

APRIL 2022

APPLIED PSYCHOLOGY AND HUMAN FACTORS GROUP

School of Psychology, University of Aberdeen

OVERVIEW:

- **NEWS**
- Shortlisted for public engagement prize
- CIEHF conference presentations
- FLS internship
- New PhD studentships
-

- **RESEARCH**
- Situation awareness in forestry work
- Work-ready graduate development
- Physical exercise, resilience and wellbeing
- Drivers of technology adoption decisions
- Papers and pre-prints

Shortlisted for public engagement prize

PhD student Ilinca-Ruxandra Tone has been shortlisted for the University of Aberdeen Principal's prize for public engagement with research (early career researcher). Ilinca was nominated based on her sterling work with Kura Human Factors to develop a non-technical skills training course for farmers, in addition to her engagement with a wide range of farming stakeholders via media (including a TV appearance) and presentations.

The winners of the prize will be announced soon and we will be keeping our fingers crossed for Ilinca!



The quarterly APHF newsletter presents an activity summary of the research, industrial and clinical members. If you would like to receive the newsletter direct via email contact a.irwin@abdn.ac.uk.

APHF team presentations at the upcoming Ergonomics and Human Factors conference.



The annual EHF conference, run by the Chartered Institute of Ergonomics and Human Factors (CIEHF) is a key date in the calendar for Human Factors researchers and practitioners. This year we are pleased to be presenting FIVE short papers at the conference (all from the University of Aberdeen):

1. **Nejc Sedlar, Dr Amy Irwin, Dr Doug Martin, Dr Ruby Roberts. *Normalising deviance within industry: A qualitative analysis of incident reports.*** Summary: Incident reports were analysed from the normalisation of deviance perspective in order to identify underlying causes and core components of the phenomenon. Preliminary findings highlight the importance of various organisational factors (e.g. production pressure) in the propagation and maintenance of deviance among operators.
2. **Ilinca-Ruxandra Tone, Dr Amy Irwin. *NTS in agriculture: A media analysis.*** Summary: The study examined news media reports of agricultural accidents through a mixed-method content analysis to identify instances of NTS previously found in agriculture.
3. **Anna Kaminska, Dr Amy Irwin, Dr Deven Ray, Prof Rhona Flin. *Culture in helicopter pilots: Case of using the Implicit Association Test.*** Summary: Culture relates to shared norms, values and practices associated with one's nation, organisation or profession. The current paper summarises previous findings on the influence of professional culture (military- vs. civilian-trained) in helicopter pilots and proposes using of the Implicit Association Test as a behavioural measure of reported risk-taking behaviours.
4. **Dr Amy Irwin, Ilinca-Ruxandra Tone, Paulina Sobocinska, Dr Jason Liggins. *A qualitative exploration of chainsaw operator non-technical skills.*** Summary: This study used qualitative interviews to explore the non-technical skills relevant to forestry chainsaw operation, with preliminary findings highlighting skills such as situation awareness, task management and decision-making as vital for forestry worker safety.
5. **Dr Amy Irwin, Helen Silver-MacMahon, Stephanie Wilcke. *Investigating the impact of client, co-worker and supervisor incivility in veterinary practice.*** Summary: This study investigated the impact of incivility from three sources (clients, co-workers and supervisors) on veterinary staff (n = 252) using an online survey. The key findings suggest that veterinary staff experience rudeness frequently from all three sources, with incivility linked to increased reported burnout levels, decreased mental wellbeing, decreased job satisfaction and increased quitting intention.



Forestry Land Scotland internship

*Anna Kaminska, PhD student,
University of Aberdeen*

I have just finished up a 3 month internship with Forestry and Land Scotland. The project was focused on examining what issues FLS staff face when working with contractors.

I really enjoyed my experience as it gave me greater insight into the research within the industry. I worked on my own project, while being supported by two organisational supervisors and one assistant. During my first week I enjoyed learning about the FLS and the forestry industry as a whole. Coming from a purely academic background, it was really interesting to hear about the approach to Health & Safety within FLS.

