

## **Abstract**

*Background/Aims:* The Activity Card Sort (ACS) is an interview-based, client-centred tool that measures the activity engagement of older adults aged 65 years and above. The tool consists of photos which clients are asked to sort into categories to reflect their previous and current level of engagement. The activities that older adults engage in differ to that of younger adults and there is a need for a younger adult version of the ACS. This paper reports on the development of the ACS Australia for adults aged 18 to 64 years.

*Methods:* The Delphi Survey Method as applied by previous Activity Card Sort development was used in this study. Purposeful and snowball sampling were employed to recruit participants between the ages of 18 and 64 years who were Australian citizens or residents. Demographic information was obtained via a questionnaire. There were two stages in the study. The first Delphi Survey generated, selected and finalised activities and the second Delphi Survey generated, selected and finalised categories.

*Results:* Australian citizens and residents were involved in the development of the activities (n = 61) and categories (n = 65). The final tool includes 85 activities sorted into three broad categories representing personal care, daily life and home maintenance; rest and relaxation; and high and low impact activities.

*Conclusions:* This study has resulted in the development of a preliminary version of an ACS for adults aged 18 to 64 years. Further work is required to determine the psychometric properties of the tool.

## **Introduction**

Occupational Therapy recognises the innate human need for engagement in meaningful activities and its connection to well-being (Fazio, 2008). The underlying aim of all occupational therapy interventions across a spectrum of practice including acute care, rehabilitation, or community treatment is to foster involvement in activities (Packer, Boshoff, & DeJonge, 2008). The original Activity Card Sort (ACS) was developed in the United States to measure the activity engagement of older Americans in instrumental, social, and leisure activities and has subsequently been developed for use in nine cultural contexts across the Western and Eastern World (Laver-Fawcett & Mallinson, 2013). Each version is identifiable by the addition of the cultural context to the ACS acronym such as ACS-HK for Hong Kong (Chan, Chung, & Packer, 2006) and ACS-Aus for Australia (Packer et al., 2008).

The ACS is an interview-based tool that employs a Q-sort method, with the client sorting photos of people performing a range of activities into categories to reflect their previous and current level of engagement (Packer et al., 2008). The ACS provides therapists with valuable information to plan meaningful, client-centred intervention and determine the effectiveness of intervention over time. This occupation-focused measure is one of the few standardised, psychometrically sound instruments available for use with older people and two papers have recently provided in-depth reviews in support of the ACS including background, development, application and psychometrics (Eriksson et al., 2011; Laver-Fawcett & Mallinson, 2013). The development of multiple culturally relevant versions of the ACS for older people has been supported by the assertion that culture is an important modifier of activity, and that the environmental context of the photos and indeed the language used to describe the activity can reduce cultural sensitivity and the clinical utility of the tool. The recognition of importance of cultural relevance for the integrity of the tool underpinned the development of the ACS-Aus for older adults (Packer et al., 2008).

### **Categorisation in the ACS**

Within the different versions of the ACS there may be between 63 and 88 activities which are often organised within categories (Katz et al., 2003; Sachs & Josman, 2003). The categories have been developed to provide structure for research purposes and clinical utility of the assessment (Duncan & Earhart, 2011; Packer et al., 2008; Spitzer et al., 2011). The original ACS organises activities into instrumental, social and leisure categories (Baum & Edwards, 2005). The Israeli ACS version for older adults (51 - 88 years) has 88 activities sorted into: Instrumental Activities of Daily Living (IADL), social/cultural activities, low physical leisure and high physical leisure activities (Katz et al., 2003). The ACS-Aus, validated in an older adult population (65 - 86 years) has 82 activities organised into: household, social/educational and leisure categories (Packer et al., 2008).

The ACS categories provide valuable information on the types of activity gains or losses in a person's life after injury or illness, and in response to therapy (Packer et al., 2008). An example of the application of the categories comes from a study by Spitzer et al. (2011) on the impact of mild cognitive impairment following stroke with 30 Australian participants from the community. Participants included 19 men and 11 women with a mean age of 59 years, and an average length of 58 months since their first stroke. Using the ACS it was found that the greatest percentage loss of activities was in the high demand leisure category. Both social and educational activities occurring within community contexts also showed a significant decrease (Spitzer et al., 2011). Likewise, Duncan and Earhart (2011) found that people with Parkinson's disease had reduced activity participation in every category of the ACS. This result strongly correlated with decreased quality of life (measured by the Parkinson's Disease Questionnaire (PDQ-39)) (Duncan & Earhart, 2011).

