



Faculty of Education

Research News

JANUARY, 2004 – ISSUE 1

GRANT SUCCESS FOR FACULTY

Two Successful 2004 ARC Discovery Grants for the Faculty of Education

Chief Investigator(s): Dr J. Wright and Dr D. McDonald

2004 \$	2005 \$	2006 \$	Total \$
\$74,000	\$75,000	\$70,000	\$219,000

Project Title: Young people, physical activity and physical culture: a longitudinal study

Project Summary: The relationship between physical activity and the health of young people is currently a matter of national and international concern. This project will investigate the place and meaning of health, physical activity and physical culture in young people's lives from a longitudinal and qualitative perspective. It will build on the findings of a three year study of young people's engagement with physical activity. Specifically it will follow cohorts of students from different social, cultural and geographical locations as they move beyond school and make choices associated with health and physical activity in relation to the changing conditions of their lives

Chief Investigator(s): Dr BM Derewianka and Prof FH Christie

2004 \$	2005 \$	2006 \$	Total \$
\$40,000	\$40,000	\$22,000	\$102,000

Project Title: Key indicators of development in adolescent writing.

Project Summary : The project aims to identify significant indicators of development in the writing of adolescents at various stages of secondary education. There are a number of students who struggle with the demands of secondary schooling because they have not developed control over the more abstract, technical, and metaphorical language required in written assignments and examinations. This study will map the development of those linguistic resources critical to success in secondary learning, drawing on and extending Halliday's functional theory of language. An understanding of typical patterns of development will enable teachers to productively intervene in those cases where students' academic progress is impeded.

Sue Bennett, Lori Lockyer and Shirley Agostinho were awarded a \$5000 research grant NextEd at the ASCILITE 2003 Conference. The research is titled: "An investigation of how instructional designers and tertiary teachers make use of generic learning designs as a framework for incorporating learning objects into online courses in tertiary education". Recipients are invited to present their paper at ASCILITE 2004 - Perth.

The Faculty has had another research success in the continuation of funding for a second year of the "Smart Learning Design Framework" project through the CRC for Smart Internet Technologies. **Barry Harper** is leading the collaborative research team comprised of **Sue Bennett, Lori Lockyer** and Jason Lukasiak (Faculty of Informatics). This funding continues **Shirley Agostinho's** role as Post Doctoral Fellow and Brett Powley as Senior Research Fellow, Software Engineer as key contributors to the project. For this year of the project, Brett will be relocated from TITR in Informatics to the DMC office in Building 22.

Shooshi Dreyfus, postgraduate research student, has been awarded a grant of \$3,950 by an external organisation called AGOSCI (Australian Group on Severe Communication Impairment) to go to Brazil in October this year to present a paper at the ISAAC (International Society for Augmentative and Alternative Communication) biennial conference and research symposium.

NEW FACULTY RESEARCH COMMITTEE MEMBERSHIP

FACULTY RESEARCH COMMITTEE MEMBERSHIP As at February 2004

2004 Faculty Research Committee Membership	Currently Occupied By:
Dean	Barry Harper
Assoc Dean (Research) – Chair	Jan Wright
Assoc Dean (Research) – Deputy	Bev Derewianka
Associate Dean – Graduate	Brian Ferry
Director – Graduate Teaching	Wilma Vialle
RILE nominee	Sue Bennett
Language Research Group nominee	Bev Derewianka
Learning & the Learner Research Group nominee	Peter Kell
Research & Innovation in Professional Education Research Group (RIPER) nominee	Narottam Bhindi
Youth Research Group nominee	Valerie Harwood

DMC nominee	Lori Lockyer
Undergraduate Honours Co-ordinator	Pauline Harris
Postgraduate Research Coordinator	Lori Lockyer
One other elected staff member	Christine Fox
New Researcher Nominee	Honglin Chen
Student HDR Representative	Vacant
Human Research Ethics Representative nominee	Deslea Konza

POSTGRADUATE RESEARCH STUDENT EMAILS

Would Academic supervisors, please remember to advise new students that their UOW email address is the official email of communication from the Faculty and the University. If they have another address they check more often they should be forwarding their UOW one. Supervisors are asked to remind current students to check their UOW emails. This is also important for the operation of the Faculty Research Listserv which is currently being set up. More information on this to come in the future.