Obviously, though, the highlight of the internship was conducting my own project. In the first part, I interviewed a wide variety of workers within FLS on what (if anything) affects their ability to work with contractors and how to have a good relationship with each contractor. Conducting interviews has always been my favourite part of research as I find talking to the people very inspiring and motivating, especially at the start of the project. After the analysis of the findings, I developed a survey in collaboration with my supervisors to delve deeper within the findings of the interviews. This was sent out to all relevant workers who interacted with contractors. I was very impressed with the 45% response rate within our tight data sampling time.



The data from this project is being used to develop a toolkit for the workers on how to successfully work with contractors as well as writing a report for the executive team on any larger issues.

In the last these days of the internship, I had the opportunity to conduct some site visits in the Highlands as well as see a job executed by helicopter contractors. With that, my internship came full circle as I ease myself back into my PhD topic.

Thank you so much to the whole Health, Safety & Well-being team for being the most lovely hosts, and especially Alastair Henry and Jason Liggins for all the help on the project.





NEW PHD STUDENTSHIPS

Prof Louise Phillips, University of Aberdeen

A multidisciplinary group of researchers at the University of Aberdeen, led by Professor Louise Phillips from the School of Psychology has received funding from the Dunhill Medical Trust to support three 4-year PhD studentships. The PhD projects will focus on improving quality of life for older people through better understanding of older adults' experience of three important facets of well-being: (i) intergenerational connections, (ii) late life care decisions and (iii) health behaviours in old age. Each project will involve the development and evaluation of novel interventions to improve well-being in one of these three domains.

Project 1 (Supporting intergenerational communication) will tackle a key goal outlined in the current UN Decade of Healthy Aging: addressing age-related social isolation (supervisor team: Louise Phillips, Psychology; Claire Wallace, Sociology; Lorna Philip, Geography). Intergenerational communication has been argued to play a particularly important role in alleviating social isolation for older people, but societal changes have resulted in more age-segregated communities. This PhD project will: identify barriers to intergenerational interactions, model processes of intergenerational communication through detailed analysis of dyadic interactions, and engage with stakeholders to develop new methods of supporting intergenerational links.

Project 2 (Supporting future care decisions) will develop a tool to encourage communication and planning for future care needs for older people (supervisor team: Stephen Makin, Centre for Rural Health; Louise Locock, Health Services Research and Andrew Maclaren, Geography). For an older person to settle into a care home can be a long and distressing process. This can be experienced more positively if the person needing care and their family are involved in key decisions about care from an early stage. This project aims to help older people in decision-making about future care choices by developing an intervention to record future wishes and priorities.

Project 3 (Supporting health behaviours) will explore the effectiveness of new interventions to support consistent engagement with important health behaviours in old age (supervisory team: Katharina Schnitzspahn, Psychology; Julia Allan, Applied Health Sciences). Taking medication with each meal or attending doctor's appointments depends on a specific memory system called prospective memory (remembering to enact intentions) prospective memory problems relate to poorer well-being. In this project we will evaluate promising intervention techniques from the literature on memory training..

If you are interested in further information please see:
<https://www.abdn.ac.uk/psychology/postgraduate/dunhill-studentship-690.php>

**BUILDING
INTERVENTIONS
TO IMPROVE
QUALITY OF
LIFE IN OLD AGE**

**CONTACT PROF
LOUISE
PHILLIPS FOR
MORE
INFORMATION
ON THESE
PROJECTS:
[louise.phillips@
abdn.ac.uk](mailto:louise.phillips@abdn.ac.uk)**

Research

Situation awareness in forestry work

Ilinca-Ruxandra Tone, PhD student, University of Aberdeen

For all of us in work situations but especially for those in high-risk roles, situation awareness (SA) or the picture that we have in our minds about what is going on around us is an extremely important safety-critical skill, supporting safe and effective decision making. Forestry work is inherently a high-risk activity. By looking at accident descriptions and other studies, it already appears that SA can help chainsaw operators stay safe and work better.