### **The Lifespan of Adulthood**

The ACS-Aus (Packer et al., 2008) has been developed and validated for a population group largely representative of late adulthood. However, this valuable tool has the potential for meaningful application for occupational therapy researchers and clinicians working with people across all stages of the adult lifespan. The changing nature of occupational performance and activity engagement across the lifespan is highlighted by the Person Environment Occupation model (Law et al., 1996.) Indeed, the types of activities people engage in, as well as their level of activity engagement, vary according to the individual's stage of life and significant life events (Australian Bureau of Statistics (ABS), 2008). For many adults in Australia significant life events include gaining education, training and/or employment, leaving home, getting married, raising a family, and retirement (ABS, 2008a). Time use data can be used to assist understanding of the patterns for the type of activities that people engage in, as well as the amount of time spent on these activities (Farnworth, 2003).

In particular, the ABS Time Use Surveys are a useful foundation for studies related to activity engagement, providing detailed information on the daily activity patterns of 3,900 households across Australia. The data collected from the 2006 Time Use Survey was invaluable when proposing the development of the ACS-Aus for a younger adult population as it provided comprehensive understanding of the activity engagement of adults across the lifespan in Australia. This survey used nine main activity classifications: personal care activities, employment related activities, education activities, domestic activities, childcare activities, purchasing goods and services, voluntary work and care activities, social and community interaction, and recreation and leisure activities (ABS, 2008a). While these activity classifications were broad, the trends in activity patterns across age groups were able to clearly identify differences in activity engagement and time use across the adult lifespan. For example, many parents of preschool-aged children spent the majority of their time on parenting activities (ABS, 2008a), whereas adults aged 65 years and older mostly engaged in

instrumental and leisure activities (ABS, 2008a; Packer et al., 2008). In 2006, the average amount of time spent daily on employment activities for men aged 15 to 24 years was 3 hours 33 minutes. This increased to 6 hours 18 minutes for men aged 25 to 34 years and then declined to 3 hours 53 minutes for the 55 to 64 age group, reflecting transition to retirement. The changing patterns in activity engagement across the lifespan suggested that there would be value in exploring the development of an ACS for the younger adult group (18 -64) within the Australian context.

### **Current Study**

There are many versions of the ACS for older adults worldwide and the information gained from the assessment forms the basis for occupational therapy intervention and collaborative goal setting, working towards recovery and rehabilitation (Duncan & Earhart, 2011). Occupational therapists can use this structured information to develop an understanding of a person's roles, values and activity choices to guide therapy and improve quality of life (Law, 2002). The development of each version of the older adult ACS has been underpinned by the identification of the need to develop a culturally relevant version and this need has been met for the older population in Australia with the ACS-Aus (Packer et al., 2008). However, the application of the ACS-Aus is limited to adults over the age of 65 years and there is a need to develop a corresponding version for younger adults for use within research and clinical practice. Therefore, the purpose of this study was to develop a version of the ACS that may be applicable to Australian adults aged 18 – 64 years.

### **Method**

The two- round Delphi Survey Method (Portney & Watkins, 2009) was replicated from previous ACS tool development (Baum, C., n.d., unpublished data; Packer et al., 2008) and is described in full in the procedure. This study was granted ethical approval by the Behavioural and Social Sciences Ethical Review Committee at the University of Queensland,

in Brisbane, Australia and was completed in a pragmatic approach with undergraduate research students in two subsequent years. The first stage was completed over a period of one year to generate and finalise the activities in the tool. The second stage was completed in a subsequent year to generate and finalise the categories of the tool. As a result, there are two participant groups reported; one for the activities and the second for the categories.

### **Participants**

Adults aged between 18 and 64 years were considered the experts in their own activities and everyday life and were therefore the target population group. Participants were eligible for inclusion in the study if they met the following criteria: Australian citizens or residents, aged between 18 and 64 years, and able to understand the study procedures. Individuals who had severe vision or cognitive impairments, which would impact on their ability to comprehend written instructions and sort photos, were excluded. Participants were recruited using purposeful and snowball sampling through personal and professional networks. Recruitment sought to ensure equal numbers of males and females, and people with a diversity of ethnicity, education level, employment status, and type of work within each age bracket. A matrix was developed that stratified the participants with respect to age, educational level, type of work and ethnicity. This matrix was used to cross check recruitment and identify the characteristics of participants that were required for the remaining recruitment stages. For example, the need for purposeful recruitment of people within the youngest age bracket who had not finished high school was identified as a gap in the recruitment procedures. Due to the pragmatic nature of this study, there were two participant groups – the first group involved in stage one (activities) and the second group in stage two (categories). The demographic details for both groups are outlined in Table 1.

#### Stage One - Activities

Sixty one participants were recruited who were all Australian citizens and residents, and the majority (72.13%) were born in Australia. There were 26 (42.62%) males and 35 (57.38%) females aged from 18 to 64 years. The demographic variables (ethnicity, education level, employment status, and type of work) are displayed in Table 1.