REPORT ON SUPERVISION WORKSHOP

A Supervision Workshop was held on 4 February 2004 and staff were advised about new procedures regarding the Commencement Form etc. Supervisors were asked to strongly encourage any new PhD students to attend EDGZ924 Research Proposal. The Assoc. Dean Research has emailed a schedule and subject outline to the Faculty.

DEST 2003 PUBLICATION COLLECTION DEADLINES

Please note the collection for 2003 Publications is currently underway. If you have published any books, book chapters, journals or refereed articles in Conference Proceedings with a 2003 publication date, please forward Karen McRae, Professional Officer (Research) a hard copy of the publication as soon as possible.

Final deadlines for collection in the Library are:
 Friday 16 April 2004 – Books and Book Chapters
 Friday 14 May 2004 – All Remaining Publications

FACULTY WRITING WORKSHOP SERIES

Writing a Grant/Chapter/Article/Conference Paper?

Do you have a paper half written or a chapter to prepare? Are you thinking about applying for a grant (Faculty, URC Small, New Partnership, ARC etc)? Do you want to meet regularly with peers in a 'led practice' to help you do this through peer review, strategic input from 'experts' etc? Sign up for the Faculty Writing Workshop series, Monday 12.30-1.30 every month (or so), beginning 16th March 2004. The workshops will involve hands on working on drafts, tips about publication, deconstruction successful papers and grants. Lunch provided. If you are interested please email Karen McRae.

CONFERENCE PRESENTATIONS

Tony Okely and three honours students presented at the Australasian Society for the Study of Obesity (ASSO) Conference held in the Hunter Valley from 24-26 October. Their abstracts follow.

FEASIBILITY OF SHARK: A PHYSICAL ACTIVITY PROGRAM FOR OVERWEIGHT AND OBESE CHILDREN

Okely, AD^{1,3}, Wilson, A.^{1,3}, Cliff, D^{1,3}, Steele, JR^{2,3}

¹Faculty of Education, ²Department of Biomedical Science and ³Metabolic Research Centre, University of Wollongong, NSW

With many physical activity interventions among obese children having high attrition rates, it is important to examine new and innovative approaches to promoting physical activity among obese children. The purpose of this study was to assess the feasibility of a physical activity program for obese children. Specifically, the study investigated how to recruit eligible participants, implement data collection procedures, and maintain participation throughout the program.

13 overweight/obese children aged 8 to 12 participated in SHARK (Skill Honing & Active Recreation for Kids), a 10-wk program aimed at increasing physical activity by improving movement skills and perceived competence. Movement skills, perceived competence and objectively measured physical activity were assessed at the beginning and end of the program. Program adherence was monitored through attendance and completion of home challenges. Each session was videotaped and evaluated. Parents and children were interviewed at the end of the project.

Using the local media and division of general practice, the targeted number of participants were successfully recruited. Using a TARGET structure a successful mastery climate was created in each weekly 2-hour session. Combined with home challenges and regular follow-up of participants and parents, only one participant dropped out of the program. Data collection procedures were successfully implemented, although modifications were required for the post-test collection of physical activity data.

This pilot study has gathered valuable data on how to recruit participants, implement data collection procedures and identify required modifications. It is recommended that physical activity interventions among obese children incorporate this phase into their design.

PROMOTING PHYSICAL ACTIVITY AMONG OVERWEIGHT AND OBESE CHILDREN: A PILOT STUDY USING A MASTERY MOTIVATIONAL ENVIRONMENT

Amy Wilson^{1,3}, Dylan Cliff^{1,3}, Tony Okely^{1,3} & Julie Steele^{2,3}

¹Faculty of Education, ²Department of Biomedical Science and ³Metabolic Research Centre, University of Wollongong, NSW, 2522, Australia

Objective: This study examined an innovative method of promoting physical activity among overweight and obese children through creating a mastery motivational climate.

Research methods and procedures: Thirteen overweight and obese children (mean age of 9.88 ± 1.26 years and BMI of 25.84 ± 4.02 kg/m²) were recruited to participate in SHARK (Skills Honing & Active Recreation

for Kids), a 10-week program aimed at increasing physical activity by improving movement skills and perceived competence. The intervention was delivered by two trained instructors in an after-school community setting and also involved a weekly home challenges component. Baseline and week 10 assessments included height and weight, motor development, perceived competence, and physical activity (accelerometers). This presentation reports the findings for motor development and physical activity.

