

The Recreational Use of Natural Environments by Danish and New Zealand Tertiary Students

Erik Mygind

Institute of Exercise and Sport Sciences, University of Copenhagen, Denmark

Mike Boyes

School of Physical Education, University of Otago, Dunedin, New Zealand

Introduction

Outdoor education is an established and integrated part of physical education (PE) programmes in New Zealand (NZ) and Denmark (DK), but there is little evidence of a deeper understanding of the students' prior experiences with outdoor recreation activities. It was envisaged that further knowledge about PE students' backgrounds and experiences would offer new information and insights on which to plan and improve contemporary programmes and establish a platform for discussions and reflections about outdoor recreation in NZ and DK.

The natural environments of the two countries have some similarities, for instance extended and accessible coastlines and maritime climates, but are generally very different and these have a significant impact on the perception, pattern and frequency of participation in outdoor activities. New Zealand has vast wilderness areas with millions of hectares of forests, lakes, rivers and mountains held in public ownership in National Parks representing over 30% of the land area (Devlin 1993). In many of these areas there is little impact of human beings thus offering extended possibilities for outdoor experiences and educational programmes. Much of the public estate has legal freedom of access. The Queens chain allows access to natural areas along the banks of waterways (Boyes 1995). A good road system allows quick and easy vehicular access. Most people live close to a coastline that facilitates beach access and in winter access to alpine and snow areas can be made by most of the populace within five hours.

In contrast, the natural scenery in Denmark is mainly farmland with only 12 % of the country being forested and less than 1% of the land area considered as wilderness. In effect Denmark is a nation with human fingerprints around every corner. Danes frequently use forests, beaches, parks and small rivers for outdoor recreational activities, but the most noticeable natural feature is the very long coastline of 7.700 km. mainly attributed to a large number of about 550 islands. These provide a plethora of sheltered coastlines, fjords and straits and form an outdoor environment that creates a significant impact on the Danes relationships to nature and involvement in outdoor pursuits. Some of these coastlines

A B S T R A C T

The purpose of the study was to compare demographic profiles, agents of socialisation on participation in outdoor activities and preferences for spending time in natural areas of New Zealand and Danish physical education students. The data were gathered by questionnaire from 270 Danish and 241 New Zealand students. New Zealand students expressed a stronger perception of being an outdoor person and may be linked to the fact that 12% of the Danish students have lived their lives in rural areas in contrast to 30% of the New Zealand students. Further, school and sport clubs were ranked higher by New Zealand students as factors of influence on outdoor life activities. Friends and parents/ family were the most influential agencies of socialisation with no differences between nations. More than 92% of the Danish and New Zealand students had previous experiences of longer lasting outdoor trips. The study provide data for ongoing interpretation and create a basis for questions and reflections for the benefit of students in both institutions.

could be perceived as the last "wilderness areas" of Denmark. From all of Denmark the coastal regions can be reached within 60 minutes by vehicle. However with no mountains and a coastal climate Danes have to travel to practise outdoor winter activities. The close proximity (within 1 day's travel) of snow and alpine areas in Norway, Sweden and Central Europe make these countries some of the most popular destinations for winter leisure time.

There are large differences in population density between the two countries with New Zealand having a population of 3.8 million people on a land mass that is about five times bigger than Denmark where there is a population of 5.2 million. Between 85-90 % of Danes live in cities throughout the country (Bonke 1997) and about 70% of New Zealanders live in cities and larger towns that are located mainly in coastal areas (Statistics New Zealand 2000).

It is clear that opportunities to participate in outdoor activities are in abundance in both countries, with 90% of New Zealanders using the outdoors for pleasure (Devlin 1993, p. 96), and 91% of the Danish population visiting a forest and the beach at least once a year and preferring a nature experience before any other leisure time activity (Jensen 1998, Jensen 1999).

Related Danish and New Zealand research projects

There is a dearth of research findings directly comparing outdoor recreation patterns between university PE students in different countries. However, some research endeavours have been undertaken in related areas. The Life in New Zealand (LINZ) survey has been conducted over a number of years and this New Zealand Government funded project has produced a large amount of data detailing the recreational patterns of New Zealanders (Wilson 1991). Some of the findings of this study confirm that walking is a popular activity with a 75% participation rate, and running and cycling about 38%. Many young people consider leisure in terms of excitement and entertainment and 40 to 60% belong to sports clubs (including outdoor activity clubs).

