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Abstract

Purpose – This paper aims to evaluate the perceived efficacy of outdoor groupwork skills programmes for the undergraduate and postgraduate students, and the factors that influence its success. It also illustrates the use of Kirkpatrick's (1994) 4-level model of training evaluation as a framework for qualitative investigation of learning and transfer, from the perspective of key stakeholders.

Design/methodology/approach – Over 24 hours of recorded data were collected using a video diary room, one-to-one interviews and focus group discussions. Participants were current students ($n = 66$), alumni ($n = 12$), outdoor education instructors ($n = 6$) and academic staff ($n = 5$). The data were transcribed, and then analysed by conducting conventional content analysis. Prolonged engagement, triangulation, peer debriefing and referential adequacy were used to establish the trustworthiness and reliability of the analyses.

Findings – Outdoor groupwork skills programmes were widely viewed as being effective for developing interpersonal skills, attitudes and knowledge that were then further developed and applied during degree courses and later in the workplace. Four of the main perceived benefits were increased social integration amongst peers, academic success, personal development and employability. A range

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of psychological and environmental factors were reported to influence the extent of skill development and transfer, and are presented in the Model for Optimal Learning and Transfer.

Practical implications – This study supports outdoor groupwork skills programmes as an effective method of groupwork skills training during higher education, and offers recommendations for promoting learning and transfer following training courses.

Originality/value – This is the first study to systematically evaluate the long-term impact of outdoor groupwork skills programmes in higher education. A novel methodological approach is also demonstrated, which can be replicated in other contexts of training evaluation.

Keywords Employability, Higher education, Teamwork, Kirkpatrick model, Outdoor education, Transferable skills

Paper type Research paper

Groupwork in higher education provides an opportunity to develop key employability skills that are highly valued by students and employers (Wilson, 2012). Groupwork also provides a more efficient way of teaching and assessing students, especially when faced with large cohorts and squeezed budgets (Cumming, 2010). However, groupwork can be challenging and frustrating for educators and students alike (Wosnitza and Volet, 2014). If groups are not managed effectively, negative outcomes can occur such as social loafing, time wasting, unfair grade distributions, dissatisfaction and negative attitudes towards groupwork (Pfaff and Huddleston, 2003; Maiden and Perry, 2011). Despite these risks, there is limited empirical evidence in how to best support and train students to work well in groups, ensuring that groupwork is a positive experience that develops both the task and interpersonal dimensions of groupwork required for success at university and the workplace (Cumming *et al.*, 2014).

One initiative that is used in higher education to train and develop groupwork skills is outdoor adventure education (OAE; for a recent review, see Cooley *et al.*, 2014). During OAE, students typically leave campus for a few days to take part in outdoor pursuit activities that are designed to develop different aspects of groupwork. Students can experiment with new behaviours and receive immediate feedback in an environment that is safe, challenging and unpredictable. When combined with reflective learning practices, this "real life" learning context results in meaningful and memorable group interactions that shape the development of groupwork skills (Cooley *et al.*, 2014). In higher education, OAE often has to cater for large numbers of students. As a result, courses tend to be short and intense (from one to five days), with activities engineered to accelerate specific learning outcomes (e.g. blindfolding a team member during a low ropes course to develop communication skills, trust and social support). This type of OAE course is referred to as an *outdoor-centred programme*, which is distinct from other forms of OAE such as *wilderness programmes*, where participants go on expeditions such as sailing or trekking for several weeks or months, and learning is less structured and more individual (Mazany *et al.*, 1997). For simplicity, the term OAE is used herein to refer to the shorter, intense, outdoor-centred courses that were observed in the present study.

In using OAE in higher education to develop groupwork, one assumes that learning is not refined to the context it is developed in (e.g. a raft building activity), and can instead affect behaviour in other situations (e.g. academic group projects). The effect that an experience such as OAE has on future learning experiences is known simply as *transfer* (Gass, 1999). The occurrence of transfer is a widely debated within the OAE

literature and several well-respected theories are commonly used in support of its existence, including experiential learning (Dewey, 1938; Kolb, 1984), social learning theory (Bandura, 1977) and transformative learning (Cranton, 1994). Within a conceptual review paper, Gass (1999) argues that transfer can, and does, occur following OAE, providing it is carefully planned for in the course design. An eight-step model is presented along with ten recommended techniques for facilitating transfer, which includes establishing learning objectives and tailoring activities to help learners identify the potential for transfer to occur. However, despite the wealth of conceptual theories and models underpinning transfer from OAE, empirical evidence for the transfer of learning from OAE to higher education is less established (Cooley *et al.*, 2014b).