### Stage Two – Categories

Sixty five participants were recruited and completed category selection, 50 (76.9%) of whom were born in Australia. There were 28 (43%) males and 37 (57%) females aged from 18 - 64 years. Fifty participants (76.9%) were born in Australia with three (4.6%) identifying with Aboriginal and Torres-Strait Islander backgrounds. All other demographic variables are outlined in Table 1. A total of 53 (81.5%) participants completed the final task, category finalisation.

[Insert Table 1 about here]

## **Procedure**

### Stage One – Activities

*Item generation:* The research team compiled a comprehensive list of activities by combining activities listed in the ACS-Aus for older adults (Packer et al, 2008) and the 2006 ABS Time Use Survey (ABS, 2008a). Every activity in the ACS-Aus for older adults (Packer et al., 2008) and the 2006 ABS Time use survey (ABS, 2008a) was listed in two columns. Where an activity appeared in both, this activity was selected as an item for the ACS-Aus 18-64 pilot instrument. In cases where similar but not the same term was used in the ACS and the ABS, equivalence was determined by the research team through a process of discussion and consensus. The Time Use Survey (ABS, 2008a) activity categories and codes were examined and discussed to identify as many commonly recognised activities as possible until consensus was reached about what could be included. In some instances, codes were expanded to include the commonly recognised activities listed as examples. For example,

activities such as golf, tennis, soccer etc., which are listed as examples under the code of “organised sport” in the Time Use Survey (ABS, 2008a), were listed in the pilot tool as individual activities. The aim was to list as many identifiable activities as possible in the generation phase to maximise the choices available during selection.

*Item selection:* In this first round, the participants were given cards with photos and captions of all the activity items. The photos used during this development phase were derived from freely available images or from the research team. Researchers asked participants “How common do you think it is for Australians your age to do this activity?” and asked participants to sort the cards into piles along five point scale (with quantifying phrases), where 1 represented ‘no one my age does this activity’ and 5 represented ‘most people my age do this activity’. The responses were also recorded on a de-identified data collection form.

*Item finalisation:* Following the method used by previous ACS tool development, mean scores were calculated to rank the activities and determine the least common activities for possible item reduction. A list of all activities from most to least common was compiled based on the results from the first round and emailed to participants who were given the opportunity to modify the ranking of any item. Specifically, the participants were sent an email document that listed the activities from one (most common) to 99 (least common). They were told that this was the result of the sorting activity from all participants and asked to contact the research team if they disagreed with the ranking of any of the activities.

### Stage Two – Categories

*Category generation:* Researchers derived the categories for the tool with due consideration of the categories in existing ACS versions (Baum & Edwards, 2008; Chan, Chung & Packer, 2008; Katz et al., 2003; Orellano, 2008; Packer et al., 2008; Tam, Teachman & Wright, 2008), and categorisation of activities in frameworks such as the ICF

(WHO, 2001), and the ABS (ABS, 2008a). The potential categories were then piloted with five people representative of the age range of the tool.

*Category selection:* In this first round, the participants met with a researcher who explained the previous work to develop the activities and the purpose of the categories. The researcher explained each category, placed an envelope with the description on the table, and asked if any clarification was required. Participants were then invited to sort the photos of the activities into the four categories. The results were summarised into an excel spreadsheet and activities that were not clearly sorted into one category were identified. The research team then sought to identify patterns that may explain the differences and subsequently refine the categories.

*Category finalisation:* This final phase was conducted via email and participants were asked to complete two tasks. Firstly, the 57 activities clearly sorted in the second phase were summarised into their categories, and participants were asked to indicate if they strongly disagreed with any placements. Secondly, participants were asked to complete an online survey (Zoomerang™) to place the 28 remaining activities into the three newly refined and defined categories. Participant numbers were allocated to record and match each participant's response. Participants were asked to respond within one week. Those who did not respond within this time frame were sent reminder emails within a three week time frame.

## **Results**

### **Stage One - Activities**

#### Item generation.

The research team generated 96 items for the ABS Time Use Survey and ACS-Aus. This initial list was presented to six men and six women representative of the age range of 18 and 64 years, to determine if any activities had been overlooked. Five further suggestions were made when the list was piloted: Frisbee, hacky sack, kite flying, martial arts, and

managing financial investments. Frisbee, hacky sack and kite flying were included as one item. Therefore, a total of 99 items were generated for the item selection phase.

#### Item selection.

Table 2 outlines the 99 activities and the means generated from the first round of the Delphi survey. There were 38 items that scored a mean below 3, which represented *some people my age do the activity*, of which 21 items were sport activities. In the item generation phase, the researchers had intentionally expanded the sport category to identify if any individual sports should be represented in the tool. Sporting items with a high mean score (e.g. golf), retained individual representation whilst the remaining sport activities were combined into three broad categories: team, individual and water sports. Therefore, a total of 85 items were included for the final phase.