The beach, lake and river were specified as the most used leisure locations by 60% of males and 40% of females (ibid).

More recently, a research project called "Friluftsliv 95" has been undertaken in Denmark to describe the outdoor activity patterns among Danes between 16-77 years (Jensen 1998). As a part of this project an earlier population study from 1976/78 analysing forest recreation patterns was repeated again in 1993/94 to look for trends, preferences and changes over time (Jensen 1999). Further, "Friluftsliv 95" was extended to include all natural environments outside the cities and not only the forests. The results describe phenomena such as the frequency of visiting different natural places, the type and number of nature types preferred on the same trip, solo and group experiences, choice of outdoor activities, travel time and distance to nature areas, attitude and motivation, etc. This project seems to provide valuable information and might be relevant as a reference to the present research project with physical education students.

From these studies there is strong evidence for outdoor recreational activities in natural environments forming an increasingly important part of leisure time pursuits in New Zealand and Denmark.

Purpose

The purpose of the present project was to achieve a better understanding of the outdoor activity experiences of first year university physical education students in Denmark and New Zealand. First year students were chosen with the intention to make questionnaires and interviews after 3-4 years when outdoor education courses were completed and to establish a distinct reference for future comparisons with PE students in other countries. We proposed that any differences between the two countries were related to the outdoor recreation environmental resources of each country and the links between culture and leisure choices. Some of the specific research questions we proposed were:

- What are the demographic profiles of the New Zealand and Danish physical education student samples?
- What is the relative importance of the agents of socialisation on participation in outdoor activities?
- What are the preferences for accommodation in shorter and longer lasting outdoor activities?

Methods

Data were gathered from 270 of the 297 first year PE students at the three Danish universities offering physical education in Odense, Aarhus and Copenhagen. The New Zealand sample of 241 from 290 was drawn from the first year PE students at the University of Otago, Dunedin, New Zealand. Students from all over the country are enrolled at this university to study physical education and thus represent the average New Zealand PE student.

Questionnaire

The research instrument took the form of a questionnaire initially written in English for administration to the New Zealand participants and translated to Danish by the authors in order to validate the interpretation and understanding of the questions for the Danish sample. The questionnaire was comprised of 26 main questions many with smaller items predominantly represented with four and five point Likert-style item scales. This style was used to facilitate student completion and aid data entry. Several open-ended questions relating to motivation were also included. The main areas of interest were the students' outdoor activities, natural environments, time spent in participation, motivations for participation, outdoor accommodation and agents of socialisation. Baseline demographic data included gender, age, income and home location. The full questionnaire is available on request from the authors.

Procedures

The questionnaires were administered in 1999 in Denmark with a completion percentage of 91% and in New Zealand all data was collected at the University of Otago in 1999 representing 83% of the first year PE students. In both countries the questionnaire was handed out to the students in association with lectures or class meetings. The students used about 25 minutes to complete the survey and it was accepted that questions of clarification could be asked to the researchers if anything needed to be elucidated.

Data analysis

The data were analysed using descriptive and non-parametric techniques because of the nominal and ordinal nature of the data and failure to meet the assumption of normality in some of the variables. Means and standard deviations are presented to provide descriptive information, the Chi-square test is used to examine relatedness and The Mann-Whitney U test was used to compare the two countries, testing the hypothesis that two independent samples come from populations having the same distribution.

Results and discussion

Age and income

The average age of the Danish (DK) students was 24.1 years compared to 18.9 years for the New Zealand (NZ) sample (refer to Table 1) and a statistically significant difference was confirmed (Mann-Whitney U (270, 241) = 3742.5, $z = -17.5$, $p < .01$). In both countries males were about 1 year older than females. Income was also significant higher for males and females in Denmark compared to NZ students (U (270, 241) = 4140.5, $z = -17.2$, $p < .01$). The average PE student income in Denmark was about 60.000 DKR or 15.000 NZ\$ while a NZ student would earn about 30.000 DKR or 7-8.000 NZ\$. (In October 1999 1US\$ = approx. 1.96NZ\$ and 8DKR).