Results: Paired-samples *t*-tests revealed significant improvements (all *p* values < .05) in locomotor $t(11)=4.49$; object control $t(10)=8.41$; and overall motor development $t(10)=9.63$. For physical activity variables, post-hoc effect size calculations revealed that the sample size did not provide adequate statistical power to protect beta.

Discussion: This pilot study has shown that it is possible to improve overweight and obese children's movement skills by creating a mastery climate. Further studies using larger samples are required to see if this improvement leads to increases in physical activity.

PROMOTING PERCEIVED COMPETENCE AMONG OVERWEIGHT AND OBESE CHILDREN: A PILOT STUDY USING A MASTERY MOTIVATIONAL ENVIRONMENT

Dylan Cliff^{1,3}, Amy Wilson^{1,3}, Tony Okely^{1,3}, & Julie Steele^{2,3}

¹Faculty of Education, ²Department of Biomedical Science and ³Metabolic Research Centre, University of Wollongong, NSW

Objective: This study examined an innovative method of promoting perceived competence among overweight and obese children through creating a mastery motivational climate.

Research methods and procedures: Thirteen overweight and obese children (mean age of 9.88 ± 1.26 years and BMI of 25.84 ± 4.02 kg/m²) were recruited to SHARK (Skills Honing & Active Recreation for Kids), a 10-week program aimed at increasing physical activity by improving movement skills and perceived competence. The intervention was delivered in an after-school community setting and also involved weekly home challenges. Baseline and week 10 assessments included height and weight, motor development, perceived competence, and physical activity (accelerometers). Six domains of perceived competence were assessed using the Self-Perception Profile for Children (Harter, 1985). For this presentation only the perceived competence data are reported.

Results: Paired-samples *t*-tests revealed that four of the six domains of perceived competence significantly improved (all *p* values < .05): athletic $t(11)=2.50$; scholastic $t(11)=2.83$; physical $t(11)=2.86$; and global $t(11)=3.20$; whilst the other two showed a trend towards significance: social $t(11)=2.08$, $p=0.06$; and behavioral $t(11)=1.96$, $p=0.08$.

Discussion: This pilot study has shown that it is possible to improve overweight and obese children's perceived competence by creating a mastery climate. This program design not only improved athletic competence, but also had a broader impact on the overall self-perceptions of the overweight and obese children involved in the study.

PREDICTIVE VALIDITY OF ACCELEROMETER PREDICTION EQUATIONS FOR ENERGY EXPENDITURE (EE) DURING OVERLAND WALKING AND RUNNING IN CHILDREN AND ADOLESCENTS

Way RJ¹, Trost S.G.², Okely A.D.¹, ¹Faculty of Education and the Metabolic Research Centre, University of Wollongong, ² School of Human Movement Studies, University of Queensland.

The aim of this study was to assess the predictive validity of three independent accelerometer prediction equations (Freedson et al., 1997; Trost et al., 1998; Puyau et al., 2002) for energy expenditure (EE) during overland walking and running in children and adolescents.

45 healthy children and adolescents aged 10 through 18 completed the following protocol, each task 5mins in duration, with a 5min rest period in between tasks: walking normally; walking briskly; running easily and running fast. During each task participants wore MTI (WAM 7164) Actigraphs on the left and right hips. VO₂ was monitored breath by breath using the Cosmed K4b² portable indirect calorimetry system. Speed and distance were also recorded for each task. For each prediction equation, difference scores were calculated as EE measured (Cosmed) minus EE predicted. The percentage of 1-min epochs correctly categorised as light (<3 METs), moderate (3-5.9 METs), and vigorous (≥6 METs) was also calculated

The Freedson and Trost equations consistently overestimated MET level. The level of overestimation was statistically significant across all tasks for the Freedson equation, and was significant for the walking tasks for the Trost equation. In contrast, the Puyau equation consistently underestimated AEE with the exception of the walking normally task. In terms of categorisation, the Freedson equation showed better agreement than the Puyau, but both equations did rather poorly.

These data suggest that the three accelerometer prediction equations do not accurately predict EE in children and adolescents during overland walking and running.

Barney Dalgarno, a PhD student supervised by Barry Harper and Sue Bennett, presented a paper at the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE) conference in Adelaide in December won one of three best paper awards out of 98 papers presented at the conference. The paper was titled "3D Environments for Spatial Learning: The Importance of Learning Task Design" and was co-authored by Barry Harper. As a result of winning the award, they have been asked to submit an expanded version of the paper, and this will be published in the next issue of the Australian Journal for Educational Technology.