Review of existing literature

To establish existing evidence of transfer from OAE to higher education, Cooley *et al.* (2014) conducted a systematic search of the literature. In this review, 11 empirical studies were identified that focussed specifically on the transfer of groupwork-related outcomes following short, residential OAE courses. Within these studies, OAE had been implemented to develop transferable skills, build existing student work groups, foster a more positive attitude and confidence towards groupwork and promote integration among students. Evidence was found in support of these different outcome areas, although this evidence was limited by methodological weaknesses. For example, anecdotal quotes from staff and students described OAE, resulting in improved groupwork behaviour back at university. However, these data were often obtained informally through post-course evaluation sheets and discussions, and analysed without adhering to recognised approaches to ensuring trustworthy results (Elkin, 1991; Prince and Dunne, 1998). In the quantitative studies reviewed, survey data revealed perceived improvements in groupwork skills and self-efficacy following OAE (Odello *et al.*, 2008; Ferguson *et al.*, 2001; Juriza *et al.*, 2011). It remained unclear whether this perceived development actually translated into more effective groupwork behaviour, and the impact this may have had on the students' experience of university and entering the job market. In fact, in one study that did include a measure of academic groupwork performance, no significant improvements were found following OAE (Mazany *et al.*, 1997). It is, therefore, both timely and important for a more extensive, longitudinal evaluation of OAE as a method of facilitating groupwork behaviour in higher education.

Present study

To ensure a systematic evaluation of both learning and transfer following OAE, the present study included four different levels of training evaluation:

(1) reaction;

(2) learning;

(3) behaviour; and

(4) results, as recommended by the Kirkpatrick (1994) model.

Reaction reflects how the learner felt towards the training experience (e.g. was the content appropriate and enjoyable?); in higher education, this is often referred to as "student satisfaction". *Learning* is the extent to which students acquired the intended skills, knowledge and attitudes, from pre- to post-training. *Behaviour*, also known as the

"transfer measure", involves measuring the behavioural changes that occur when attendees return to their normal work environment (e.g. improved groupwork behaviour at university). Finally, *results*, involves measuring the impact from changes in learning and behaviour (e.g. academic performance and employability).

Kirkpatrick (1994) also recommends including the perspectives of multiple stakeholders when evaluating training. In the present study, data were collected from students, alumni, instructors and academic staff, who were all key stakeholders in OAE. In additon, it is recommended that evaluations do not focus solely on the *outcomes* that occur at each of the four levels (e.g. Was the reaction positive? What did attendees learn?), and instead include measures of the *processes* behind these outcomes (e.g. What personal and environmental factors influence these outcomes?) (Kirkpatrick and Kirkpatrick, 2014; Bates, 2004). Identifying the processes helps to clarify how the outcomes came about and ways training could be improved. Although the model is typically implemented using quantitative tools, a qualitative evaluation was used in the present study to enable a rich, exploratory, evaluation of both the outcomes and processes. The present study does, however, form part of a wider research programme that utilises mixed-methods to evaluate the impact of OAE in higher education.

To summarise, the aim of the present study was to evaluate the perceived efficacy of OAE in higher education, and the factors that influence its success. To achieve this aim, a novel approach to training evaluation was used, which combines the Kirkpatrick (1994) model with qualitative measures of outcomes and processes taken from multi-perspectives.

Method

Participants

A total of 95 participants were recruited from four different perspectives. The student sample (n = 72; mean age = 22.02, SD = 2.4; 49 per cent male) contained a mixture of domestic and international students, who were undergraduate (34 per cent) or postgraduate (66 per cent) students in engineering (10 per cent), business (38 per cent), accounting and finance (42 per cent) or biomedical science (10 per cent), and had attended OAE in their respective degree cohort.

The alumni (n = 12; mean age = 30.84, SD = 5.22; 50 per cent male; 75 per cent British) were previously undergraduate (33 per cent) or postgraduate (67 per cent) students in engineering (42 per cent), business (42 per cent), accounting and finance (8 per cent) or physics (8 per cent). They had attended OAE as students, between 2 and 20 years prior to the study (mean = 6.17, SD = 4.95) and were currently employed as managers, event organisers, engineers or consultants.

The academic staff (n = 5; mean age = 52.60, SD = 10.11; all male; 80 per cent British) accompanied students during OAE and taught on the aforementioned degree courses, with an average of 18.4 years (SD = 11.8) teaching experience. Finally, the instructors (n = 6; mean age = 37, SD = 9.27; all male; 83 per cent British) were qualified in different aspects of outdoor provision and specialised in developing groupwork skills in higher education students. All held full-time positions ranging from a trainee instructor to centre manager, with an average of 14 years (SD = 7.27) instructing experience.

Approval for conducting the study was granted by the University's Ethics Committee, and informed consent was obtained from all participants. An incentive to

participate was only given to the alumni participants (£20 pp) and a subsample of students ($n = 24$) who took part in additional focus group discussions (£10 pp).