The different cultural and educational traditions in the two countries may explain these differences. While most New Zealanders desiring a university degree go straight into the university system after secondary school (about age 17-19), a Danish student will enter a tertiary school (gymnasium) from years 16-19 which is compulsory before admittance to a Danish University. After secondary or tertiary school many Danes will traditionally travel abroad or spend a year in folk high school (a school offering courses for personal development). Some students will study another subject (i.e. Danish language, history, social science, biology, etc.) and finish this part of their education before entering the University to study Physical Education. Every student can apply for state funding and get financial support for the duration of their bachelor or masters degree, which is paid for by the Danish tax system. The amount of money available per year in 1999 was 40.000 DKR or about 10.000 NZ\$ and this explains the relatively higher income of the Danish students.

In contrast a university education is regarded as a personal benefit by the New Zealand politicians (influenced by neo-liberal theories) and thus the general expectation is that students and their families have the responsibility for their own funding of fees and living expenses. An extensive loan scheme is in operation to assist the vast majority of students who lack the personal resources to fund their degree programmes. The consequence is that the New Zealand students have less disposable income and are likely to be in debt (Statistics New Zealand 1999).

Table 1 Descriptive background information for New Zealand and Danish physical education university students in 1999

	Age		Income*		Years lived in a City		Years lived in a Town		Years lived in Rural areas		Years lived in Forest or Wilderness areas	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
DK Female	23.5	3.1	3.8	1.3	11.1	10.1	9.2	9.2	2.7	6.6	0.5	2.6
Male	24.5	3.1	4.1	1.4	13.3	10.4	8.6	9.5	1.8	5.0	0.8	3.5
DK Total N=270	24.1	3.1	4.0	1.3	12.4	10.3	8.9	9.4	2.2	5.7	0.7	3.2
NZ Female	18.3	1.3	1.3	0.6	9.1	8.6	3.5	6.3	5.7	7.5	0	0.3
Male	19.5	3.0	1.7	1.2	8.7	8.5	5.4	7.3	5.3	7.8	0.2	1.7
NZ Total N=241	18.9**	2.4	1.5**	1.0	8.9**	8.5	4.4**	6.8	5.5**	7.6	0.1**	1.2

** <0.01. Significant difference between DK and NZ

* Income 1= <5,000 NZ\$ or 20,000 DKR;

2= 5-10,000 NZ\$ or 21-40,000 DKR;

3= 11-15,000 NZ\$ or 41-60,000 DKR;

4= 16-20,000 NZ\$ or 61-80,000 DKR;

5= 21-30,000 NZ\$ or 81-120,000 DKR;

6= >30,000 NZ\$ or 120,000 DKR.

Location of residence

In this question the participants were asked to indicate the number of years that they had lived in cities, towns, rural areas and wilderness / forest settings. For all of the locations, statistically significant differences were apparent. The Danes were more likely to reside in cities (U (269,238) = 22760.5, z = -5.6, p < .00) and the New Zealanders in towns (U (268,239) = 52286.5, z = -5.5, p < .00) and rural areas (U (268,238) = 60482, z = -5.5, p < .00). More Danes have resided in forest

areas although the numbers indicating this option from both samples were very small.

The Danish students spent an average of 21.2 years out of 24.1 years in cities and towns but only 2.9 years in rural and forest environments (refer to Table 1). In effect, 12% have lived their lives in rural or wilderness settings. In contrast the NZ students have lived significantly more years in rural areas. For most, 13.3 years out of 18.9 years were spent living in cities and towns, which means that 30% of New Zealand students on average lived in the countryside in 1999. Gender differences in both samples were not significant.

These figures tend to reflect the information on the wider populace where more of the population still lives in rural areas in New Zealand compared to Denmark. Although differences were apparent, both nations share a common trait in that most people live in cities or towns and have done so for a number of decades. However the shape and size of both countries means that most people have relatively easy access to natural places although the nature of these environments differs between the countries.