#### Item Finalisation.

A list of activities from most to least common was compiled based on the results from the second phase. The list was emailed to participants who were given the opportunity to modify the ranking of any item. The results from round two of the Delphi Survey concluded that participants agreed with the ranking of the items and the 85 items from the second phase were retained.

[Insert Table 2 about here]

### **Stage Two - Categories**

#### Category generation.

The categories were generated from the existing ACS tools with changes made to wording that were considered representative of the age group e.g. leisure versus recreation and relaxation. The ABS time use studies informed the inclusion of the term sports. The results of the pilot resulted in minor changes to the category descriptors. The final four categories were: *domestic and community* defined as home or community activities

completed as part of everyday life; *interpersonal relationships* described as activities which support and develop relationships; *sports* defined as a team, individual or sporting activity; and *recreation and relaxation* defined as an interest, hobby or fun activity.

#### Category selection.

Participants independently sorted 57 activity cards into one of the possible categories. However, the placement of the remaining 28 activities was split between categories. The results demonstrated the following:

1. Activities were regularly placed either in the interpersonal or the recreation and relaxation categories. It was recognised by the research team that many activities were represented by both categories e.g. playing board games or socialising with friends. The decision was to remove the interpersonal category from the tool.
2. Physical activities were often placed into the recreation and relaxation category or the sports category. For example, yoga or bush walking was placed within either category activity. The original purpose of the sport category was to represent all activity irrespective of intensity. The name of this category was changed to represent this intent and definitions of categories were refined to improve clarity.
3. Anecdotal feedback from participants during the sorting task suggested a lack of clarity around the definition for the domestic and community category. This category was renamed and more clearly defined with the aim to improve clarity.

The results obtained during this stage provided important feedback that assisted with further development of the categories. The new categories were: *personal care, daily life and home maintenance*, defined as daily activities completed for maintenance of self, the home, and life/roles within the community; *recreation and relaxation* activities defined as activities completed in free time for fun, as a hobby or interest, including socialising with others; and

*high and low impact physical activities* defined as participation in any form of physical activity whether high or low intensity, team or individual sports.

Category finalisation.

Participants agreed that the 57 activities, which had been clearly sorted into three of the categories during category selection, should be retained within these categories with their revised definitions. The participants then clearly sorted 23 of the remaining 28 activities into one of three revised categories. The activity cards which continued to result in unclear placements included: beauty therapy, communicating via skype/phone/email, gardening, home decorating/renovating and volunteer work (See Table 3).

*[Insert Table 3 about here]*

Final activity card placements for these five activities were considered by the research team and the following decisions were made:

1. Volunteer work was placed into personal care, daily life and home maintenance as it aligned with the definition of productivity as a role which provides support and service to society (Sachs & Josman, 2003).
2. Communicating via skype/phone/email was a more difficult discussion and allocation. The intent of this activity card was to capture the use of the communication mediums for social networking and interactions outside of formal work or educational processes. Therefore, the activity remained within the recreation and relaxation category.
3. Beauty therapy was sorted by 55% of participants into recreation and relaxation and was retained within this category as it does not represent activities conducted within basic self-cares on a daily basis.
4. Home decorating/renovating was sorted by 49% of participants into personal care, daily life and home maintenance. This allocation was retained.

5. Gardening was sorted across the three categories by participants. The team identified the activity “home/yard/pool maintenance” which was placed within the personal care, daily life and home maintenance category. The intent of the gardening card was to depict gardening that was conducted as a form of recreation and relaxation and therefore the activity was finalised within recreation and relaxation.

Table 4 outlines the final placement of all activities within the three categories.

*[Insert Table 4 about here]*

### **Discussion**

The purpose of this study was to develop a version of the ACS that may be applicable to Australian adults aged from 18 to 64 years which is we are proposing to refer to as the ACS-Aus (18-64). A total of 85 items were included in the final tool. This is similar to the number of items (82) in ACS Australia for older adults. All activities in the ACS Australia were included in the final tool, either as a separate entity, combined with other items, or represented under broader terms. There are 31 items unique to the ACS Aus (18-64), supporting the development of an age-appropriate ACS tool for younger adults. The second stage in the development of the ACS Aus (18-64) was to identify and validate categories for the activities. Three categories were finalised for the tool, however the procedure clearly demonstrated the influence of personal meaning on the task of sorting the activities into categories. Each of these results will be discussed in more detail following an exploration of the diversity of the participant group.

