sex as me

☐ A mixture of boys and girls

Q9) How much time do you spend interacting with an adult during this activity?
(Circle one)

None of The time	a little of the time			all of the time
1	2	3	4	5

5

The following questions are related to the sporting activity you chose in question 3.

Q10) Based on your involvement in this activity please rate whether you have had the following experiences by ticking the appropriate box.

	1 Not At All	2 A Little	3 Quite A Bit	4 Yes, Definitely
Was able to experience the challenges of being a leader				
This activity got me thinking about who I am				
Tried doing new things				
Learned I had a lot in common with youth from different backgrounds				
Tried a new way of acting around people				
I do things in this activity I don't get to do anywhere else				
Started thinking more about my future because of this activity				
I felt like what I did made a difference				
Experienced feeling liked by others in this activity				
Others in this activity counted on me				
This activity has stressed me out				
I learned to control my temper				
This activity has been a positive turning point in my life				
Became better at dealing with fear and worry				
Had an opportunity to be in charge of a group of peers				
I set goals for myself in this activity				
When I start something in this activity I always try my best to finish it				
Had to consider possible obstacles when making plans				
Got to know people in the community				
I made friends with someone new				
I put all my energy into this activity				
Had the chance to push myself				
Had to focus my attention				
Became better at handling stress				
Worked with other people my own age on a common goal				
Had experiences with organizing time and not procrastinating (not putting things off)				

6

	1 Not At All	2 A Little	3 Quite A Bit	4 Yes, Definitely
Learned about setting priorities				
Practiced self discipline				
Made friends with someone from a different ethnic or cultural group				
Had to find ways to achieve my goals				
I have been successful in this activity				
Felt like I didn't belong in this activity				
Came to feel more supported by the community				
In this activity I saw that hard work pays off				
When this activity is difficult I keep trying anyway				
Learned to get along with others				
Made friends with someone from a different social class (someone from a family who were more or less well off than my family)				
I regularly achieve what I aim to in this activity				
This activity has given me many opportunities to improve my abilities				
Came to feel more a part of my community				
I felt like what I did mattered				

Q11) The following questions are about the adult leader in your sport; if your sport does not involve an adult leader please go onto question 12.

The adult leader in this activity.....	1 Not At All	2 A Little	3 Quite A Bit	4 Yes, Definitely
Encourages me to always try my best				
Supports me when I am having difficulties				
Puts too much pressure on me during this activity				
Makes me feel like I can succeed in this activity				
Listens to my point of view				
Puts me down in front of others in this activity				
Creates a strong positive environment				

Q12) How true for you are the following statements about your parents, when participating in your sport?

I worry about letting my parents down when I play this sport.

Not at all true for me				Very true for me
1	2	3	4	5

My parents and I have fun going to my games/competitions.

Not at all true for me				Very true for me
1	2	3	4	5

No matter how well I do in my sport, my parents don't think its good enough.

Not at all true for me				Very true for me
1	2	3	4	5

This sport has improved my relationship with my parents.

Not at all				Yes, definitely
1	2	3	4	5

My parents get upset with me when I don't do well in this sport.

Not at all true for me				Very true for me
1	2	3	4	5

This sport interfered with doing things with my family.

Not at all true for me				Very true for me
1	2	3	4	5

My parents support or help me with this sport.

Not at all true for me				Very true for me
1	2	3	4	5

How pleased do you think your parents are with how well you are doing in your sport this year?

Not at all pleased				Extremely pleased
1	2	3	4	5

8

Q 13) Please read the following statements about your sport and respond by circling one number.

How important is it to you to be good at this sport?

not at all important						very important
1	2	3	4	5	6	7

How much do you enjoy participating in this sport?

a little						a lot
1	2	3	4	5	6	7

Compared to other kids your age, how good do you feel you are at this sport?

One of the Worst						One of the Best
1	2	3	4	5	6	7

Participating in this sport gives me a strong feeling that this is who I am

Never						Always
1	2	3	4	5	6	7

During this sport I feel so involved that nothing seems to matter

Never						Always
1	2	3	4	5	6	7

During this sport I have a very high level of concentration

Never						Always
1	2	3	4	5	6	7

I become so involved in this sport that I lose track of time

Never						Always
1	2	3	4	5	6	7

I concentrate so intensely that I can't think about anything else

Never						Always
1	2	3	4	5	6	7

Q14) What proportion of your friends participating in this sporting activity are...

Planning to go to university? (*Circle one number*)

none		half		all
1	2	3	4	5

Doing very well in school?

none		half		all
1	2	3	4	5

Encourage you to do your best in school?

none		half		all
1	2	3	4	5

Regularly drink alcohol?

none		half		all
1	2	3	4	5

Regularly use illegal drugs?

none		half		all
1	2	3	4	5

Likely to skip class?

none		half		all
1	2	3	4	5

More than one year older than you?

none		half		all
1	2	3	4	5

10

Section B – Activity Participation

Q15) Which of the following activities or clubs at school have you participated in this school year outside of school classes? (*Please circle all the activities you do and indicate how many hours per week you participate in each of the activities you have selected*).

If you don't participate in any school-based activities go to the next page.

Example:

Activity	Approx hrs/week
(Drama)	4 hrs per week

School-Based Activities & Clubs

Activity	Approx hrs/wk	Activity	Approx hrs/wk
Arts and Performing Arts			
Art		Youth and health festival	
Band or Orchestra		Modeling	
Choir		Music lessons (please specify)	
Dance		✍	
Drama		Other (please specify)	
Rock – Eisteddfod		✍	
Clubs			
Chess club		School committee	
Service clubs		School council	
Computer game club		Debate club/Public speaking	
Other (please specify) ✍		Other (please specify) ✍	

Q16) Have you participated in any of the following activities or clubs outside of school in this school year? (*Please circle all the activities you do and indicate how many hours per week you participate in each of the activities you have selected*).

If you don't participate in any out-of-school activities go onto the next page.

Example:

Activity	Approx hrs/week
Cadets	2.5 hrs per week

Out-of-School Activities & Clubs

Activity	Approx hrs/wk	Activity	Approx hrs/wk
Arts and Performing Arts			
Community band		Dance club/competitions	
Private band		Music lessons (Please specify)	
Drama club		Other (Please Specify)	
Recreational Clubs			
Computer gaming/ networking		Other (Please specify)	
Service Clubs			
Cadets		Surf life saving	
Church/Youth groups		Volunteer/service work	
Scouts/Girls, Boys Clubs		Other (Please Specify)	

Q17) If you have circled any non-sporting activities please tell us which one you spend the most time in.
(*If you do not participate in any non-sporting activities please go to Section C on page 18*)

✍️_____

Q18) Is this a school-based activity? (e.g. school team)

☐ Yes   ☐ No

Q19) How many hours per week *(not including school time)* do you spend in this activity?

✍️_____ Hours

☐ Not currently active (not participating at this time)

Q20) How many months/years have you been participating in this activity?

✍️_____ Years   ✍️_____ Months

Q21) Do you participate in this activity on your own or with a group of other people around your age?