OAE course

All participants had completed a two- to five-day residential course at a university-owned outdoor pursuits centre in the North West, UK. The courses were either compulsory parts of degree programmes or extra-curricular options and had each been designed by the outdoor pursuit staff in collaboration with the relevant academics. Although specific aims varied between cohorts, the overall goals of the courses were to develop transferable groupwork skills, self-efficacy, knowledge and attitudes, build student works groups and promote integration. Students attended in cohorts of up to 40 at a time and were divided into groups of five to eight. The activities typically began with 30-minute "ice breakers", such as blindfolded orienteering, building bridges and negotiating a "spiders web". These icebreakers progressed to more complex activities, such as raft-building, ropes courses, canoeing and tower-building. Objectives were embedded into each activity requiring the group to work together to succeed. The instructors observed the groups' progress and led regular reflective discussions. In addition to the activities, groups were issued with a housekeeping rota, and time off was given in the evenings for socialising.

Procedures

Over two years, different methods of recruitment and qualitative interviewing were used to capture each of the four perspectives. All interviews were semi-structured and audio and/or video recorded. Non-leading and open-ended question protocols were developed by four researchers, and refined following group discussions. The questioning was designed to measure all four levels of the Kirkpatrick Model (1994), including both the outcomes and the processes that may have influenced the outcomes (Table I). Using a probing technique, each time participants reported an outcome (or lack of outcome), the interviewer asked "why?" the outcome did or did not occur to uncover the underlying processes.

The student perspective was first obtained whilst students were immersed in their OAE experience ($n = 43$), using a semi-structured video diary room as described by Cooley *et al.* (2014a). Recruitment took place face-to-face via purposive sampling over five iterations of the OAE course. Whilst alone in the diary room and in front of a video camera, students spent approximately 4 minutes answering two to three broad and open-ended questions about their experience. This method focussed on evaluating reactions and learning.

Another subset of students ($n = 23$) was recruited via email invitation to attend one of three 1-hour focus group discussions. These students had been back on campus for between 2 and 18-months since attending OAE (mean = 8.11; SD = 7.48). Twenty-one photographs taken during OAE were used to supplement the discussion, stimulate recall and encourage a deeper reflection of the course (i.e. photo elicitation; see Harper, 2002). An additional focus group was facilitated with six students who had chosen not to attend OAE. The aim of this discussion was to understand why they chose not to attend and their experiences since their peers returned.

The alumni were recruited through an advertisement in an alumni newsletter. One-to-one interviews lasting approximately 30 minutes were conducted via recorded

Kirkpatrick level	Example outcome questions	Example process questions
Reaction	How have you found the overall experience of OAE? Do you think OAE will help you in anyway at university or when you enter employment? Do you think engaging students in OAE is worthwhile?	Which experiences taught you the most? Is there anything to do with the setting that makes it better for students' development than other settings? Do some students get more out of it than others?
Learning	Were there any general benefits you gained from OAE? Have you learnt anything that you could use during your academic work or future employment? Do you notice any changes in students during OAE?	
Behaviour	Have you applied anything you developed during OAE since returning? Have you experienced any benefits from OAE since returning? Have you noticed any changes in your peer group since returning from OAE?	Has anything helped or prevented you from using what you developed during OAE since returning? What advice would you give to students who want to transfer what they developed during OAE to their university degree or the workplace? Do some students gain more long-term benefits than others?
Results	Did OAE help you complete your degree course in any way? Did OAE help you secure your current job in any way? What is the role of OAE in higher education?	

Note: Similar questions were adapted and asked across the different perspectives

Table I. Example outcome and process questions targeting each level of the Kirkpatrick model

telephone calls. Questions included asking alumni about their experiences of completing their university degree, seeking employment and workplace teams. Finally, instructors and academic staff were invited to participate in one-to-one interviews whilst courses were taking place at the outdoor pursuit centre. The interviews lasted between 30 and 60 minutes, and the questions focussed on their observations of, and interactions with, their students before, during and after OAE.

Using this range of data collection methods allowed the levels of the Kirkpatrick (1994) model to be assessed both "in the moment" and "in retrospect", thus ensuring that the participants' responses were not exaggerated by the excitement of having just completed a course (i.e. "the post course euphoria effect").

Analysis

A total of 24 hours and 14 minutes of audio was collected (student = 9 hours and 12 minutes; alumni = 6 hours and 3 minutes; instructor = 4 hours and 53 minutes; and academic staff = 4 hours and 6 minutes). A conventional content analysis, or thematic analysis, was used to analyse the data (Braun and Clarke, 2006; Hsieh and Shannon, 2005). Theme development was both deductive and inductive, whereby we followed an

iterative process of categorising data into the levels of the Kirkpatrick model (1994) and developing themes inductively within each of these levels. Based on a naturalistic paradigm, a semantic, realist approach was taken, whereby participants' experiences and personal meanings were analysed using an explicit interpretation of what was said (Braun and Clarke, 2006; Hsieh and Shannon, 2005).