The participant groups in each of stage of this study were recruited with the intent to include a diversity of backgrounds across the age range. The Australian Bureau of Statistics Census results from 2010 highlighted that 29% of the population were born overseas with the majority from a European and Asian background (ABS, 2011). The participant groups include between 16 and 26% of participants who were not born in Australia with a

predominance of European or Asian backgrounds. However, the study recruitment failed to meet the rates for an indigenous population. The diversity of educational level within the participant groups is nearing the rates reported by the ABS (2008b) of 60% of the population with a non-school level qualification (Stage One: n = 62.5% and Stage Two n = 52%). Although we are unable to state that the participant group is representative of the Australian population, we have captured a diversity that is nearing the rates reported by Census data.

The 31 new activities in this adult version clearly outline the differences between the type of activities people do in different stages of life. Many of these items represented physically demanding activities such as wheel sports (cycling, rollerblading/skating, skateboarding) or activities such as parenting, education- and employment-related activities that are typical for adults before retirement, while other items highlight generational change, such as social networking via the internet. Comparison of the ranking of activities represented in this tool and the ACS-Aus for older adults highlights the differences and similarities in the level of activity participation across life stages. The majority of instrumental activities were placed in the top fifteen most common items in both the younger and older adult versions of the ACS. However there were differences noted for activities such as driving which was the third most common activity in this study but was ranked at 23 in the older adult's version and using the internet received a ranking of 11 in this study, while it was placed at 76 by the older adults (Packer et al., 2008). The trends found in this study are similar to those identified in the Time Use Survey (ABS, 2006b).

The decision to incorporate all activities within broader activity categories in the final list are potential strengths of the tool, allowing the ACS Aus (18-64) to assess engagement over a wide age range and identify activities for many life stages (Katz et al., 2003; Doney & Packer, 2008). A person's life stage is often influenced by significant events such as getting married, starting a family, travelling or retiring, and these events occur at varying ages for all

people (Law, 2002) thereby determining their choice and level of activity engagement (Eriksson et al., 2011). Therefore it is important for client-centred practice that the final list of activities should be comprehensive. This influenced the decision to develop broad categories within the tool, acknowledging that these broad representations can be applied to promote discussion between therapists and clients about the specific activities within.

One of the findings of this study was that people were unable to clearly allocate activities across a number of categories. Sachs and Josman (2003) have previously identified that people attribute meaning to activities based on their experience of the activity and the context. This was clearly the experience of this study with the participants' attributed meaning contributing to challenges in creating consistent categorisation. The activity volunteer work was placed into either personal care, daily life and home maintenance or relaxation and recreation which clearly indicates the differences in how people may perceive volunteering, either as part of a daily routine or as an enjoyable hobby. The gardening activity was also split for placement into either high and low intensity physical activity or recreation and relaxation, indicating that for some people the meaning was linked to exercise but not for others. The notion of different meanings is supported by Pierce (2001) who has introduced two categories of occupations, subjective and contextual, each with three dimensions. The subjective dimensions pertain to how an individual perceives the appeal of the occupations and takes into account the individual's experiences with aspects of occupations such as productivity, pleasure, and restoration (Pierce, 2001). The contextual dimensions relate to the spatial, temporal, and socio-cultural environments that the occupational activity is experienced within (Pierce, 2001). The challenges for a unified categorisation system become apparent when you consider the various roles and environments within which activities may be completed by an individual,. Only the

individuals who have experienced an occupation can attribute a unique meaning to that experience (Sachs & Josman, 2003).

Despite the challenges with categorisation of activities, they are considered essential to provide structure for clinical utility of the Aus ACS (18-64), for research purposes and recording change in activity participation to guide therapy (Duncan & Earhart, 2011; Katz et al., 2003). It is important to acknowledge that identifying specific categories for activities is a complex process (Eriksson et al., 2011; Law, 2002) and the categories of the Aus ACS (18-64) may not meet the expectations of all individuals however this process has developed categories that are considered broadly representative of categorisation for the target age group.

### **Limitations**

The results of this study need to be considered in light of some limitations. Firstly, participant data were collected from within one state in Australia (Queensland), encompassing both metropolitan and rural areas. However other states within Australia, including regional areas were not included. This may introduce sample bias and decrease the generalisability of the findings to the larger population. Secondly, although the researchers attempted to capture a diversity of demographics in participants with a sample group that represented the diverse nature of the Australian population, it is important to acknowledge that purposeful and snowball sampling may inherently introduce bias. The sample numbers, although similar to previous ACS sample populations, was relatively small and this may limit generalisability.

### **Implications and Future Research**

This study has resulted in the development of a preliminary version of the ACS-Aus (18-64) which includes representative activities for adults. This tool has the potential to encourage occupational therapists to gather accurate and meaningful assessment results

pertaining to adult's activity choices and improve service provision in future. The categories improve clinical utility of the tool, providing a structure for recording and highlighting areas for intervention and for research purposes (Lyons et al., 2011; Packer et al., 2008). Further studies are required to validate the current categories and should perhaps be completed with a group of occupational therapy experts. In addition, further studies are required to determine the psychometric properties and validity of the assessment within this population and across clinical sub-groups.