☐ On my own

☐ In a group

Q22) Other participants in this activity are

☐ The same sex as me

☐ A mixture of boys and girls

Q23) How much time do you spend interacting with an adult during this activity?
      (*Circle one*)

None of The time	a little of the time			all of the time
1	2	3	4	5

13

The following questions are related to the non-sporting activity you chose in question 17.

Q24) Based on your involvement in this activity please rate whether you have had the following experiences by ticking the appropriate box.

	1 Not At All	2 A Little	3 Quite A Bit	4 Yes, Definitely
Was able to experience the challenges of being a leader				
This activity got me thinking about who I am				
Tried doing new things				
Learned I had a lot in common with youth from different backgrounds				
Tried a new way of acting around people				
I do things in this activity I don't get to do anywhere else				
Started thinking more about my future because of this activity				
I felt like what I did made a difference				
Experienced feeling liked by others in this activity				
Others in this activity counted on me				
This activity has stressed me out				
I learned to control my temper				
This activity has been a positive turning point in my life				
Became better at dealing with fear and worry				
Had an opportunity to be in charge of a group of peers				
I set goals for myself in this activity				
When I start something in this activity I always try my best to finish it				
Had to consider possible obstacles when making plans				
Got to know people in the community				
I made friends with someone new				
I put all my energy into this activity				
Had the chance to push myself				
Had to focus my attention				
Became better at handling stress				
Worked with other people my own age on a common goal				
Had experiences with organizing time and not procrastinating (not putting things off)				

14

	1 Not At All	2 A Little	3 Quite A Bit	4 Yes, Definitely
Learned about setting priorities				
Practiced self discipline				
Made friends with someone from a different ethnic or cultural group				
Had to find ways to achieve my goals				
I have been successful in this activity				
Felt like I didn't belong in this activity				
Came to feel more supported by the community				
In this activity I saw that hard work pays off				
When this activity is difficult I keep trying anyway				
Learned to get along with others				
Made friends with someone from a different social class (someone from a family who were more or less well off than my family)				
I regularly achieve what I aim to in this activity				
This activity has given me many opportunities to improve my abilities				
Came to feel more a part of my community				
I felt like what I did mattered				

Q25) The following questions are about the adult leader in your activity; if your activity does not involve an adult leader please go onto question 26.

The adult leader in this activity…..	1 Not At All	2 A Little	3 Quite A Bit	4 Yes, Definitely
Encourages me to always try my best				
Supports me when I am having difficulties				
Puts too much pressure on me during this activity				
Makes me feel like I can succeed in this activity				
Listens to my point of view				
Puts me down in front of others in this activity				
Creates a strong positive environment				

Q26) How true for you are the following statements about your parents, when participating in your activity?

I worry about letting my parents down when I play this activity.

Not at all   Very true
true for me   for me
   1   2   3   4   5

My parents and I have fun going to my performances/ club activities.

Not at all   Very true
true for me   for me
   1   2   3   4   5

No matter how well I do in my activity, my parents don't think its good enough.

Not at all   Very true
true for me   for me
   1   2   3   4   5

This activity has improved my relationship with my parents.

Not at all   Yes, definitely

   1   2   3   4   5

My parents get upset with me when I don't do well in this activity.

Not at all   Very true
true for me   for me
   1   2   3   4   5

This activity interfered with doing things with my family.

Not at all   Very true
true for me   for me
   1   2   3   4   5

My parents support or help me with this activity.

Not at all   Very true
true for me   for me
   1   2   3   4   5

How pleased do you think your parents are with how well you are doing in your activity this year?

Not at all   Extremely
pleased   pleased
   1   2   3   4   5

Q27) Please read the following statements about your non-sporting activity and respond by circling one number.

How important is it to you to be good at this activity?

not at all   very
important   important
  1   2   3   4   5   6   7

How much do you enjoy participating in this activity?

a little   a lot
  1   2   3   4   5   6   7

Compared to other kids your age, how good do you feel you are at this activity?

One of the   One of the
  Worst   Best
  1   2   3   4   5   6   7

Participating in this activity gives me a strong feeling that this is who I am

Never   Always
  1   2   3   4   5   6   7

During this activity I feel so involved that nothing seems to matter

Never   Always
  1   2   3   4   5   6   7

During this activity I have a very high level of concentration

Never   Always
  1   2   3   4   5   6   7

I become so involved in this activity that I lose track of time

Never   Always
  1   2   3   4   5   6   7

I concentrate so intensely that I can't think about anything else

Never   Always
  1   2   3   4   5   6   7

Q28) What proportion of your friends participating in this activity are...

Planning to go to university? (*Circle one number*)

none		half		all
1	2	3	4	5

Doing very well in school?

none		half		all
1	2	3	4	5

Encourage you to do your best in school?

none		half		all
1	2	3	4	5

Regularly drink alcohol?

none		half		all
1	2	3	4	5

Regularly use illegal drugs?

none		half		all
1	2	3	4	5

Likely to skip class?

none		half		all
1	2	3	4	5

More than one year older than you?

none		half		all
1	2	3	4	5

18

Section C – Your Friends

Only answer the following questions if you do not participate in any sporting or non-sporting activities and have skipped sections A & B.

If you have answered sections A & B please go onto section D on page 19

Q29) What proportion of your friends are...

Planning to go to university? *(Circle one number)*

none		half		all
1	2	3	4	5

Doing very well in school?

none		half		all
1	2	3	4	5

Encourage you to do your best in school?

none		half		all
1	2	3	4	5

Regularly drink alcohol?

none		half		all
1	2	3	4	5

Regularly use illegal drugs?

none		half		all
1	2	3	4	5

Likely to skip class?

none		half		all
1	2	3	4	5

More than one year older than you?

none		half		all
1	2	3	4	5

Section D

Q30) If you participate in any of the following activities outside of school hours please tell us how many hours per week you spend in each activity?

How many hours per week do you spend in each of these activities?	Hours per week
Paid Work (part time/casual job, not including work from parents)	
Doing homework or studying (outside of school)	
Home chores (doing dishes, cleaning)	
Taking care of younger siblings	
Practicing or playing a musical instrument	
Watching Television	
Working out or physical activity (on your own or at the gym, not as a part of an organised sports activity) Please Specify ✎_____	
Computer Console Gaming (Playstation, X-Box etc) Which game do you play the most? ✎_____	
Internet Gaming (online games) Which one do you play the most? ✎_____	
Internet Usage – Social Networking (webchat, MySpace) Which one do you use the most? ✎_____	
Internet Usage – Other (downloading music, ebay) Please specify ✎_____	
Hobbies (model making, scrapbooking etc) What hobbies do you do the most? ✎_____	

Section E – About You

Q31) Please read the following statements and rate how true each statement is for you. *(Circle one number)*