The analysis followed guidelines provided by Braun and Clarke (2006) and Hsieh and Shannon (2005). After a word-for-word transcription, the lead researcher read all transcripts to achieve immersion and gain a sense of the data. Initial coding was then carried out using qualitative analysis software (Nvivo 9). During this process, each statement was given a descriptive code one level of abstraction away from the data. Similar codes began to be grouped into broad themes, which were further organised into higher- and lower-level themes. Themes were continually checked against the original data to ensure that there was enough supporting data and both *internal homogeneity* and *external heterogeneity* existed (Patton, 2003). This process resulted in themes being removed, merged or divided. Names and definitions were given to uniquely identify and describe each theme.

Establishing credibility. A number of strategies were followed to improve the reliability and validity of the results (Hsieh and Shannon, 2005; Patton, 2003). First, *prolonged engagement* was used, involving the lead author spending several weeks within the OAE environment, observing the culture and experiences and enabling a greater understanding when interviewing participants. Next, data were *triangulated*, due to being collected from different perspectives, and by having a second researcher independently code 15 per cent of the data before themes were discussed and refined until consensual validation was reached. Then, in a process known as *peer debriefing*, the entire data set was debated and refined with two senior researchers who had been independent of the analytical process. Finally, *referential adequacy* was used, whereby 20 per cent of data across all four perspectives was archived and only analysed once the final themes had been agreed, to test validity.

Results[1]

The resulting themes are presented in two sections: the course outcomes, followed by the processes driving these outcomes. Within each section, themes are placed within the appropriate level of the Kirkpatrick model. The first-level themes are identified by subheadings, and the second-level themes are italicised within the main text.

Outcomes

Outcomes were categorised into 13 first-level and 36 second-level themes (Table II). The majority of these themes were prevalent across all four perspectives (Table II). The instructor perspective only contributed towards the *reaction* and *learning* outcome themes due to having no involvement with students after they leave OAE.

Reaction

Affective. Positive affective reactions included enjoyment and excitement, and were driven mostly by the *activities*, *social interactions* and the *location*, as described by this alumnus, "The place was amazing, that was the first impression I got. It was very good to do it in a different place".

Instrumental. There were also more cognitive, or instrumental, perceptions that attending OAE was advantageous. These feelings included *perceived learning*,

Kirkpatrick level	First level themes	Second level themes	Prevalence: Student	Alumnus	Academic	Instructor
Reaction	Affective	Activities	■	■	■	■
		Social interaction	■	■	■	■
		Location	■	■	■	■
	Instrumental	Perceived learning	■	■	■	■
		Perceived long-term benefits	■	■	■	■
		Value for money				
		Developing groupwork	■	■	■	■
Learning	Skill development	Leadership skills	■	■	■	■
		Task management skills	■	■	■	■
		Communication skills	■	■	■	■
		Cooperation skills	■	■	■	■
	Attitude development	On-going change	■	■	■	■
		Valuing others	■	■	■	■
		Confidence	■	■	■	■
	Knowledge development	Self-awareness	■	■	■	■
		Effective task groupwork	■	■	■	■
		Effective interpersonal groupwork	■	■	■	■
		Implications of diversity	■	■	■	■
Behaviour	Positive groupwork behaviours	Leadership	■	■		
		Communication	■	■	■	
		Project management	■	■	■	
		Reflective skills				
		Identifying roles	■	■		
		Working with diversity	■	■	■	
	Improved social interactions	Willingness to cooperate	■	■	■	
	Perspective on groupwork	Confidence and assertiveness	■	■	■	
	Effective project teams	Transfer to academia	■	■		
	Transfer success	Transfer to the workplace	■	■	■	
		Transfer to personal life	■	■	■	
		Transfer failure	■	■	■	
Results	Degree	Integrated cohort	■	■	■	
		Degree success	■	■	■	
	Employment	Employability	■	■	■	
		Job performance	■	■	■	
	Personal	Personal development	■	■	■	
		Memorable experience	■	■	■	

Note: Shading is used to indicate when a theme was prevalent in a perspective

Table II.
Outcome themes following OAE based on the Kirkpatrick model

long-term benefits to academia and employment, *value for money*, and a belief that OAE is a valuable opportunity for *developing groupwork*; for example, "there's no lab (at university) where you can demonstrate teamwork, there's no better lab than (OAE)" (alumnus).

Learning

Skill development. Students reported improving their *leadership skills*, including the ability to manage groups and "draw out the strengths that people have (alumnus)", and their *task-management skills*, which helped students to problem-solve, plan and manage time more effectively. They also discussed improving their *communication skills*, feeling more able to share ideas and express themselves, and their skills in *cooperation*; whereby students felt more proficient at promoting synergy within their group through collaboration and conflict resolution, becoming better able "to get on with your team members, how to work as part of a team and how to collaborate with each other (student)".