Madduma Bandara Ekanayake, a postgraduate research student supervised by Dr Mohan Chinnappan and Dr Christine Brown, delivered a paper on "Formal Deductive Proof in Geometry: Implications for Instructional Practices" at the 9th International Conference on Sri Lankan Studies from the 28 – 30 November 2003 at the University of Ruhuna, Sri Lanka.

Abstract

Researchers from mathematics education and cognitive psychology have focused on reasons underlying difficulties experienced by students in proof-type geometry problem solving. Research literature on geometry problem solving reveals two broader reasons for such difficulties. First, the majority of students don't possess the required content knowledge. Second, the nature of deductive proof is different to most of other mathematical problems. As these problems are non-algorithmic, content knowledge is essential, but not sufficient. Consequently, almost all problems are unfamiliar to the majority of students and they need greater instructional support during the solving process. A multiple linear regression analysis employed to analyse responses of 166 grade 11 students in Sri Lanka showed that not only a higher achievement in content knowledge in geometry, but skills in problem solving also influence the success of the proof-type

geometry problem solving. On this finding, we present a model to overcome instructional barriers presently embedded in conventional strategies. The model sets a strategy to improve proof-type geometry problem solving skills through developing general problem solving skills.

Anula Weerawardhana, postgraduate research student, supervised by Dr Brian Ferry and Dr Christine Brown, presented a paper at the 9th International Conference on Sri Lankan Studies from the 28 – 30 November 2003 at the University of Ruhuna, Sri Lanka entitled “Developing Conceptual Understanding of Chemical Equilibrium through the Use of Computer-based Visualization Software”

Abstract

This paper describes two studies that focused on teacher use of visualisation software designed to develop conceptual understanding of chemical equilibrium. Study I focused on practicing teachers’ use of the software resources with students, and study II focused on pre-service teachers’ adaptation of the software to design lessons for HSC chemistry students. Practicing teachers used direct demonstrations to present the software, and pre-test post-test results found no significant improvement on students’ understanding. Two workshops were developed for pre-service teachers. The first helped them to refresh their knowledge and make them aware of teaching / learning difficulties, and software resources. During the second workshop they modified and integrated individual software resources to create lessons. These lessons were implemented in HSC chemistry classes. Observations and surveys showed that students in these classes were highly motivated and appreciated the use of computer-based visual representations in their lessons. It was also found that the process of integrating visual resources with teaching strategies changed pre-service teacher understanding and made them more confident in teaching abstract concepts of chemistry.

Hellmundt, S., Wallace, M. & Ryan, J. (2003) “Conversations from a culturally inclusive classroom: Strategies for intercultural communication” was presented at a seminar at the Australian and New Zealand Comparative and International Education Society conference, 5th - 8th December. Susan Hellmundt and Dr Janette Ryan have collaborated extensively throughout 2003 culminating in a book contract with Routledge Falmer on curriculum internationalisation. This presentation focused on the findings of Susan's study at UoW and a similar study conducted by Janette in the UK that validated each other's findings.

Hellmundt, S. & Wallace, M. & Ryan, J.(2003). “Postcards from a culturally inclusive curriculum; Opportunities for successful practitioners” was presented at a seminar in the School of Public Health and Community Medicine, the University of New South Wales, 26th November, 2003. Susan was invited by senior academics to give this seminar presentation that was well attended with some 20 senior academics in the School. Participants were very interested in Susan's critical framework as well as particular strategies that she designed and Margaret Wallace from the Department of Nursing at UoW has implemented into her teaching practice. Susan was invited back to give workshops in February on the issue of inclusive curricula.

PUBLICATIONS

Hoban, G. F. (2004) *Using Information and Communication Technologies for the Self-study of Teaching*. International Handbook of Self-study and Teacher Education Practices. J.J Loughran (Ed.). pp.1039-1072. The Netherlands: Kluwer.

Hoban, G. F. & Erickson, G. (2004). *Dimensions of Learning for Long-term Professional Development: Comparing approaches from education, business and medical contexts*. Journal of In-service Education, (30), 1.

Wright, J., Macdonald, D. & Burrows, L. (2004) *Critical Inquiry and Problem-solving in Physical Education*. London: Routledge.

Evans, J., Davies, B. & Wright, J. (2004) *Body Knowledge and Control*. Studies in the Sociology of Education and Physical Culture. London: Routledge.