I feel really good about the way I look

Not at all   Very true
true for me   for me
   1   2   3   4   5

Overall I am satisfied with my physical abilities

Not at all   Very true
true for me   for me
   1   2   3   4   5

I feel really good about what I can do physically

Not at all   Very true
true for me   for me
   1   2   3   4   5

I am very happy with the appearance of my body

Not at all   Very true
true for me   for me
   1   2   3   4   5

Overall I am satisfied with my appearance

Not at all   Very true
true for me   for me
   1   2   3   4   5

I am very happy with my performance in physical activities

Not at all   Very true
true for me   for me
   1   2   3   4   5

Section F

Q32) Please read the following statements and rate how true each statement is for you. *(Circle one number)*

I am very good at making friends

Not at all true for me					Very true for me
1	2	3	4	5	6

If I don't understand something in class I know I am capable of learning it

Not at all true for me					Very true for me
1	2	3	4	5	6

I am able to do most things very well

Not at all true for me					Very true for me
1	2	3	4	5	6

If I work really hard I could be one of the best students in my school year

Not at all true for me					Very true for me
1	2	3	4	5	6

I am always comfortable talking to other people my age

Not at all true for me					Very true for me
1	2	3	4	5	6

A lot of things about me are good

Not at all true for me					Very true for me
1	2	3	4	5	6

I have the ability to be good at most school subjects if I try

Not at all true for me					Very true for me
1	2	3	4	5	6

If I really try I can be good at almost anything I want to

Not at all   Very true
true for me   for me
1_____2_____3_____4_____5_____6

It is important to me to do well in school

Not at all   Very true
true for me   for me
1_____2_____3_____4_____5_____6

I have a lot to be proud of

Not at all   Very true
true for me   for me
1_____2_____3_____4_____5_____6

I always feel like I am part of a group of friends

Not at all   Very true
true for me   for me
1_____2_____3_____4_____5_____6

Q33) How often are the following statements true for you?

I like the way things are going for me.

Never   Almost always
1_____2_____3_____4_____5_____6

My life is going well.

Never   Almost always
1_____2_____3_____4_____5_____6

I would like to change many things about my life.

Never   Almost always
1_____2_____3_____4_____5_____6

I have a good life.

Never   Almost always
1_____2_____3_____4_____5_____6

I feel good about what's happening to me.

Never   Almost always
1_____2_____3_____4_____5_____6

23

Q33) How often do you.....

Feel good about yourself? (*Circle one number*)

never					daily
1	2	3	4	5	6

Lose your appetite or eat a lot when you get upset?

never					daily
1	2	3	4	5	6

Feel that difficulties are piling up so high that you can't overcome them?

never					daily
1	2	3	4	5	6

Feel satisfied with who you are?

never					daily
1	2	3	4	5	6

Feel that you are capable of coping with most of your problems?

never					daily
1	2	3	4	5	6

Feel lonely?

never					daily
1	2	3	4	5	6

Keep a cool head in emergencies?

never					daily
1	2	3	4	5	6

Feel sure about yourself?

never					daily
1	2	3	4	5	6

Feel unhappy, sad or depressed?

never					daily
1	2	3	4	5	6

Feel there is nothing nice you can look forward to?

never					daily
1	2	3	4	5	6

Section G – You and School

Q34) Please rate how true the following statements are for you. *(Circle one number)*

How much do you like school?

Not at all						A lot
1	2	3	4	5	6	7

I feel like I really belong in my school

Not at all true for me				Very true for me
1	2	3	4	5

School is interesting

Not at all true for me				Very true for me
1	2	3	4	5

I feel that working hard at school is a waste of my time

Not at all true for me				Very true for me
1	2	3	4	5

I enjoy school activities

Not at all true for me				Very true for me
1	2	3	4	5

I would like to leave school as soon as I can

Not at all true for me				Very true for me
1	2	3	4	5

I believe that succeeding at school is important

Not at all true for me				Very true for me
1	2	3	4	5

I look forward to going to school

Not at all true for me				Very true for me
1	2	3	4	5

25

I know that school can be boring but I try hard anyway because it will lead to better opportunities for me in the future

Not at all   Very true
true for me   for me
1   2   3   4   5

Q35) How likely is it that you will go to university after high school?

Not at all   Extremely
Likely   Likely
1   2   3   4   5   6   7

Section H – About Your Friends

Q36) Please answer the following questions about your friends (circle one number)

My friends treat me well

Not at all   Very true
true for me   for me
1   2   3   4   5

I wish I had different friends

Not at all   Very true
true for me   for me
1   2   3   4   5

My friends are great.

Not at all   Very true
true for me   for me
1   2   3   4   5

My friends are nice to me.

Not at all   Very true
true for me   for me
1   2   3   4   5

Compared to other teenagers in your school, how popular are you?

Least   Most
Popular   Popular
1   2   3   4   5

26

Section I – About Your Family

Q37) Please answer the following questions about your family. *(Circle one number)*

I enjoy being at home with my family.

Not at all true for me				Very true for me
1	2	3	4	5

My family gets along well together.

Not at all true for me				Very true for me
1	2	3	4	5

I like spending time with my parents.

Not at all true for me				Very true for me
1	2	3	4	5

My parents and I do fun things together.

Not at all true for me				Very true for me
1	2	3	4	5

Section J

Q38) Have you ever created your own profile online that others can see, like on a social networking site like Myspace, Bebo, or Facebook (This does not include MSN/Yahoo)?

☐ No ☞ skip questions below; go to Section K, Page 30

☐ Yes ☞ answer the questions below.

What is the profile you use, or update most often? ✍ _____

How long have you had your profile? ✍ _____

Answer the following questions about the profile (Myspace/Bebo/Facebook) you use the most often. Please tick the applicable answer.

Q39) Is your profile set to public or private?

☐ Public   ☐ Private

Q40) About how often do you visit your profile?

☐ Never
☐ Less than once a month
☐ Every few weeks
☐ 1-2 days a week
☐ 3-5 days a week
☐ About once a day
☐ Several times a day

Q41) How often do you change your profile (e.g. change status, change personal information, add photos)?

☐ Never
☐ Less than once a month
☐ Every few weeks
☐ 1-2 days a week
☐ 3-5 days a week
☐ About once a day
☐ Several times a day

Q42) Is any of the personal information (e.g. interests, etc) you have on your profile not true?

☐ Yes   ☐ No

How often do you use Myspace/Bebo/Facebook etc to:

Make new friends (*please select one*)

☐ Never
☐ Less than once a month
☐ Every few weeks
☐ 1-2 days a week
☐ 3-5 days a week
☐ About once a day
☐ Several times a day

Stay in touch with friends you rarely see in person (*please select one*)

☐ Never
☐ Less than once a month
☐ Every few weeks
☐ 1-2 days a week
☐ 3-5 days a week
☐ About once a day
☐ Several times a day

28

Make plans with your friends (*please select one*)
- ☐ Never
- ☐ Less than once a month
- ☐ Every few weeks
- ☐ 1-2 days a week
- ☐ 3-5 days a week
- ☐ About once a day
- ☐ Several times a day

Flirt with someone (*please select one*)
- ☐ Never
- ☐ Less than once a month
- ☐ Every few weeks
- ☐ 1-2 days a week
- ☐ 3-5 days a week
- ☐ About once a day
- ☐ Several times a day

Q43) How important is it to you to have a lot of friends on your network?