Attitude development. Students developed an appreciation that groupwork behaviour cannot always be changed overnight, and that there was a need for *ongoing change* after returning from OAE. For example, one international student said at the end of OAE, "I need to learn to be more confident and to increase my English to express my ideas and be more, be more strong in the team". Students also *valued others* more by the end of OAE, including seeing the value of groupwork, being more tolerant of others and appreciating individuality and diversity. An alumnus recalled how they had "learnt to be a lot more accepting of different people's opinions", and a current student realised that "working in groups […] it's way better than working alone". There was also development of *confidence* towards working in groups. An academic noted that students "become less shy" and an instructor talked about observing "it changing people, you know the old shoulders go back, the chin comes up".

Knowledge development. There was an increase in students' *self-awareness* of their strengths and weakness when working in groups. An alumnus recalled:

> […] when I had reviews people said […] "I know you probably didn't realise it but right then you were being quite negative" […] I was like "oh, that's interesting, I didn't know that about myself".

Students developed their knowledge of what *effective task groupwork* entailed, including goal-directed and strategic groupwork skills and effective use of team roles; for example, "it helped me to understand how to work in teams better and those things, focus, planning, execution, re-strategising" (student). Students also developed their understanding of *effective interpersonal groupwork* behaviours, such as trust, emotional support, cohesion and self-sacrifice; for example, "I've realised that in a working group you need to trust your group members, you need to have trust, you need to believe in them" (student). The final subtheme was improved knowledge of the *implications of diversity*. For example, students learnt what is needed to work effectively in mixed groups, including "about different international cultures" (alumnus) and "(learning) some of the taboos" (student).

Behaviour

Positive groupwork behaviours. After returning from OAE, students reported demonstrating positive groupwork behaviours. An alumnus discussed improved

leadership, in which they felt better able "to cooperate with your team, to drive the performance of the team […] to be successful as the leader is the same as doing an activity (during OAE)". Improved *communication* was another theme, for example, "I think it's the talking and the listening […] they are much better at that" (academic); as well as better *project management*, for example, "individuals having handed in their first (dissertation) chapter, as they were nowhere near, and they credit attending the (OAE) programme" (academic). More effective *reflective skills* were evident as an alumnus described "taking a step back and looking at the situation but also thinking am I reacting here like I should". Other positive groupwork behaviours were *identifying roles*, with one student describing being better able to:

> Find out the individual's shining points […] we divided our assignments into different parts, everybody is responsible […] he is very good at calculating so we told him to do the calculating part; and *working with diversity*, which involved an improved ability to work with different backgrounds and personalities; for example, "being able to get an impression of that person's personality, how they like to deal with things" (alumnus).

Improved social interactions. Outside of the more formal groupwork situations, there was also evidence of improved social interactions, where students became more open, engaging and supportive of each other. For example, this student describes how:

> […] people kind of are a bit more open to each other and it's a lot easier to even just say hi to someone you recognise, which didn't really happen before [OAE].

Perspective on groupwork. Students also developed a new perspective on groupwork during OAE, which influenced their feelings towards working in groups back on campus. Students showed greater *willingness to cooperate* with others and engage in groupwork. They continued to see the value in groupwork and demonstrated understanding, trust and tolerance of one another. This alumnus recalls, "it made me realise that I should perhaps give people a chance before I immediately cut them off". In addition, students had become more *confident and assertive* during the groupwork; for example, "I feel a lot more confident in working with different cultures, and different people" (student), and "it taught me a new type of assertiveness, which is the ability to say no" (alumnus).

Effective project teams. The final theme within behaviour was the development of effective project teams. Based on a combination of the aforementioned themes, students who attended OAE in designated teams functioned more effectively when they retuned to higher education to work on an academic project together. For example, an engineering student talked of role allocation:

> I applied it into my project myself this year, this robot project. Every individual should have some task and he should be wholly responsible for that task […] everyone is important.

Transfer success. Many students successfully transferred these behaviours after returning from OAE. *Transfer to academia* was reported, where, for example, academic staff described how "you can even see the change" in students. There was also *transfer to the workplace*; for example, an alumnus described learning being "easily transferable from what I saw (during OAE) to what I'm doing on a daily basis". Students also noted *transfer to personal lives*, such as "I play badminton with my friends and we always play double, so that is cooperation that I can use these skills". Similarly, an alumnus talked about transfer occurring "when you're living in a shared house […] there's all sorts of

possibilities for disagreements about bills or cleaning duties". There were, however, occasional reports of *transfer failure*; for example, "we haven't interacted that well as a group (since returning), so I thought we'd actually do better" (student).

Results

Degree course. OAE benefitted students on their degree course by resulting in more *integrated cohorts*. The increased interactions and groupwork behaviours highlighted in the behaviour level of analysis had led to broader friendship groups and the breaking down of social barriers. For example, "I think it broke up your little friendship group that you'd made in the first year and it just made them bigger, it made the whole year almost integrate" (alumnus). This academic also describes how integration led to an increased sense of belonging, particularly in international students, "they just become less shy and feel more part of the cohort rather than somebody from overseas". It was also believed that OAE contributed towards *degree success*, through a combination of the skills developed and the more socially supportive peer groups. For example, "I could talk to different people and knowing different people's opinions who think very differently to you definitely helped my grades" (alumnus).