Influential agents of socialisation

One of the aims of the study was to investigate the relative importance of the agents of socialisation on outdoor activity participation. To highlight this question the students were asked to express what kind of influence the different agents had on their participation in outdoor activities. The choices offered were a graduation from one to four with (1) = No influence; (2) = little influence; (3) = some influence; or (4) = large influence. The results of this analysis appear in Table 2.

Table 2 The influence of agents of socialisation on outdoor life activities for physical education students in New Zealand and Denmark

Variables	NZ + DK		Denmark		New Zealand				
	Mean	SD	N=	Mean	SD	N=	Mean	SD	N=
Friends	3.4	0.8	504	3.4	0.9	269	3.5	0.7	235
Parents and family	3.3	0.9	504	3.2	1.0	269	3.3	0.8	235
Sport clubs	3.0	1.1	500	2.6	1.2	269	3.3**	0.9	231
School	2.6	0.8	493	2.3	0.9	269	2.8**	0.7	231
Media	2.5	1.0	499	2.5	1.0	267	2.5	1.0	232
Scouts/guides	1.8	1.2	494	1.8	1.2	265	1.8	1.1	229
Pre school Institutions	1.7	0.9	501	1.8	0.9	267	1.6**	0.9	234
Outward bound	1.4	0.8	489	1.2	0.7	262	1.5**	1.0	227
Other	3.5	1.1	81	3.9	0.4	61	2.3**	1.4	20

Mean values: 1=No influence, 2=of little influence, 3=of some influence, 4=Big influence.

Significant difference between NZ and DK first year physical education students: * = P<0.05, ** = P<0.0

High influence on participation in outdoor recreation activities

The overall picture from both nations was that friends and parents / family were the most influential agencies with no statistical differences being apparent between NZ and DK (Table 2). This is not a surprising finding, but although only mentioned by a few, of interest is the overall importance of the category other factors, with the Danish students ranking this category highly in comparison to the NZ sample (DK mean = 3.9, NZ mean = 2.3. $U(61,20) = 443$, $z = -6.0$, $p < .01$). This could be attributed to the number of Danes attending the optional folk high school year, which offers different kinds of outdoor life courses and experiences that have been influential.

Medium influence

Media tends to have the same influence regardless of nation ($U(267,232) = 56786$, $z = -.788$, $p > .43$). For the overall sample the sport clubs category was ranked higher than school and media as factors mentioned of medium importance. The strength of the sports clubs finding was influenced by the NZ sample where this category was ranked significantly higher than the DK sample ($U(269,231) = 57387$, $z = -6.54$, $p < .01$) and as importantly as the parents /family category.

Similarly school (here defined as primary, secondary and tertiary school until university) was significantly more important to NZ students compared to the Danish ($U(269,222) = 56461$, $z = -6.390$, $p < .01$). Which are the factors that could explain this difference?

In learning areas such as biology and physical education it is recommended that the Danish students do get experience and confidence in natural environments and nature. In the upper secondary school or Gymnasium (age 16-19) outdoor activities were mentioned for the first time in the curriculum in 1984 (Bekendtgørelse nr. 305 af 3 juni 1984), and thus could be part of a student's experience. Today, the only compulsory outdoor activity courses are offered at university level in the Danish education system. The study of Physical Education in Copenhagen has offered outdoor activity courses since 1985 (Mygind 1989). In conclusion, outdoor activities in the Danish schools are very dependent on the competency and interest from administration, leaders and teachers and do not have a mandatory base. Outdoor activities is not a compulsory subject in the Danish primary and lower secondary school.

In 1991 the Education Amendment Act formalised a new curriculum that became the official policy for teaching, learning and assessment in New Zealand's schools. Of the essential learning areas the Health and Physical Education curriculum statement mandated outdoor education as a compulsory key area of learning. Thus all New Zealand school children are required to have experiences in adventure activities and outdoor pursuits. This included "investigating the importance of the natural environment and outdoor activities to the wellbeing of all New Zealanders." (New Zealand Ministry of Education 1999, p. 46).