Not at all   Very
important   important
1   2   3   4   5

Q44) How many friends do you have on your profile? ✎_____

Q45) Compared to other people your age with a profile, how many friends on do you have?
- ☐ A lot less than others
- ☐ A little less than others
- ☐ About the same as others
- ☐ A bit more than others
- ☐ A lot more than others

Q46) Have you ever deleted a friend? (*Do not include 'Tom' from MySpace*)

☐ Yes   ☐ No

Q47) How often do you usually communicate online with friends you met on the internet, who you didn't know from before?
- ☐ Never
- ☐ Less than once a month
- ☐ Every few weeks
- ☐ 1-2 days a week
- ☐ 3-5 days a week
- ☐ About once a day
- ☐ Several times a day

Q48) How much do you agree/disagree with the following statements?

Myspace/Bebo/Facebook has become part of my daily routine.

Completely   Completely
 disagree   agree
   1   2   3   4   5

I feel out of touch when I haven't logged on to Myspace/Bebo/Facebook.

Completely   Completely
 disagree   agree
   1   2   3   4   5

30

Section K

Q49) The following questions ask you about behaviors that may be considered risky, if you are uncomfortable answering any of the questions feel free to leave them blank.

About how often in the last 6 months have you **drunk alcohol**? (*Tick one box for each question*)

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you **had more than 5 alcoholic drinks on one occasion**?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you **been drunk**?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you **used illegal drugs**?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you **skipped school without parent permission**?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you **done something you knew was dangerous just for the thrill of it**?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you **damaged public property**?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

31

About how often in the last 6 months have you had contact with police for something you did or something they thought you did? (*Tick one box for each question*)

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you gotten suspended from school?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you done some pretty risky things because you thought it was a kick?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you gotten in a physical fight with another person?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you cheated on an exam, or copied someone else's homework?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you taken something from a store without paying for it?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you taken money from home that was not your own without asking?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

About how often in the last 6 months have you not used your seatbelt in a car?

none	once	2-3 times	4-6 times	7-10 times	11-20 times	21-30 times	31 or more times

32

Section L

Q50) How would you describe your family background? *(Tick all that apply)*

☐ Caucasian (Anglo-Australian, European or American)

☐ Aboriginal/Torres Strait Islander

☐ Asian

☐ Middle Eastern

☐ African

☐ Other (please specify) ✍ _____

In what country were you born? ✍ _____

If born outside Australia how old were you when you moved here? ✍_____

In what country was your father born? ✍_____

In what country was your mother born? ✍_____

Q51) Are your parents?

☐ Married and living together all the time   ☐ Divorced

☐ Married and living together but one works away a lot of the time (fly in-fly out)   ☐ Single/ sole parent (never married)

☐ Living together in a marriage-like relationship   ☐ Widowed/widower (parent(s) passed away)

☐ Separated

Does your father work for pay?   ☐ Yes   ☐ No
If your father is currently employed, what does he do in his job? ✍_____

Does your mother work for pay?   ☐ Yes   ☐ No
If your mother is currently employed, what does she do in her job? ✍_____

Q52) How much do you weigh? ✍_____ **What is your height?** ✍_____

33

Section M

Q54) Please read each item carefully and circle the answer that best corresponds to your agreement or disagreement:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I lose my temper easily.	SD	D	N	A	SA
I often get involved in things I later wish I could get out of.	SD	D	N	A	SA
I often act without stopping to think.	SD	D	N	A	SA
I have sometimes done things just for "kicks" or "thrills".	SD	D	N	A	SA
I like to be where the action is.	SD	D	N	A	SA
It takes a lot to get me angry.	SD	D	N	A	SA
I often crave excitement.	SD	D	N	A	SA
I try to do jobs carefully, so they won't have to be done again.	SD	D	N	A	SA
When a project gets too difficult, I'm inclined to start a new one.	SD	D	N	A	SA
I usually work quickly without bothering to check	SD	D	N	A	SA
Sometimes I'm not as dependable or reliable as I should be.	SD	D	N	A	SA
I'd have to be really sick before I'd miss a day of school.	SD	D	N	A	SA
I work hard to accomplish my goals.	SD	D	N	A	SA
I often get angry at the way people treat me	SD	D	N	A	SA
I waste a lot of time before settling down to work.	SD	D	N	A	SA
I don't feel like I'm driven to get ahead.	SD	D	N	A	SA
I strive for excellence in everything I do.	SD	D	N	A	SA
I have trouble making myself do what I should.	SD	D	N	A	SA
I often get into arguments.	SD	D	N	A	SA
Once I start a project, I almost always finish it.	SD	D	N	A	SA

☺ End of Survey – Thank you for your participation ☺

Appendix B

Invitation to Schools to Participate in Research Project.

Sample
Sample Street
Sample 6000

Dear Mr. Sample,

I am writing to ask you to consider the participation of xxxx School in the research project: Youth Activity Participation Study Western Australia (YAPS-WA) directed by myself, Professor Bonnie Barber (Murdoch University) and Professor Jacquelynne Eccles.

The research project, as noted in the attached press release by the Hon Julie Bishop (11-10-06), is being funded by a grant from the Australian Research Council, and will seek to investigate how youths' involvement in extracurricular activities contributes to positive development. More specifically, we will examine whether involvement in extracurricular activities predicts improved academic performance and school attachment, less risk behaviour and better psychological adjustment among youths. Our previous research in the US points to the important role of voluntary extracurricular activities in positive youth development, and we have received funding to consider this connection here in WA. This important research has already received in principle support from the Department of Education and Training and the Catholic Education Office of Western Australia (letters of approvals attached).

I have selected your prestigious school for participation in YAPS-WA for numerous reasons. ******** promotes an achievement of excellence that fully develops one's intellectual, moral, spiritual, social and physical capabilities. Through exceptional teaching facilities, such as the state of-the-art ********, in addition to high quality teaching, I strongly believe that your school offers an opportunity that is second to none. This is further evidenced by the extensive range of co-curricular activities, sporting programs, clubs and societies that ******** presents. Thus, this high quality academic institution can provide a rich source of information on the benefits of extracurricular activity participation.

The research project consists of a survey, administered to students via wireless laptop computers (we provide), and will ask students about their experiences with their peers, school and other adults. Please note that the actual running of the survey (including all setting up etc) would be entirely conducted by the research team. Contained in the survey are questions about student's participation in various extracurricular activities. Students will also be asked questions relating to their academic achievement, identity development, leadership experiences, risk behaviour (including drug and alcohol use) and psychological adjustment. Students will be informed that if they feel uncomfortable answering any of the questions that they may skip those questions.

All students in years 9 and 11 will be given the opportunity to participate, with the research aiming to recruit approximately 50 students from each year level. In order to study long-term benefits, the project is longitudinal in nature, with students being surveyed once a year for

three years. Therefore, at the completion of the project, students initially in year 9 will be in year 11, and students initially in year 10 will be in year 12. All students in the two year groups will be provided with an information and consent form for their parent and for themselves. In order to participate, students and their parents must give written consent. Student participation in the research project would be voluntary and confidential. As the project will be collecting longitudinal data, identifying information will be collected in order to match data across different points in time. However, the students will be assigned an identification number to ensure that their responses will not be directly stored with any personal identification information. No information about individuals or the school would ever be released – all publications will include only aggregated data.