### **Conclusion**

This study has developed the preliminary version of an Australian Activity Card Sort for adults aged 18 to 64 years, with a total of 85 items. The identification of activities that were unique to this population group and the comparisons between the ranking of common activities between the older adult group and this group, justify the assertion that a version for adults was required. . The development of categories to assist the clinical utility of the tool proved difficult with this population group with potential influences from the attribution of meaning to the categorisation process . The ACS Aus (18-64) requires further psychometric testing, including validation of the current categories, but may represent a valuable tool for occupational therapists to assist client-centred practices to empower and enable meaningful participation across all life stages.

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**Table 1**

*Participants' Demographic Data for Stage One and Two.*

Demographic data	Stage One		Stage Two	
	<i>n</i> = 61	Percentage of sample (%)	<i>n</i> = 65	Percentage of sample (%)
<b>Ethnicity</b>				
Australian/New Zealand	51	84	48	74
European	7	11.5	5	7.5
African	1	1.5	5	7.5
Asian	2	3	4	6
Americas regions	0	0	3	5
<b>Education level</b>				
Did not complete high school	5	8	7	11
High school	18	29.5	24	37
Apprenticeship or diploma	20	33	17	26
Degree	15	24.5	14	21
Postgraduate degree	3	5	3	5
<b>Current Status</b>				
Full time student	5	8	13	20
Part time student	1	1.5	3	5
Full time work	38	62	25	38.5
Part time work	7	11.5	14	21.5
Casual work	1	1.5	6	9
Unemployed	6	9.5	2	3
Retired	3	5	2	3
<b>Type of work</b>				
Managers	1	1.5	3	5
Professionals	16	26	16	24.5
Technicians and trade workers	9	15	4	6
Community and personal service workers	7	11.5	13	20
Clerical and administrative	0	0	12	18.5
Sales workers	7	11.5	5	9
Machinery operators and drivers	10	16.5	0	0
Labourers	2	3	0	0
Retired/unemployed	9	15	0	0
Other	0	0	11	17

**Table 2***List of the 99 Items Ranked from the Highest to Lowest Mean Score*

<b>Rank</b>	<b>Items</b>	<b><i>M</i> (<i>SD</i>)</b>
1	Purchasing goods (consumables and other household goods)	4.85 (0.44)
2	Watching television shows / DVDs / movies / YouTube	4.80 (0.48)
3	Driving (necessary)	4.75 (0.43)
4	Communicating via phone / email / letter / Skype	4.72 (0.52)
5	Food / drink preparation	4.61 (0.67)
6	Reading newspapers / magazines / books	4.61 (0.64)
7	Cleanup after food and drink preparations / meals	4.59 (0.69)
8	Visiting family / friends / neighbours	4.59 (0.69)
9	Listening to radio / music / records / tapes / CDs / MP3 players / iPods	4.57 (0.69)
10	Money management / paying bills	4.56 (0.67)
11	Using the internet (locating, researching, 'surfing', downloading, uploading)	4.56 (0.59)
12	Intimate activities (dating, talking, kissing, sexual intercourse) <sup>†</sup>	4.54 (0.74)
13	Laundry / clothes care (washing, drying, mending or ironing clothes)	4.49 (0.70)
14	Light household chores (dusting, tidying, taking the rubbish out, making the bed)	4.44 (0.81)
15	Attending family gatherings / events (includes children's concerts)	4.44 (0.72)
16	Going out for meals / drinks	4.41 (0.56)
17	Going on a holiday / travelling (Includes planning and preparation)	4.31 (0.65)
18	Recreational shopping	4.31 (0.79)
19	Substance use (Drinking alcohol, smoking, taking recreational drugs) <sup>†</sup>	4.31 (0.81)
20	Heavy household chores (vacuuming, changing the sheets)	4.30 (0.82)
21	Going to a movie / concert / performance	4.28 (0.86)
22	Employment-related activities (main job, other job, job searching, job related training and travelling, unpaid work in family business or farm) <sup>†</sup>	4.26 (0.89)
23	Thinking / reflecting / resting	4.26 (0.79)
24	Socialising at a club / party	4.13 (0.94)
25	Entertaining at home	4.08 (0.74)
26	Going to a picnic / barbeque	4.02 (0.81)
27	Social networking via the Internet <sup>†</sup>	3.95 (1.02)
28	Exercising (any activity performed with the purpose of exercise. E.g. walking, aerobics, going to the gym, running, jogging, stretching, etc.)	3.95 (0.83)
29	Home / yard / pool maintenance	3.89 (1.03)
30	Caring for and interacting with pets / animals (feeding, grooming, health care, cleaning, walking, stroking, petting, playing)	3.89 (0.69)
31	Doing favours / helping out	3.87 (0.74)