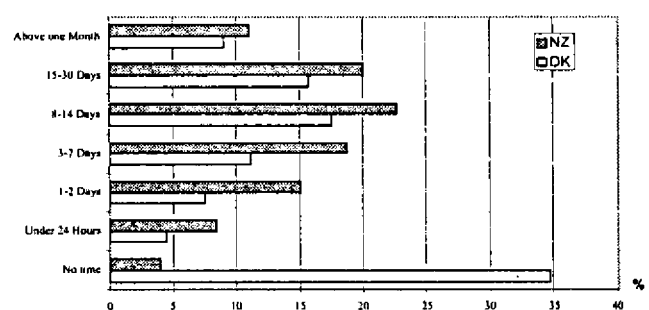
The longstanding focus on outdoor activities in the New Zealand school curriculum, for instance where outdoor education is a compulsory component of the Health and Physical education syllabus, compared to the Danish curriculum where it is optional, might reflect the discrepancy. This relationship is worthy of further research. The reason why sport clubs were valued much higher among the NZ students is harder to explain.

Outdoor trips

Outdoor trips (expeditions, journeys) are a significant part of the outdoor education programmes in Denmark and New Zealand and from this point of view, it was felt to be of interest to analyse the outdoor trip patterns.

92% of the Danish and 95% of the New Zealand students had previous experiences of longer lasting outdoor trips with no significant difference between the two nations. Other results showed that the New Zealand students spent significantly more time on longer trips using huts, campers or motels compared to Danes, whether this was a weekend or more than a month in the last two years (Figure 1). This difference was illustrated by the fact that nearly 35% of the Danes versus 4% of New Zealand students spent no time on longer trips. The results indicated a stronger tradition among New Zealand students to spend time on the longer trips using huts, campers or motels. Further, the low income and young mean age might indicate that these outdoor recreation experiences mainly took place with the family.

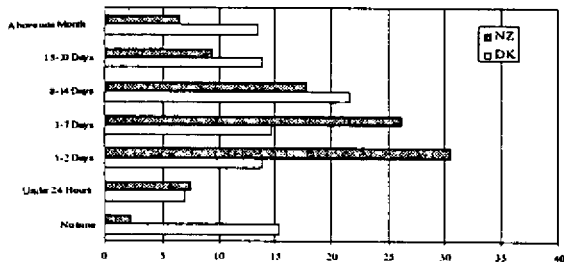
Figure 1 Percent of time spent several nights in huts, camper vans or motels in the last two years



During longer trips using tents, bivouacs or shelters 15.4% of the Danish students did not spend time at all on this activity versus 2.2% New Zealand students in the last two years. Further, the Danes used significantly less time during trips lasting from 1 day and up to 7 days, but when the period was extended to more than 7 days and up to more than one month the Danes spent significantly more time on trips with 'simple' outdoor life. New Zealand students also preferred tenting on trips, but because of easier access to wilderness areas tended to use weekends or a few days. This interpretation could be explained in terms of differences in leisure and holiday patterns where Danish students prefer to travel for several weeks to

wilderness areas abroad. A higher mean age and more available money might suggest that outdoor experience is preferred with friends rather than family.

Figure 2 Percent of time spent several nights in tents, shelters or bivouacs in the last two years



Outdoor portrait

We were interested in the degree to which PE students identified with and saw themselves portrayed as outdoor people and we saw this as an indication of how much they related to the natural environment. As evidenced in Table 3, New Zealand students on average ranked themselves as ‘often’ portrayed as an outdoor person. In comparison the Danish students were significantly lower in this self-perception ($U(267,270) = 55715, z = -7.639, p < .01$). The perception of being an outdoor person is influenced by the nature of the environment, culture, traditions and socialisation processes and seems to be further underlined by the outdoor trip patterns mentioned above (Figure 1 and 2). The New Zealand students’ self perception’ may also be linked to the belief that New Zealand is seen as being a “green” tourist country with vast wilderness areas.