In an effort to thank students for their interest in the research, all students who return their parental consent form, whether they have agreed to participate or not, will be entered into a raffle. It is anticipated that two raffles will be held; one for year 9's and one for year 11's, with a prize given out after the data collection has been completed each year. In an additional effort to show our appreciation, all students returning a parent consent form will be entered into a major prize-draw, where one student across all of the participating schools will win a major prize.

We will also supply your school with feedback from the study, providing interesting and useful information on how activity participation relates to positive outcomes such as school engagement. This feedback will consist of a report which provides an executive summary of the research findings, or if you would like, the research team will present the findings at your school.

There are a range of benefits that will result from the completion of this research project. First, the data will make a valuable contribution to the academic literature on activity participation and positive development. It is anticipated that the results of the project will be published in a range of high quality journals of the developmental literature. A list of some of our publications on activity participation from our US longitudinal study is attached as an indication of our track record in disseminating our research.

Second, this study will address crucial issues facing today's youth such as school connectedness and wellbeing. Research on these issues is of great importance as findings have the potential to be of great benefit to policy makers, schools and most importantly to young people. With the help of your school, we will provide data which will be of national benefit, improving the health and well-being of Australian youth.

All members of the research team have obtained National Police Clearances and Working with Children Checks, with copies available upon request. The study has been given ethical approval by the Murdoch University Human Research Ethics Committee (letter of approval attached).

If you have any questions regarding any part of the study please do not hesitate to contact me on ********** or b.barber@murdoch.edu.au. I will be in contact with you next week to discuss the participation of your school in this study.

Kind Regards

Professor Bonnie Barber
Professor of Psychology
Murdoch University

Selected relevant publications

Barber, B. L., Stone, M. R., & Eccles, J. S. (2005). Adolescent participation in organized activities. In K. Moore and L. H. Lippman (Eds.) *Conceptualizing and measuring indicators of positive development: What do children need to flourish?* (pp. 133-146). New York: Springer.

Barber, B. L., Stone, M. R., Hunt, J. & Eccles, J. S. (2005). Benefits of activity participation: The roles of identity affirmation and peer group norm sharing. In J. L. Mahoney, R. W. Larson, & J. S. Eccles (Eds.) *Organized activities as contexts of development: Extracurricular activities, after-school and community programs* (pp. 185-210). Mahwah, NJ: Erlbaum.

Hunt, J. E., Barber, B. L., &⁺Banks, S. R. (2005). Sports participation: Impact on positive youth development. In Fisher, C. B. & Lerner, R. M. (Eds). *Encyclopedia of applied developmental science.* Thousand Oaks: Sage.

Perkins, D. F., Jacobs, J. E., Barber, B. L., & Eccles, J. S. (2004). Childhood and adolescent sports participation as predictors of participation in sports and physical fitness activities during young adulthood. *Youth and Society, 35*, 495-520.

Eccles, J. S., Barber, B.L., Stone, M., & Hunt, J. (2003). Extracurricular activities and adolescen development. *Journal of Social Issues, 59*, 865-889.

Eccles, J. S., Templeton, J., Barber, B. L., & Stone, M. R. (2003). Adolescence and emerging adulthood: The critical passage ways to adulthood. In M. H. Bornstein, L. Davidson, C. L. M. Keyes, K. A. Moore, & The Center for Child Well-being (Eds.) *Well-being: Positive development across the life course* (pp. 383-406). Mahwah, NJ: Erlbaum.

Durkin, K., & Barber, B. L. (2002). Not so doomed: Computer game play and positive adolescent development. *Journal of Applied Developmental Psychology, 23*, 373-392.

Barber, B. L., Eccles, J. S, & Stone, M. R. (2001). Whatever happened to the Jock, the Brain, and the Princess? Young adult pathways linked to adolescent activity involvement and social identity. *Journal of Adolescent Research, 16*, 429-455.

Raymore, L. A., Barber, B. L., & Eccles, J. S. (2001). Leaving home, attending college, partnership and parenthood: The role of life transition events in leisure pattern stability from adolescence to young adulthood. *Journal of Youth and Adolescence, 30*, 197-223.

Eccles, J. S., & Barber, B. L. (1999). Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters? *Journal of Adolescent Research, 14,* 10-43.

> *Reprinted in A. Yiannakis & M. J. Melnick (Eds.) (2001), *Contemporary issues in sociology of sport* (pp.125-142). Champaign, IL: Human Kinetics.

Eccles, J. S., Barber, B. L., Jozefowicz, D., Malanchuk, O. & Vida, M. (1999). Self-evaluations of competence, task values, and self-esteem. In N. Johnson, M. Roberts, & J. Worrell (Eds.) *Beyond appearances: A new look at adolescent girls* (pp. 53-83). Washington DC: American Psychological Association.

†Raymore, L. A., Barber, B. L., Eccles, J. S., & Godbey, G. C. (1999). Leisure behavior pattern stability during the transition from adolescence to young adulthood. *Journal of Youth and Adolescence, 28,* 79-103.

Appendix C

Copy of Letter of Acceptance for ARC Funding for Research Project.

The Hon Julie Bishop MP
Minister for Education, Science and Training
Minister Assisting the Prime Minister for Women's Issues
MEDIA RELEASE[1]

11 October 2006

Australians to prosper from $365 million in research projects

The Minister for Education, Science and Training, the Hon Julie Bishop MP, today announced $365,069,342 in Australian Research Council grants.

The 1,154 grants were awarded in the latest Australian Research Council funding round for its two major schemes - *Discovery Projects* and *Linkage Projects* - and three smaller schemes, *Discovery Indigenous Researchers Development; Linkage Infrastructure, Equipment and Facilities;* and *Linkage International.*

"The projects funded today affect the whole community. Issues that are important in the lives of all Australians such as our health and wellbeing, the environment, and national security are all represented in the successful research projects."

Among the many successful projects are research programs that will:

- study the role that participation in organised extracurricular activities may play in the healthy development of Australia's youth (Murdoch University)
- develop micro-robots that will be powered to 'swim' through the vascular and digestive systems of the human body to perform medical tasks via remote control and, in many cases, avoid invasive major surgery (Monash University)

---

[1] http://www.arc.gov.au/media/releases/media_11Oct06.htm

- investigate previously unmapped venom systems for divergent, bioactive proteins with practical implications for the treatment of envenomations (from sources such as snakes, spiders, mosquitos and jellyfish), which is a recognised problem in Australia, as well as drug discovery and other commercial applications (The University of Melbourne)
- develop service delivery systems in the criminal justice system to better meet the needs of victims and witnesses (Monash University and Victoria Police).