Australian Activity Card Sort For Adults

32	Taking a day / road trip or driving for leisure (beach, bush, mountains)	3.84 (0.71)
33	Beauty therapy (hairdresser, barber shop, spas)	3.84 (0.97)
34	Attending spectator sports (sports match, tennis, racing event)	3.77 (0.67)
35	Using public transport	3.70 (0.80)
36	Going to mass events (fairs, fetes, street events, fireworks displays, dances, balls)	3.70 (0.78)
37	Car / boat / bike maintenance and repairs	3.46 (0.87)
38	Parenting activities (playing, reading, talking, teaching, helping, reprimanding, visiting schools/child care establishments, and physical and emotion care) <sup>†</sup>	3.46 (1.12)
39	Preventative health-related activities	3.43 (0.96)
40	Golf	3.41 (0.80)
41	Restful outdoor activity (includes sitting outside and enjoying nature, looking at views) <sup>†</sup>	3.36 (1.11)
42	Gardening (growing flowers, harvesting home produce, composting)	3.36 (1.07)
43	Word/brain games (crosswords, Sudoku)	3.36 (0.86)
44	Hiking / bushwalking / walking along the beach <sup>†</sup>	3.34 (0.95)
45	Special Interest group / club/ courses	3.30 (0.92)
46	Cooking as a hobby	3.30 (0.88)
47	Gambling (bingo, pokies, poker, keno)	3.28 (0.76)
48	Going to the library / museum / exhibition / street gallery	3.28 (0.71)
49	Fishing	3.26 (0.77)
50	Education-related activities (homework, study, research, and attendance at educational courses- excludes job- and leisure-related courses) <sup>†</sup>	3.25 (0.85)
51	Gaming (console, computer, arcade) <sup>†</sup>	3.25 (1.06)
52	Photography (taking, reviewing, developing and editing photos and videos)	3.23 (0.88)
53	Managing financial investments (shares) <sup>†</sup>	3.20 (0.87)
54	Care-giving (for grandchildren, family and friends who are sick/disabled)	3.13 (0.94)
55	Going to the zoo / animal park / botanic gardens / amusement parks or centres (e.g. rock climbing) <sup>†</sup>	3.13 (0.97)
56	Religious activities	3.08 (0.86)
57	Pilates / yoga / tai chi <sup>†</sup>	3.07 (0.95)
58	Home decorating / renovating <sup>†</sup>	3.07 (0.89)
59	Bowling / lawn bowls / croquet	3.05 (0.96)
60	Swimming / water polo	3.05 (0.80)
61	Table games (chess, cards, board games, puzzles)	3.03 (0.87)
62	Volunteer work	2.98 (0.88)
63	Wheel sports (cycling, rollerblading, roller skating, skateboarding) <sup>†</sup>	2.97 (0.80)
64	Spiritual / meditation activities <sup>†</sup>	2.93 (0.98)
65	Music (performing, singing, composing)	2.92 (0.69)
66	Collecting	2.85 (0.93)
67	Tennis / badminton / squash / table tennis <sup>†</sup>	2.79 (0.84)
68	Boating / sailing <sup>†‡</sup>	2.79 (0.90)
69	Fine art (drawing, painting, sketching, pottery, sculpting) <sup>†</sup>	2.79 (0.78)