Employment. Participation in OAE was felt to improve initial *employability*; students could demonstrate training and increased awareness of groupwork skills, in the written application, group assessment and interview stages of recruitment; for example, "when they asked when have you worked in a team, when have you acted as a leader, (OAE) was able to give me those experiences" (alumnus). Once employed, OAE was also believed to have facilitated graduates' *job performance*, by providing the necessary skills for a smooth transition into the workplace. For example, one academic described how "companies that came forward and said we need to do x, y and z to prepare them for the working world – this (OAE) does that".

Personal. Personal results included *personal development*, where OAE had helped students develop as individuals with broader skill sets; one alumnus commented, "I do really think that the experience definitely has changed me". OAE also provided students with a *memorable experience*, adding to their overall satisfaction with their university experience. An academic summed this theme up nicely, "you talk to most alumni about the MBA and it won't be long before (OAE) comes up as part of what they remember and 99.9 per cent it's fond memories".

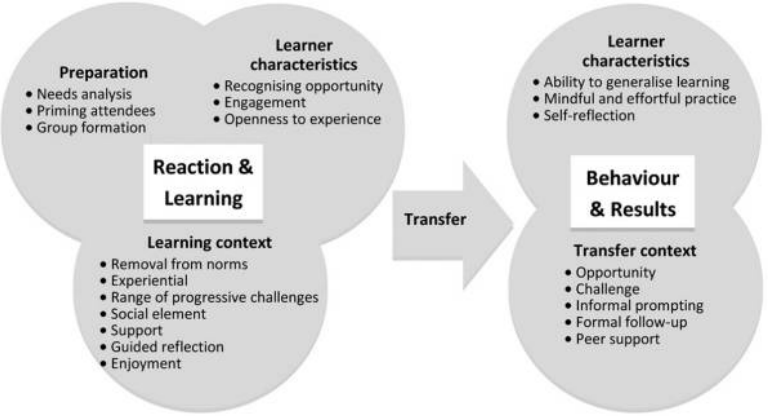
Processes

The processes behind the outcomes were categorised into five first-level and 21 second-level themes. These themes are represented graphically in Figure 1, which presents our proposed Model for Optimal Learning and Transfer (MOLT). Each of these themes was prevalent across all four perspectives.

Reaction and learning

Preparation. The data raised the importance of carrying out a *needs analysis* prior to OAE to tailor the activities, course objectives and level of challenge, to the particular group of students taking part. This instructor explains:

> […] it's good to know what [the academic staff] wants them to experience so you can use your style of instruction to emphasise those certain qualities […] otherwise we're guessing what they want, or they're guessing what we can provide.



Note: Similar to the Kirkpatrick (1994) model, *reaction* represents attendees' initial emotional and cognitive response to a course (e.g., enjoyment and satisfaction); *learning* represents pre- to post-course changes in attendees' skills, knowledge and attitudes; *behaviour* represents the behavioural changes that occur when attendees have returned to from a course; and *results* represents the benefits these changes have had on attendees and/or their organisations. Supported by the results of the present study, the factors outlined in each circle should be followed to improve the reaction, learning, behaviour and results obtained during training courses and educational experiences

Figure 1.
A MOLT during training and education

Another form of preparation involves *priming the attendees* by explaining why they are attending, the expected course outcomes and ensuring that any concerns are addressed. From the instructor perspective:

> […] if you get a group that have been well briefed and it's been sold to them, they just hit the ground running that little bit quicker, they're hungry for it rather than hesitant.

Although some academics didn't always provide such information (e.g. "I might joke in the lecture that we […] you know, give you a box of matches and you've got to build a bridge across a river […] I never specify exactly what's going to happen"); however, this lack of information concerned some students (e.g. "before I went I don't know what I'm going to do […]. It really scared some of my classmates […] some of them can't swim").

A final preparation involved *group formation*; where possible, groups attending OAE should be mixed, rather than self-selected, so that students can experience working with different cultures, working styles and capabilities. This alumnus pointed out that "confidence grows the more different situations and different people and different experiences you have". In previous research, diversity in groups has indeed been noticeably reduced when students are allowed to select groups themselves (Cooley *et al.*, 2013).

The data suggest that adhering to this preparation before OAE could help ensure that students approach OAE with desirable learner characteristics.

Learner characteristics. Reaction and learning during OAE tended to be greater in students who *recognised opportunities*, were fully *engaged* and had an *openness to*

experience. *Recognising opportunities* involved students' being more aware of what, and how, learning can occur during OAE and how this learning might benefit them in the future. For example, thinking about "the skills you already have and the skills you want to practice during the whole course" (student). However, this alumnus warned that it is "sometimes hard for a student to see the value in these things".