Minister Bishop praised the 380 organisations partnering ARC-funded researchers in the *Linkage Scheme*, which have pledged a total of $105,481,215 in cash and in-kind to the successful projects, representing $1.77 for each dollar provided by the Government.

"When an independent organisation invests in an ARC-supported research program, it can be confident that it is committing its hard-earned dollars not only to a worthwhile project, but to a project undertaken by some of Australia's best researchers," Ms Bishop said.

In this round, average funding for *Discovery Projects* increased by 12 per cent on the previous funding round to $334,267 per project, while average *Linkage Projects* funding increased by 9 per cent on the previous funding round to $285,745 per project. The successful projects were selected from a record number of 4,834 applications and will begin in 2007.

The projects are funded under the ARC's National Competitive Grants Program, a component of the Government's 10-year $8.3 billion additional commitment to innovation under *Backing Australia's Ability*.

Media Contacts: Ms Bishop's Office: Tory Vidler 0414 228 727
Australian Research Council: Simon Sedgley 0412 623 054

Appendix D

Letter of Explanation Sent to Parents Regarding Research Project.

DATE******

PARENT CONSENT FORM: Student Participation in Research
Project Working Title: Youth Activity Participation Study of Western Australia

Dear Parent,

The Australian Research Council has provided funding for a team directed by
Professor Bonnie Barber at Murdoch University to undertake a project investigating
the role that extracurricular activity participation plays on the healthy development of
adolescents. The purpose of this study is to find out the range of developmental
experiences that occur within different leisure activities and examine how these
experiences promote positive development in today's youth.

We are inviting students of Years 10 and 12 from ******** to participate in this
important study regardless of whether or not they participate in extracurricular
activities. In order to examine the long-term benefits of extracurricular activity
participation, students will be surveyed once a year for three years.

With your consent, your child will complete a brief survey supplied by my research
team. The survey will measure your child's experiences with their peers, school and
other adults, and his/her participation in various extracurricular activities such as
music and sport. Your child will be asked questions relating to academic
achievement, identity development, leadership experiences, risk behaviour (including
drug and alcohol use) and psychological adjustment. Example questions include
"How much do you like school?", "What proportion of your friends are doing well in
school?", and "How often do you feel sure about yourself?"

Participation in this survey is voluntary and written consent is required from both
yourself and your child before the survey is undertaken. There are no expectations
held by myself or your child's school that your child will participate. Your child is
free to withdraw from the survey at any time, regardless of signed consent forms.

The survey is completely confidential – personal information and responses from
individual surveys will not be made available to your child's school and only
aggregated data collected from many schools will be published. At the completion of
the study an executive summary of results will be provided to your child's school.

We plan to visit ******** to administer the survey to students on DATE*******
Students with parental consent to participate will complete the survey during
**********education. This survey will take approximately 40 minutes to complete.

In an effort to thank students for their interest in this study, all students who return the
consent forms will be entered into two prize draws. The first draw will be a School
Prize Draw, whereby two students will win either a
************************************ We shall conduct the School Prize Draw when we
are at the school.

The second draw will be a Major Prize Draw, in which students from all participating
schools will select one prize from a list that they would like to win (see card
attached). This draw will be made towards the end of the year. Students should note
that their chance of winning a specified prize is dependent on how many students
throughout the state select that particular prize, with approximately 2000 students
taking part in the project. Students simply circle which prize on the card they would
like to win, and return this card along with the consent forms.

There are some excellent major prizes to be won including including:
****

If you are willing to allow your child to participate in this study, please complete the
attached "Parent Consent Form" and return it to ... by .... If you have any questions
about this project please feel free to contact me on 9360 2879, or alternatively you
can contact Murdoch University's Human Research Ethics Committee on 9360 6677.

I am happy to discuss with you any concerns you may have on how this study has
been conducted, or alternatively you can contact Murdoch University's Human
Research Ethics Committee on 9360 6677.

Thank you for taking the time to consider your child's involvement in this important
study.

Yours sincerely,

Professor Bonnie Barber
Professor of Psychology
Murdoch University

Appendix E

Copy of Parent Consent Form Issued to Parents Prior to Commencement of
Survey.

PARENT CONSENT FORM

Project Title: Youth Activity Participation Study of Western Australia.

I _____ being the parent/guardian

of

_____ do / do not (circle one) consent to

my child's participation in the above research study. I understand the project requires

my child to complete a brief survey once a year for the next 3 years during a class

nominated by my child's school.

I understand that my child's participation is completely voluntary and confidential,

and that I may withdraw consent at any time, without providing a reason.

Parent/Guardian:

Signed: _____

Date:

'Appendix F

Letter of Explanation to Students Regarding Research Project.

STUDENT CONSENT FORM: Student Participation in Research
School of Psychology

Project Working Title: The role of extracurricular activity participation in promoting healthy development of Australian youth

Dear Student,

The purpose of this study is to investigate your participation in extracurricular activities and the positive benefits these activities provide to you. You can help in this study by consenting to complete a survey. Should you participate it is anticipated that the time to complete the survey will be no more than 30-40 minutes. Contained in the survey are questions about your experiences during your participation in extracurricular activities and also questions about your friends, school and behaviour.

The survey is completely confidential; your survey answers will not be made available to your parents, peers or teachers. Participation in this survey is completely voluntary and written consent is required by you and your parent or guardian before you can complete the survey. As your participation is voluntary there will be no expectations held by either myself or your school that you will participate. You are free to withdraw from the survey at any time, without giving a reason, regardless of signed consent forms. You may also skip any questions that you feel uncomfortable with and would prefer not to answer.

A summary of results will be provided to your school at the completion of this research. These can be made available for all parents and students to read.

If you have any questions about this project please feel free to contact Professor Bonnie Barber, Chair of Psychology at Murdoch University, who is my supervisor for this research, on 9360 2879. My supervisor and I are happy to discuss with you any concerns you may have on how this study has been conducted, or alternatively you can contact Murdoch University's Human Research Ethics Committee on 9360 6677.

Please retain this letter for your information, and fill out and return the attached consent form if you are happy to participate in this study.

Regards

Professor Bonnie Barber
Chair of Psychology
Murdoch University

Appendix G

Copy of Student Consent Form Issued to Students Prior to Commencement of Survey.

STUDENT CONSENT FORM

Project Title: Youth Activity Participation Study of Western Australia.

I _____, of Year _____ agree to participate in the above research project by completing a brief survey during class time.

I understand the information that has been provided to me about the project. Any questions I have asked have been answered to my satisfaction. I agree to take part in this project, and know that I may change my mind and stop at any time, without providing any reason. I am also aware that I may skip any questions that I do not feel comfortable answering.

I also understand that all information provided is confidential.

Student:

Signed: _____

Date:

Appendix H

Notional Introduction Script for YAPS Data Collection.

First, all students should complete the student consent form and read the letter before we start. (Wait until they have signed before you go on.)

Good afternoon, I am _____, from Murdoch University. We appreciate your being willing to participate in our survey today about your leisure time activities.

We want to let you know that it is completely confidential – no one here at school, nor your parents, will see your individual answers, so please be completely honest.

There are no right or wrong answers – we just want to know what YOU think about these things.