Table 3 Outdoor portrait for Danish and New Zealand students

Variables	Denmark			New Zealand		
	Mean	SD	N=	Mean	SD	N=
Portrait as an outdoor person	3.2	1.0	267	3.9**	1.0	240

Mean values related to portrait as an outdoor person: 1 = never, 2 = occasionally, 3 = regularly, 4 = often, 5 = always
 Significant difference between NZ and DK first year physical education students:
 * = $p < 0.05$, ** = $p < 0.01$

Conclusions and perspectives

The purpose of the present study was to examine New Zealand and Danish PE students outdoor recreation patterns and to compare differences across cultures. Significant differences were found in living conditions during years of growth reflecting the landscapes and natural areas in both countries. Differences were found in age, income and educational systems. Outdoor activities is not a compulsory subject in the Danish primary and lower secondary school while all New Zealand school children are required to have experiences in adventure activities and outdoor pursuits. But how do outdoor recreational activities relate to i.e. care for the environment? Although younger of age the New Zealand students generally seemed to be more experienced with outdoor recreational activities than the Danish students. From this knowledge an

interesting question emerge to be discussed with the students. How is the relationship between outdoor experience and environmental consciousness? How do media and school influence PE students attitude to outdoor recreational activities, etc.

A very high percentage of the students in NZ and DK have tried outdoor recreational activities. Overall, there is a wide range of outdoor activities that people undertake and for a wide variety of reasons (Priest & Gass 1997, Chapter 4). With vastly increasing numbers of participants the impact on natural places can be profound and there is a constant tension between maintaining the quality of the natural environment that is part of the attraction in the first place and providing a quality experience for large numbers of participants. Some of the activities by their modus operandi have a larger impact on the environment (eg. camping in wilderness areas) and others have a lower impact (eg. parapenting). Some activities are cheap – other expensive, etc. What kind of impact has different outdoor recreational activities and travel patterns on the environment and natural areas?

We suggest that the results of this study provide data for further interpretation and create a basis for future research. The possibilities to integrate the present information in the teaching processes may create new theoretical approaches and initiate reflection regarding outdoor activities for the benefit of the students in both of the institutions. ☺

References

Bonke, J. (ed) 1997, 'Levevilkår i Danmark', *Statistisk oversigt 1997*. (Living Conditions in Denmark. Compendium of Statistics), Socialforskningsinstituttet, København, 443 pp.

Boyes, M. A. 1995, *The Queen's Chain*, MOA Matauranga O Aoturoa, July, pp. 15-16.

Devlin, P.J. 1993, 'Outdoor recreation and environment: Towards an understanding of the use of the outdoors in New Zealand', in H.C. Perkins and G. Cushman. eds, *Leisure, Recreation and Tourism*, Longman Paul, Auckland, NZ, pp. 84-98.

Friluftsrådet (ed) 1997, *Friluftsliv for alle* (Outdoor life for everybody). – Friluftsrådet, København, pp. 104.

Grady, D 1987, *Outward Bound at Anakiwa*, Century Hutchinson, Auckland, NZ.

Jensen, F. S. 1998, *Friluftsliv i det åbne land* (Outdoor Life outside the cities). – Forskningserien nr. 25, Forskningcentret for Skov & Landskab, Hørsholm, pp.155.

Jensen, F. S. 1999, *Forest Recreation in Denmark from the 1970s to the 1990s*. The Research Series, vol. 26, Danish Forest and Landscape Research Institute, Hørsholm, pp. 166.

Mygind, E. 1989, *Hvad er friluftsliv? – om oplevelser og holdninger*, Danmarks Højskole for Legemsøvelser, 2 udgave, København, pp. 41.

- National Forest and nature Agency. (ed) 1995, *Experiencing the State Forests. Outdoor life on the areas of the National Forests and Nature Agency*, Ministry of Environment and Energy, the National Forests and Nature Agency, Copenhagen, pp. 48.
- Priest, S. and Gass, M. A. 1997, *Effective Leadership in Adventure Programming*, Human Kinetics, Champaign, IL.
- Statistics New Zealand 1999, *New Zealand Official Year Book*, Statistics New Zealand, Wellington, NZ.
- Wilson, N. (ed) 1991, *Life in New Zealand: Commission Report*, Hilary Commission of Recreation and Sport, Wellington, NZ.