Wright, J. (2004) Poststructuralist methodologies: the body, schooling and health, in J. Evans, B. Davies & J. Wright (eds) *Body Knowledge and Control*. Studies in the Sociology of Education and Physical Culture. London: Routledge.

Burrows & Wright, J. (2004) The social construction of childhood, identity and health, in J. Evans, B. Davies & J. Wright (eds) *Body Knowledge and Control*. Studies in the Sociology of Education and Physical Culture. London: Routledge

Wright, J. (2004) Critical inquiry and problem-solving in physical education in J. Wright, D. Macdonald & L. Burrows (eds) *Critical Inquiry and Problem-solving in Physical Education*. London: Routledge.

Wright, J. (2004) Analysing sportsmedia texts: developing resistant reading positions, in J. Wright, D. Macdonald & L. Burrows (eds) *Critical Inquiry and Problem-solving in Physical Education*. London: Routledge.

Hellmundt, S., & Wallace, M., (2003) Strategies for collaboration and internationalisation in the classroom. *Nurse Education in Practice*, 3(2) 89 - 94 Internationally refereed article

Hellmundt, S. & Ryan, J. (2003). *Excellence through diversity: Internationalisation of curriculum and pedagogy*. Refereed paper presented at the 17th IDP Australian International Education Conference, 21 - 24 October 2003, Melbourne

Hellmundt, S., & Fox, C. (2003) *Linking intercultural theory with teaching and learning practices: Promoting student voice through multicultural group work*. Internationally refereed paper presented at the Diversity Conference, Hawaii, 13 - 16 February. Available on-line August 2003.

UPCOMING FACULTY CONFERENCES

5-9 July 2004 –WORLD COUNCIL FOR CURRICULUM AND INSTRUCTION CONFERENCE – details from Jen Burnley.

6-9 July 2004 – ACHPER CONFERENCE – the 24th National/International Biennial Australian Council for Health Physical Education and Recreation Conference will be held at the University of Wollongong with the Call for Papers in November 2003. Further details from Gregg Rowland or www.achper.org.au

12-13 July 2004 – ISCAR CONFERENCE – the Faculty of Education and the School of Economics and Information Systems is hosting the Australasian Regional Conference of the International Society for Cultural and Activity Research (ISCAR). Further details from Irina Verenikina.

FUNDING OPPORTUNITIES

2004 UIC Strategic Links Grants WORKSHOP

ATTENTION! Researchers, Teachers, Support Persons, Professionals, Administrators, and others .

In mid-late March, the University Internationalisation Committee will be calling for applications from UoW staff who are seeking grants which would help strengthen links between the UoW and the University's 30 key international partner institutions.

Funding around \$85,000 will be available this year; generally grants will be limited to \$7,000. In past years, funding has been given for joint teaching, research collaboration, and collaborative work in service provision to staff and students, although other projects have also been funded. The application forms are straightforward, and are designed to take as little of the applicants' time as possible. A limited number of additional smaller start-up grants will also be available.

Funding has usually been for travel and associated costs for general and academic staff, and students. No equipment will be funded.

In response to requests from applicants in previous years, we will be holding a lunchtime workshop for those who are considering applying. Attendance is recommended if you are considering applying for 2004 UIC Strategic Links Grants.

WORKSHOP: TIME: 12.30 - 2.00pm DATE: 9th March 2004

VENUE: ITS Presentation Room, Bldg 17, Level 2 - A light lunch will be provided.

Objectives: To highlight the importance of targeted international partners and ways we can strengthen links across the board. To advise workshop participants on what have been most successful approaches in previous UIC Targeted Links submissions.

RSVP by 4pm 27th February by email to Jennifer Nelson (jnelson@uow.edu.au), or send enrolment by internal mail.

CALL FOR CONFERENCE PAPERS

Call for Papers : 21-22 October 2004 – Novotel, Northbeach, Wollongong - 19th Annual ECIA (NSW Chapter) Conference “BEHAVIOUR: Meeting the Challenge”. The Conference will explore the research and practice being carried out in Australia to address the growing concern regarding challenging behaviour in young children. The challenges facing families, early childhood intervention and other relevant professionals will also be acknowledged and addressed across many and varied contexts. Such contexts include early childhood and school education/intervention; health services, therapy services; and family life in the home and community. Keynote Speakers: Professor Mark Dadds, **Dr Deslea Konza**, Dr Jacqueline Roberts, Dr Chris Chapparo. Further information available from Rose Dixon, Faculty of Education, University of Wollongong. All final papers due 27th August 2004.