If you choose not to participate, that is up to you, as you are not required to – but we hope you will be willing to share your opinions about your leisure time activities with us.

There are two types of prize draws for those participating today. First, we will be drawing for a school prize in the next couple of weeks, after the Year 11 students have also completed the survey, so please be sure you have filled out your prize card with your contact details. Then, on the back, number in order your preference for a choice of either a Dockers or Eagles footy, or a $50 voucher for Music Gallery, which can be used towards an instrument, or for sheet music. Or, you can choose a Western Force visor and book, or Eagles stickers and player cards. So write down your first choice, second choice, and third choice on the back of your prize card for the school prize.

Example:
    1. Eagles footy
    2. music voucher
    3. Western Force stuff

At the end of the term, we will draw for the prizes listed on the front of your card – from students across several schools in Perth. It is important you give us phone numbers where you could be reached in June – you can list two, a home phone and a mobile, if you like.

Instructions (Wait for students to complete prize cards, then continue)
The survey starts with 4 sections on sports and other activities.
The first set is about sports IN SCHOOL. If you do not play on a school team, skip this page. If you play on both a school team, and a team in your community or suburb, answer about the school team on the first section, and about the team you play on outside of school in the next section.

After you answer about your sports, please do the same for non-sports activities like music, clubs, and things like cadets. The school based ones are first, and then there is another page for the non-school ones.

FOR ALL OF THESE SPORTS AND ACTIVITIES, PLEASE THINK ABOUT THE ACTIVITIES YOU HAVE DONE IN THE PAST YEAR – SO NOT JUST THIS SCHOOL YEAR (SINCE JANUARY), BUT ALSO THOSE IN THE SECOND HALF OF THE PAST SCHOOL YEAR (SINCE LAST JULY).

Please put your hand up if you have any questions and I will come to you.

Appendix I

Hierarchical Cluster Solutions ANOVA

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Watching television	1	1372	6.3542	5.66599	.15297	6.0542	6.6543	.00	30.00
	2	24	9.1667	5.50625	1.12396	6.8416	11.4918	.00	21.00
	3	39	8.9231	6.07144	.97221	6.9549	10.8912	.00	23.00
	Total	1435	6.4711	5.69687	.15039	6.1761	6.7661	.00	30.00
Computer/Console Gaming (Playstation, X-Box etc)	1	1372	1.4191	2.64617	.07144	1.2790	1.5592	.00	18.00
	2	24	9.9583	4.01605	.81977	8.2625	11.6542	3.00	20.00
	3	39	3.3077	4.32346	.69231	1.9062	4.7092	.00	13.00
	Total	1435	1.6132	2.95437	.07799	1.4603	1.7662	.00	20.00
Internet Gaming (online games)	1	1372	.5569	1.57491	.04252	.4734	.6403	.00	14.00
	2	24	10.2500	2.02699	.41376	9.3941	11.1059	6.00	15.00
	3	39	1.0000	1.57280	.25185	.4902	1.5098	.00	5.00
	Total	1435	.7310	2.01254	.05313	.6268	.8352	.00	15.00
Internet Usage - Social Networking (webchat, MySpace)	1	1372	3.8440	4.05978	.10960	3.6290	4.0590	.00	25.00
	2	24	7.7500	6.13082	1.25145	5.1612	10.3388	.00	20.00
	3	39	12.1795	5.38454	.86222	10.4340	13.9250	2.00	23.00
	Total	1435	4.1359	4.38048	.11564	3.9091	4.3627	.00	25.00
Internet Usage - Other (downloading music, eBay)	1	1372	1.3484	1.70969	.04616	1.2579	1.4389	.00	10.00
	2	24	3.0833	2.26345	.46202	2.1276	4.0391	.00	8.00
	3	39	10.4615	3.09368	.49539	9.4587	11.4644	3.00	15.00
	Total	1435	1.6251	2.31578	.06113	1.5052	1.7450	.00	15.00

ANOVA

				Sum of Squares	df	Mean Square	F	Sig.
Watching television	Between Groups	(Combined)		427.602	2	213.801	6.640	.001
		Linear Term	Unweighted	250.247	1	250.247	7.771	.005
			Weighted	379.221	1	379.221	11.777	.001
			Deviation	48.381	1	48.381	1.502	.220
	Within Groups			46111.948	1432	32.201		
	Total			46539.550	1434			
Computer/Console Gaming (Playstation, X-Box etc)	Between Groups	(Combined)		1835.063	2	917.531	123.010	.000
		Linear Term	Unweighted	135.260	1	135.260	18.134	.000
			Weighted	639.784	1	639.784	85.774	.000
			Deviation	1195.278	1	1195.278	160.246	.000
	Within Groups			10681.286	1432	7.459		
	Total			12516.348	1434			
Internet Gaming (online games)	Between Groups	(Combined)		2219.104	2	1109.552	442.700	.000
		Linear Term	Unweighted	7.447	1	7.447	2.971	.085
			Weighted	360.167	1	360.167	143.703	.000
			Deviation	1858.937	1	1858.937	741.697	.000
	Within Groups			3589.066	1432	2.506		
	Total			5808.170	1434			
Internet Usage - Social Networking (webchat, MySpace)	Between Groups	(Combined)		2953.637	2	1476.819	86.098	.000
		Linear Term	Unweighted	2634.822	1	2634.822	153.609	.000
			Weighted	2952.217	1	2952.217	172.112	.000
			Deviation	1.420	1	1.420	.083	.774

ANOVA

				Sum of Squares	df	Mean Square	F	Sig.
Internet Usage - Social Networking (webchat, MySpace)	Within Groups			24562.865	1432	17.153		
	Total			27516.502	1434			
Internet Usage - Other (downloading music, eBay)	Between Groups	(Combined)		3201.305	2	1600.652	510.612	.000
		Linear Term	Unweighted	3149.401	1	3149.401	1004.667	.000
			Weighted	3036.328	1	3036.328	968.597	.000
			Deviation	164.976	1	164.976	52.628	.000
	Within Groups			4488.992	1432	3.135		
	Total			7690.297	1434			

PROFILES OF MEDIA USE AND RISK BEHAVIOUR

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Average Linkage (Between Groups)	(J) Average Linkage (Between Groups)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Watching television	1	2	-2.81244	1.16841	.043	-5.5537	-.0712
		3	-2.56885	.92149	.015	-4.7308	-.4069
	2	1	2.81244	1.16841	.043	.0712	5.5537
		3	.24359	1.47220	.985	-3.2104	3.6976
	3	1	2.56885	.92149	.015	.4069	4.7308
		2	-.24359	1.47220	.985	-3.6976	3.2104
Computer/Console Gaming (Playstation, X-Box etc)	1	2	-8.53924	.56234	.000	-9.8586	-7.2199
		3	-1.88860	.44350	.000	-2.9291	-.8481
	2	1	8.53924	.56234	.000	7.2199	9.8586
		3	6.65064	.70855	.000	4.9883	8.3130
	3	1	1.88860	.44350	.000	.8481	2.9291
		2	-6.65064	.70855	.000	-8.3130	-4.9883
Internet Gaming (online games)	1	2	-9.69315	.32597	.000	-10.4579	-8.9284
		3	-.44315	.25708	.197	-1.0463	.1600
	2	1	9.69315	.32597	.000	8.9284	10.4579
		3	9.25000	.41073	.000	8.2864	10.2136
	3	1	.44315	.25708	.197	-.1600	1.0463
		2	-9.25000	.41073	.000	-10.2136	-8.2864
Internet Usage - Social Networking (webchat, MySpace)	1	2	-3.90598	.85276	.000	-5.9067	-1.9053
		3	-8.33546	.67255	.000	-9.9134	-6.7576
	2	1	3.90598	.85276	.000	1.9053	5.9067
		3	-4.42949	1.07448	.000	-6.9504	-1.9086
	3	1	8.33546	.67255	.000	6.7576	9.9134
		2	4.42949	1.07448	.000	1.9086	6.9504

*. The mean difference is significant at the 0.05 level.