Student *engagement* was characterised as a willingness to embrace the challenge, push themselves, be persistent and make an effort to be active participants in OAE. For example, one student describes learning resulting from doing "things that I've never done before, just facing my fear of heights and getting out there" and an instructor said, "I'll have an idea about what I want to get done in the day but it's their willingness to follow me".

Finally, students benefitted from having a psychological *openness to the experience*, which involved being curious, adventurous and able to absorb the experience and new learning. For example, an academic said "It's hard to self-reflect if you don't have that curiosity […] you're not going to push it" and an instructor commented that it is hard to teach if "the mechanics of working with other people isn't of interest to them".

Learning context. The final themes that influenced reaction and learning concern how the learning context was structured. *Removal from norms*, where students were taken into a novel environment, resulted in a range of benefits, such as increased social proximity, reduced distraction, disruption of previous hierarchies and segregation, removal from comfort zones and more memorable learning. An academic described a couple of these benefits, "You take away a lot of the hierarchy because everybody has got stuck in and everybody is just as uncomfortable in the environment so it levels the playing field". Another theme was that students benefited from *experiential* learning. Students were able to experiment and master new behaviours and receive immediate feedback from instructors, peers and the natural environment itself, for example, "you can sit back and watch them fall in the water, all the team building and all the theories come out" (academic). One instructor explained, "people have actually got evidence from (OAE) of what worked for them and what didn't work […] that they can then implement in the next situation".

Students also benefited from facing a *range of progressive challenges*, whereby the learning outcomes often reflected those aspects most challenged by OAE. For example, restricting communication through blindfolding developed communication skills, particularly in those students who felt most hampered by this intervention. The challenges faced came from both the activities and the household chores, as described by this alumnus, "I'd say the chores were as important as the activities themselves because I was not used to the organised sort of chores". Students also appreciated the challenge of progressing throughout OAE (e.g. "Tomorrow when we're doing the orienteering up the lake and the land, it will be a lot more challenging […] now we're more comfortable with each other as a group, there will probably be some more conflict").

Other contextual influences included the *social environment*, where a balance was needed between the time spent doing activities and the down time for socialising and relaxing. For example, one student explained how:

> […] it was pretty exhausting after we did a whole day of hiking, so we could play some of the games there at night and well I really liked that […] the exercise [hiking] built up our teamwork skills and this event [social activity] got us to know each other more.

Students benefitted from *support* received from the instructors, academic staff and recent graduates acting as mentors. For example, one alumnus explained how "knowing the (academic staff) on a more personal level helped, so like helped me be able to approach them and say if you had a problem". However, not all academic staff took this opportunity; for example:

> Some lecturers come up and just sit in their room on their laptop you know […] see it as a bit of a holiday […] and leave the students with us (instructor).

Guided reflection, before, during and after activities, was most effective when it was focussed on how learning can be applied outside of the learning context. Talking about the need for reflection one instructor said:

> […] sometimes people get hung up on the success of the activity […] sometimes they do struggle to understand what made them successful. And then when they go and have another encounter with their [academic] project they haven't really learnt a lesson they can take away.

Finally, the learning context needed to be *enjoyable*, as this encouraged engagement and learning and made the experience more memorable. For example, one student said, "We are just having fun, so it is much more easier for us, for me to, to, join the group and I feel quite relaxed […] it's much more easy to open up" and an instructor commented, "if fun isn't in there then they don't have an educational experience. They switch off".

Behavior and results

Learner characteristics. Learner characteristics also influenced students' ability to transfer the outcomes obtained from OAE. These included students' *ability to generalise learning*. For some, the ability to identify similarities between OAE and the transfer environment came easily; however, others found it difficult, for example, "going back to the University it's absolutely another environment. So it is very difficult to compare what you gain" (student). Students who were able to generalise skills across settings also benefitted from *mindful and effortful practice* of these skills. For example, this alumnus explained:

> I did make a conscious effort to remember it and actually practice using it afterwards. So I think if there's a way that it stuck after the course it was because I was kind of looking out for something like that.

Those most able to transfer were also those who continued *self-reflecting* after OAE, as this alumnus recommended, "remember (OAE) and compare that with the experience that you are living now".

Transfer context. The transfer environment can also be designed to facilitate transfer. First, students needed an *opportunity* to transfer and further develop the skills learnt during OAE. An alumnus noted that the timing of OAE in their degree course sometimes limited this transfer, stating, "it (OAE) was around April when most of the (degree) course was complete, you don't have any more groupwork". When opportunity is provided, it also needed to be *challenging*. For example, despite having the opportunity, this student didn't feel pushed to use the skills they had learnt, "I remember what we have learned but […] I don't think the situation in campus we need those kinds of skills to do things". Students also benefitted from *informal prompting*; one academic recommended putting:

> […] pictures up just to remind them what's happened and then ask them "ok what have you done different?" […] and ask for examples. If they are not doing anything differently then we ask then "why is it?" […] "Has there been a barrier?".