A recent study by PhD student Ilinca-Ruxandra Tone set out to specifically explore the role of SA, the type of SA errors and the contributing factors to good and bad SA for chainsaw operators. Data from interviews with nine chainsaw operators based on the critical incident technique and general questions on job role and task, perceived causes of accidents, errors, and lapses and safety-critical skills was analysed using content analysis to identify patterns.

SA, with its three levels perception, comprehension, and projection, was found to be a safety-critical skill for all interviewees. Chainsaw operators needed to perceive the elements in their environment, such as spot any broken branches in the canopy or gauge the size of the tree they were dealing with. They also required to build an understanding of the situation by putting these elements together, for instance to recognise that a particular tree is dangerous based on its characteristics. Finally, being able to predict what is going to happen seemed particularly important in dynamically identifying escape routes or anticipating where the tree would fall. The findings also indicate that most SA errors for this occupation occur at the comprehension level in the form of wrong mental models or overreliance on expectations, whereby assumptions are made about the characteristics of a tree or site, there is an incorrect understanding of a situation usually due to lack of experience, or the wrong equipment or technique is used. Various contributory factors which can help build SA across time, namely experience or training, or which can support it in the moment, namely communication, usually live through in-helmet devices, were also identified. Finally, several factors impairing SA were found, such as fatigue and distractions.





Developing Work-Ready Graduates: The Case for Enterprise Education

Dr Joy Perkins, Centre for Academic Development

Across the globe, employers commonly indicate they require graduates, regardless of their academic discipline to demonstrate their business acumen such as professionalism, resilience, and innovation. To help cultivate the skills, behaviours, and qualities that employers require, enterprise education is gaining traction in the curriculum across the higher education sector. This approach is helping students to develop crucial skills and attributes such as collaboration, communication, creative problem-solving and adaptability: all help students to grow personally and professionally, enhancing their employability.

Advance HE has recently drawn together a range of cutting-edge case studies to disseminate contemporary teaching practice and initiatives in employability, enterprise and entrepreneurship. These case studies, in the third edition of the [Advance HE Employability Compendium](#) illustrate how enterprising approaches to teaching and learning can be delivered at a module, academic School, or institutional level. The University of Aberdeen contributed to this compendium (p. 41-47) and shares in a case study an approach to strengthen students' enterprise and entrepreneurial capabilities, in subjects such as Psychology, Health Science and Social Science.

Physical exercise and wellbeing

Alba Tornero, 4th year Psychology thesis student.

It is generally well accepted that doing exercise in our everyday lives is accompanied by better mental health, and research extensively supports this association. However, less is known on why this is the case: how could exercise lead to psychological benefits?

The so-called “social hypothesis” suggests that the social context in which exercise is often undertaken contributes to increase individuals' sense of social connectedness, what in turn enhances their mental wellbeing. On the other side, the “psychological hypothesis” argues that it is through the challenges of exercise that individuals develop their self-efficacy and resilience to face obstacles in life resulting in enhanced mental wellbeing.

This research project tested these hypotheses in two different exercise contexts: team sports and individual exercise. Results showed that the amount of exercise practiced was positively correlated with mental wellbeing in both types of exercise context. However, while support was found for the social hypothesis in both types of exercise settings, the psychological hypothesis was exclusively relevant to individual exercise contexts. These findings suggest that doing exercise alongside other people might make you feel more socially connected and that interestingly, doing exercise alone may also involve some social benefits that need further understanding. Finally, personal challenge and accomplishment may maximise the effects of exercise on mental wellbeing

The hidden drivers of technology adoption decisions

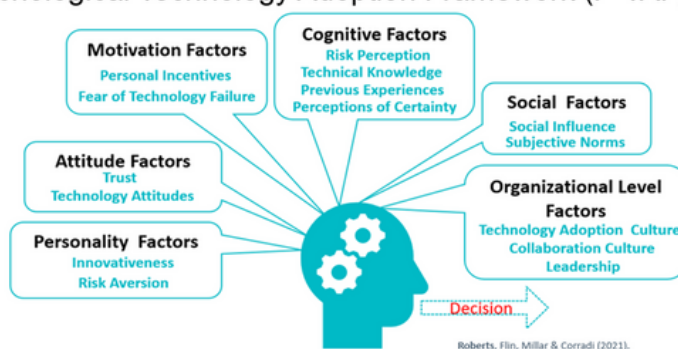
Dr Ruby Roberts, Research Fellow of Industrial Psychology, Aberdeen Business School, Robert Gordon University.