Multiple Comparisons

Tukey HSD

Dependent Variable	(I) Average Linkage (Between Groups)	(J) Average Linkage (Between Groups)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Internet Usage - Other (downloading music, eBay)	1	2	-1.73494	.36455	.000	-2.5902	-.8796
		3	-9.11314	.28751	.000	-9.7877	-8.4386
	2	1	1.73494	.36455	.000	.8796	2.5902
		3	-7.37821	.45934	.000	-8.4559	-6.3005
	3	1	9.11314	.28751	.000	8.4386	9.7877
		2	7.37821	.45934	.000	6.3005	8.4559

*. The mean difference is significant at the 0.05 level.

Appendix J

JOURNAL OF RESEARCH ON ADOLESCENCE: NOTICE TO CONTRIBUTORS

Journal of Research on Adolescence
The Official Journal of the Society for Research on Adolescence

Editor
Jacquelynne Eccles, University of Michigan

Associate Editors
Bonnie Barber, Murdoch University
Christy Buchanan, Wake Forest University
Linda Burton, Pennsylvania State University
Sumru Erkut, Wellesley College
Margaret Kerr, Orebro University
Stephen T. Russell, University of Arizona
Ingrid Schoon, University of London

Related Links
Submit Online to JRA
Pre-Published Articles
Top Ten Article Downloads for JRA!
Available Tables of Content
View JRA Online! (available to SRA members only)

Editorial Scope
We invite submissions to the Journal of Research on Adolescence (JRA). The JRA presents empirical and theoretical papers focused on development during adolescence and early adulthood. Studies are featured that use diverse methods including multivariate, longitudinal, demographic, clinical, ethnographic, and experimental analyses. Cross-national, cross-cultural, and studies of gender, ethnic, and racial diversity are of particular interest. We are committed to expanding the presence of qualitative and multi-method research reports, practical-based, policy-oriented research evaluations and reports, and studies related to biological processes. We are now accepting three new paper formats: (a) Brief reports (no more than 4,500 words, inclusive of everything). Such reports are particularly appropriate for studies that extend prior work to new populations in theoretically creative ways and are mandatory for all cross-sectional, correlational studies. These reports should be modeled after research reports in journals like Psychological Science and should focus on the methods and results. We plan to devote about half of our publication space to brief reports; (b) Comprehensive, monograph-type reports of longitudinal studies. These manuscripts can be up to 100 manuscript pages; (c) Theoretical papers

and comprehensive reviews of the literature similar to papers published in Psychological Review and Psychological Bulletin. In addition, we continue to accept more traditional papers based on empirical studies. These papers should be no more than 35 manuscript pages. Additional pages will have to be justified in the contributors' cover letter. These papers should involve either longitudinal analyses, multiple sets of analyses, or mixed methods and they must make unique empirical anc theoretical contributions to the field. Questions concerning the submission process should be directed to the Managing Editor, Antonella Caiazza, at jra@s-r-a.org.

NEW Note from Editor: Brief reports will now be appearing at the front of each issue of JRA.

Editors: Jacquelynne S. Eccles, Bonnie Barber, Christy Buchanan, Linda Burton, Sumru Erkut, Margaret Kerr, Stephen Russell, Ingrid Schoon

Audience
Clinical, social, and developmental psychologists, sociologists, social workers, and those specializing in family studies.

Manuscript Submission
Please visit http://www.s-r-a.org/jrasubmit/ to submit a manuscript.

Note to NIH Grantees
Pursuant to NIH mandate, The Society (through Wiley-Blackwell) will post the accepted version of Contributions authored by NIH grantholders to PubMed Central upon acceptance. This accepted version will be made publicly available 12 months after publication. For further information, see www.wiley.com/go/nihmandate.

Permissions
Authors are responsible for all statements made in their work and for obtaining permission from copyright owners to reprint or adapt a table or figure or to reprint a quotation of 500 words or more. Authors should write to original author(s) and publisher to request nonexclusive world rights in all languages to use the material in the article and in future editions. Provide copies of all permissions and credit lines obtained.

Regulations
Only original manuscripts, written in English, are considered. The corresponding author for a manuscript must, in an accompanying cover letter, warrant that all co-authors are in agreement with the content of the manuscript and that the study was conducted in accordance with the ethical standards of the American Psychological Association. Authors should also state that the findings reported in the manuscript have not been published previously and that the manuscript is not being simultaneously submitted elsewhere. Upon acceptance, the authors are required to sign a publication agreement transferring the copyright from the author to the Society

for Research on Adolescence. Accepted manuscripts become the permanent property of the journal. A statement of Editorial Policy appeared in Volume I, Number I.

Manuscript Review

The Journal of Research on Adolescence has a Board of Editors that is vested with control over manuscript review and publication. Manuscripts are reviewed by the Editor and the Board of Editors and by invited reviewers with special competence in the area represented by the manuscript. Articles and reviews must be judged to be of substantial importance to the broad, multidisciplinary readership of the journal as well as meet a high level of scientific acceptability. A first level of review determines the importance and appropriateness of submissions to the journal readership at large in conjunction with scientific merit; on this basis, the Board of Editors decides whether the manuscript will be reviewed further.

A system of blind reviewing is used. It is the author's responsibility to remove information about the identity of the author(s) and affiliation(s) from the manuscript; such information should appear on the cover sheet. The cover sheet will not be included when a manuscript is sent out for review. The Board member responsible for a manuscript will have the discretion to integrate solicited review with the member's own opinions and recommendations into a determinative response. The Editor retains the right to reject manuscripts that do not meet established ethical standards. The Publications Officer regrets that, in case of rejection, manuscripts cannot be returned.

There is no charge for publication in the Journal of Research on Adolescence unless tabular or graphic materials exceed 10% of the total number of pages. Charges are also levied for changes in proof other than correction of printer's errors. Any inquiries relating to business matters (including reprint orders) should be addressed to the publisher:

BLACKWELL PUBLISHERS
Journal of Research on Adolescence
Production Coordinator
350 Main Street
Malden, MA 02148
(781) 388-8200