This could also involve *formal follow-ups*, such as another OAE activity, training session or mentoring, aimed at helping students' continued development and transfer of skills. An instructor explained how "skills don't transfer themselves, there has to be built into the system, i.e. at University, something that facilitates that to develop, that nurtures that". In most cases, no such follow-up was provided, as highlighted by this alumnus, "it was just kind of expected that after we'd spent that weekend away that we would put the skills to use". A final contextual influence on transfer was *peer support*. One student commented, "(during OAE) everyone wants to try so they cooperate to make the team a success, but sometimes in assignments (back at university) someone can be lazy and don't want to".

Discussion

The present study took a novel, systematic and multi-perspective approach to evaluating learning and transfer, which was based on the four-level Kirkpatrick model (1994). Key stakeholders reported that a short OAE course for students was an enjoyable and effective way to improve groupwork related attitudes, knowledge and skills (Kirkpatrick Level 1 and 2: Reaction and Learning), and encourage groupwork behaviour, social interactions and more positive approaches to groupwork back at university (Kirkpatrick Level 3: Behaviour). In the longer term, OAE was felt to contribute to more integrated cohorts, degree success, employability and the personal development of students (Kirkpatrick Level 4: Results). This supports the contention of a recent review (Cooley *et al.*, 2014b) that OAE can be used to support groupwork skill development, reflective learning, cross-cultural integration and employability, which are considered crucial aspects of higher education (Wilson, 2012). Our findings expand on existing literature by demonstrating a broader range of outcomes, and longer-term benefits at Levels 3 and 4 of the Kirkpatrick model, from a range of stakeholders. More generally, this study presents an approach to training evaluation that may be replicated in other educational and professional contexts.

The Kirkpatrick model was also used to explore the processes that underpinned the outcomes of OAE, an approach that overcomes previous criticism that the Kirkpatrick model is only useful for evaluating training outcomes and not processes (Bates, 2004). These process themes were used to produce the MOLT. It was found that students' reaction and learning during OAE was determined by the preparation before OAE, learner characteristics and the learning context itself. The need to tailor courses based on the attendees' needs, set clear learning objectives and ensure the attendees are committed to change is in line with an earlier model of the OAE transfer process (Gass, 1985). In addition, our model is consistent with social behavioural theories such as the theory of planned behaviour (Ajzen, 1985), which have demonstrated that successful behaviour change (e.g. improving groupwork skills) is dependant on the individuals' attitudinal beliefs surrounding the behaviour and their intentions to change. The present study supports previous suggestion that positive learner characteristics could be influenced through the information and encouragement individuals receive prior to a behaviour change intervention such as OAE (Cooley *et al.*, 2014a). Further, many of the elements recommended for an optimal learning context are supported by previous

theories. For example, Kolb's (1984) experiential learning cycle stresses the importance of learning through a direct experience, receiving feedback and incorporating periods of reflection. Similarly, the model of the outward bound process (Walsh and Golins, 1976) highlights the importance of social interaction, a novel and challenging learning environment and taking people outside of their comfort zones, which leads to adaptive behaviour and new learning.

The MOLT also elucidates factors that influence behaviour change and results once attendees return to their transfer environment. The need for continued practice as way of embedding and further developing the learning that OAE may have started is in concordance with previous theories used to explain transfer following OAE [e.g. Kolb's (1984) experiential learning cycle; Gass' (1985) model of the transfer process; and turning point theory (Gotlib and Wheaton, 1997)]. In addition, theories and models found within the organisation training and development literature are also supported by our findings. For example, the model of the transfer process by Baldwin and Ford (1988) describes how individuals need to posses an ability to generalise learning across contexts, and the transfer environment should provide opportunity, support and follow-up.

The MOLT adds to the OAE literature by providing a model generated from data that could be empirically tested in the future. It incorporates previous theories and models to give a single model that explains how learning and transfer can be facilitated throughout the entire learning and transfer process. The model may benefit training and development researchers and practitioners, as it offers a set of important factors to be considered in the design and evaluation of courses. We encourage researchers to empirically evaluate the proposed model to test the relative importance of each recommendation in other learning and training contexts.

Conclusion

In summary, the present study supports OAE as a potential solution to the need for training and developing groupwork skills in higher education. It is the first study to evaluate the long-term impact of OAE in higher education and in doing so, has provided strong evidence of numerous benefits resulting from these programmes. The evaluation also outlined a range of areas to improve reaction, learning, behaviour and results following OAE. An empirical model of these factors has been developed, which can be used to guide future courses and evaluations in other areas of training and development. Finally, the present study demonstrates how a training course can be systematically evaluated using the Kirkpatrick model, a combination of qualitative data collection techniques and multi-perspectives, an approach that can be replicated in other contexts of training evaluation.

Note

1. Themes discussed in the results section are accompanied with example quotes from participants. Due to space limitations, example quotes are unable to be provided for all themes and all four perspectives. Please contact the lead author if you would like a detailed table containing all themes, definitions and example quotes across all perspectives.

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