Turn on your television, listen to the radio, or look at your phone and you will likely hear a discussion about energy. A key element of that report or article will include the opportunities that technological innovation offers for the energy transition. Yet, it probably will not discuss the often-hidden human factors that influence corporate technology adoption decisions.

For innovation to be successful, it needs to be used. How people respond to technology, and new ways of working, can influence how successful those changes are. One group of people can make a significant impact on these decisions in the corporate context. Gatekeepers play a key role in deciding which technologies will be adopted into their organisation (or not). However, people can be reluctant to change, preferring the status quo. They may be influenced less visible, psychological factors such as attitudes towards change, motivations and personal incentives, as well as perceived risks.

Recent research from Robert Gordon University and the Net Zero Technology Centre addressed this challenge by looking at technology adoption decisions from an alternative perspective. Prof Rhona Flin and I examined the psychological factors which influence technology adoption decisions in upstream oil and gas. Over the course of the two-year project six key psychological factors were identified. These ranged from how innovative decision makers are, whether the technology and service provider were trusted, individual's attitudes towards innovation, to risk perceptions and expertise. These are represented by the Psychological Technology Adoption Framework, shown in the graphic below.

Psychological Technology Adoption Framework (P-TAF)



One of the key takeaways from the project was that it shone a light on the often-hidden facilitators and blockers that influence technology adoption decisions. Innovation needs to have a strong technical foundation (i.e., it works and solves a problem) but it is people that make it a success or a failure (i.e., they need to decide to use it). The findings will likely have implications for other high-risk, high reliability sectors looking to innovate (e.g., healthcare and aviation). The toolkit developed from the project was aimed at driving positive change. The organisational innovation adoption culture survey, developed from the project findings, has been trialled with twelve operating companies and has the potential to act as an industry benchmarking tool. The lesson from this is that whilst psychological factors may often be less visible, they nonetheless have a powerful impact on technology decisions that may have a wide-reaching affect.



Papers and pre-prints

Pre-prints (*papers submitted for review to academic journals but not yet published*).

Irwin, A., Silver-MacMahon, H. & Wilcke, S.

Consequences and coping: Investigating client, co-worker and senior colleague incivility within veterinary practice. Link:
<https://psyarxiv.com/j5q8h>

Sedlar, N., Irwin, A., Martin, D. & Roberts, R. A
Qualitative Systematic Review on the Application of the Normalisation of Deviance Phenomenon Within High-Risk Industries. Link:
<https://psyarxiv.com/tqphk/>

Papers

Irwin, A., Sedlar, N. & Tone, I-R. (*in-press*). Developing a prototype behavioural marker system for farmer non-technical skills (FLINTS). *Journal of Agromedicine*. View the pre-print version here: <https://psyarxiv.com/un5by>.



Irwin, A., Hall, D. & Ellis, H. (2022). Ruminating on rudeness: Exploring veterinarian's experiences of client incivility. *Veterinary Record*. Link:
<https://bvajournals.onlinelibrary.wiley.com/doi/abs/10.1002/vetr.1078>



Contact details

If you would like further information about any of the projects featured in the newsletter, would like to join the APHF as an associate member, or would like to explore a potential collaboration with the team please contact Dr Amy Irwin (overall APHF lead) in the first instance:

Email: a.irwin@abdn.ac.uk

Alternatively take a look at the APHF website:
<https://research.abdn.ac.uk/applied-psych-hf/>