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70	Footballs (rugby union, rugby league, AFL, soccer) <sup>†§</sup>	2.77 (1.10)
71	Winter sports (skiing, snowboarding) <sup>†</sup>	2.70 (0.78)
72	Handwork, crafts (sewing, scrapbooking, knitting, crochet, leatherwork, basket making, quilting, embroidery, jewellery making, wood and metal work other than furniture or domestic repairs)	2.67 (0.85)
73	Surfing / kite surfing <sup>‡</sup>	2.66 (0.85)
74	Researching family history	2.66 (1.00)
75	Canoeing / kayaking / rowing <sup>‡</sup>	2.62 (0.82)
76	Water skiing / jet skiing / wake boarding <sup>‡</sup>	2.61 (0.74)
77	Doing up old cars / bikes / equipment <sup>†</sup>	2.59 (0.72)
78	Cricket <sup>†§</sup>	2.57 (0.85)
79	Snorkelling / scuba diving <sup>‡</sup>	2.57 (0.74)
80	Wine / beer making <sup>†</sup>	2.56 (0.79)
81	Literature (writing a book, poetry) <sup>†</sup>	2.51 (0.92)
82	Drama / acting (miming, circus performing) <sup>†</sup>	2.51 (0.83)
83	Dancing (ballet, contemporary, jazz, ballroom) <sup>†</sup>	2.49 (0.74)
84	Basketball / netball <sup>†§</sup>	2.48 (0.89)
85	Clothes making	2.44 (0.79)
86	Martial arts (judo, karate, Tai Kwon Do, etc) <sup>†¶</sup>	2.39 (0.69)
87	Horse riding <sup>†¶</sup>	2.34 (0.73)
88	Kite flying, Frisbee / boomerang throwing, hacky sack <sup>†</sup>	2.34 (0.83)
89	Athletics (track - long and short distance running, high jumps, javelin, discus) <sup>†¶</sup>	2.33 (0.72)
90	Baseball / softball / volleyball <sup>†§</sup>	2.33 (0.75)
91	Train / plane / bird / animal watching <sup>†</sup>	2.33 (1.04)
92	Model building / operating <sup>†</sup>	2.30 (0.78)
93	Motor sports (motorbikes, go carting, rally driving, dirt biking) <sup>†</sup>	2.21 (0.82)
94	Making furniture / household goods <sup>†</sup>	2.21 (0.82)
95	Extreme sports (bungy, base jumping) <sup>†¶</sup>	2.20 (0.83)
96	Shooting / archery / paintball / laser force <sup>†¶</sup>	2.18 (0.62)
97	Flying / paragliding / skydiving <sup>†¶</sup>	2.13 (0.69)
98	Hockey / polo <sup>†§</sup>	2.11 (0.75)
99	Gymnastics <sup>†¶</sup>	1.77 (0.72)

Note. *M* = mean; *SD* = standard deviation.

<sup>†</sup> Items unique to the ACS for adults aged 18 to 64 years. <sup>‡</sup> Items collapsed into the broad representation of water sports. <sup>§</sup> Items collapsed into the broad representation of team sports. <sup>¶</sup> Items collapsed into the broad representation of individual sports.

**Table 3***Second Round Delphi Results of Activities Not Clearly Categorised (N = 53)*

Activities	Categories <i>n</i> (%)		
	Personal care, daily life and home maintenance activities	Recreation and relaxation	High and low impact physical activities
Volunteer work	25 (47.2)	25 (47.2)	3 (5.7)
Communicating via skype/phone/email	24 (45.3)	29 (54.7)	0 (0)
Beauty therapy	21 (39.6)	30 (56.6)	2 (3.8)
Home decorating/renovating	26 (49.1)	19 (35.8)	8 (15.1)
Gardening	22 (41.5)	19 (35.8)	12 (22.6)

**Table 4***Classifications of Activity Cards into Redefined Categories Following Second Round Delphi Results*

<b>Personal care, daily life and home maintenance activities</b>		
Money management/paying bills	Home/yard/pool maintenance	Managing financial investments
Purchasing goods	Driving	Doing favours/helping out
Food and drink preparation	Using public transport	Caring for pets/animal interaction
Clean-up after meals	Car/boat/bike maintenance/repairs	Care giving
Laundry/clothes care	Employment related activities	Parenting activities
Light household chores	Education related activities	Religious activities
Heavy household chores	Preventative health related activities	Volunteer work
<b>Recreation and relaxation activities</b>		
Watching TV shows/movies/DVD's	Wine/beer making	Researching family history
Reading newspapers/magazines/books	Making furniture/household goods	Clothes making
Listening to radio/music/mp3/i-Pod	Handwork/crafts	Attending spectator sports
Thinking/reflecting/resting	Doing up old cars/bikes/equipment	Fishing
Going on a holiday/travelling	Model building/operating	Beauty therapy
Recreational shopping	Train/plane/bird/animal watching	Communicating via skype/phone/email
Going to a movie/concert	Using the internet	Restful outdoor activities
Gambling	Going to picnic/barbecue	Fine arts
Table games	Attending family gatherings	Literature
Gaming	Intimate activities	Drama/acting

Going to exhibition/museum/library	Entertaining at home	Music
Going to zoo/park/gardens/theme park	Socialising at a club/party	Substance use
Going to mass events	Social networking via internet	Word/brain games
Gardening	Special interest group/club/course	Going out for meals/drinks
Photography	Collecting	Visiting family/neighbours/friends
Cooking as a hobby	Taking a road trip/driving for leisure	
Home decorating/renovating	Spiritual/meditation activities	

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**High and low impact physical activities**

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Exercising	Wheel sports	Water sports
Golf	Motor sports	Frisbee/kite/boomerang/hacky sack
Swimming/water polo	Winter sports	Pilates/yoga/tai-chi
Tennis/badminton/squash/table tennis	Team sports	Hiking/bush walking/ beach walking
Bowling/lawn bowls/cricket	Individual sports	Dancing

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