

# “No One Can Whistle a Symphony. It Takes an Orchestra to Play It.” H. E. Luccock

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## Abstract

An innovative teamwork training module was developed for business students as part of an Australian Learning and Teaching Council (ALTC) grant supporting the acquisition of generic skills. The module content was based on teamwork theory and research and was delivered in a one-off training session using action learning pedagogy that promoted team development and experiential learning. Initial student feedback indicates that this model of teamwork training has broader applications.

**Keywords:** Graduate skills, Teamwork, Training, Self-efficacy, Model

## 1. Introduction

This paper reports on a team-training module designed to prepare business students for effective teamwork at university and beyond. The evidence-based module content was derived from what is known about effective teamwork in the recent literature, forging a strong link between student learning and work preparedness. The teaching method was informed by cooperative, experiential and constructivist learning theories, grounded in group process and supported by models explicating the emergent psychological states that underpin team development (Millward, Banks, & Riga, 2010).

Firstly the paper outlines the context for teaching teamwork and then refers to some of the drawbacks associated with a traditional group-work approach. Research findings about the nature of effective teams are then reviewed to inform best practice for the design of student teamwork experiences. Next, I present the benefit of exposure to team training and development prior to team projects, with attention to team-affective processes supported by team research, group theory and Millward's generative model of team development. The content of an evidence-based team-training module and the rationale behind the action learning pedagogy will be described, followed by discussion of a pilot training session offered as part of the Australian Learning and Teaching Council (ALTC) generic skills project featured in this Issue (see also Vu, Rigby, & Mather, 2011). Initial student feedback about the team-training and teamwork projects is reviewed. Finally, future applications of team training and discipline-based teamwork will be discussed in the light of student comments.

## 2. Teamwork

Modern organizational wisdom supports teams because of their rapid, flexible and adaptive responses. Teamwork is now expected as a generic capability, but industry leaders and employers report that the team skills of new graduates are underdeveloped (Business, Industry and Higher Education Collaboration Council, 2007). Graduates themselves also recognize a need for greater confidence and competence in teamwork (Crebert *et al.*, 2004).

Business schools promoting team readiness are likely to offer their graduates both employability and career advantages. With moves towards larger classes, exposure to quality team experiences poses a challenge. To date, there has been little consensus among academics about how to best teach teamwork (Barrie, 2007). A recent

scoping study of effective teaching and learning in Australian business schools recommended that generic skills be developed in discipline-based contexts (Freeman *et al.*, 2008), hence the genesis of our ALTC project. To progress the team skills agenda, academics need organizational support for curricula mapping. They will also require further knowledge of teams and guidance about quality teaching practices in order to design industry- and discipline-relevant team experiences that produce desired learning outcomes in terms of knowledge, skills and confidence.

### 2.1 Group work is not teamwork

Teamwork at university has often been equated with cooperative group learning but this is not an adequate methodology for teaching teamwork. The benefits of cooperative learning in classroom settings are clearly established for individual learners (Johnson, Johnson, & Smith, 1998). For example, evidence suggests that small-group work improves motivation, higher order thinking and deep learning (Kimmel & Volet, 2010). Amongst the many potential collaborative approaches, Michaelson's team-based learning (TBL) system offers the most promise for experiencing the benefit of teams for producing a better product, but Michaelson notes that students fail to recognize the role of team processes unless directed (Michaelson & Sweet, 2008). The TBL method relies on permanent, well-managed groups for the duration of a course, in-class interaction and frequent, immediate feedback about assignment-based work. TBL requires a high level of commitment from instructors including initial course re-design.

Group work in many undergraduate courses is generally weighted heavily towards assignments outside class and tends to lack adequate student preparation and ongoing support for a team focus. Common problems reported by students include social loafing and failure to complete much of the assigned work together, and results for student satisfaction with group work have been mixed (Ashraf, 2004; Kimmel & Volet, 2010; Volet & Mansfield, 2006). Time investment is already problematic for students juggling study and work commitments, and some high achievers express disappointment, preferring reward for individual effort. Students do appear to value group work when activities are well designed but it has been found that many group experiences have detrimental effects. Furthermore, students do not naturally make connections between group-work outcomes and desirable graduate attributes (Vickery & Hunter, 2008).

### 2.2 Characteristics of teamwork

Co-acting groups can be distinguished from teams because group products rely on cooperative, individual efforts rather than interdependent collaboration (Hackman & O'Connor, 2004). A useful definition of a team is that it refers to, "a small number of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable" (Katzenbach & Smith, 1993, p. 112). Based on extensive concept analysis, Xyrichis and Ream (2007) identify the defining attributes of teamwork as concerted member effort, interdependent collaboration and shared decision making. Teamwork is not possible without essential infrastructure that permits interdependence in relation to an attractive, achievable shared goal and team-level rewards (Millward, Banks, & Riga, 2010).

According to Hackman and Wageman (2009), team effectiveness can be explained by three research-based principles: firstly, the team delivers a quality product on time; secondly, the team's work processes foster members' capacity to function well together; and, thirdly, the team enhances members' learning and sense of wellbeing. Healthy high-functioning teams are vital and creative, and can lead to learning as a community of practice. Team-effectiveness research has traditionally employed an input-process-output (I-P-O) model, but more recently the mediators of team processes have been investigated using an input-mediators-output-input (I-M-O-I) framework, with output seen as part of an episodic feedback loop (Ilgen *et al.*, 2005). Marks, Mathieu and Zaccaro (2001) argue that team processes are central to team effectiveness and they distinguish three main processes; namely, transition (team formation), interpersonal, and task action process. Given the core attributes of teams, the principles of team effectiveness identified in the team literature and the importance of process, group work is unlikely to prepare students to function well in workplace teams. The design of discipline-based learning about teamwork could be usefully informed by empirical knowledge about the nature of effective teamwork.

### 2.3 Best practice teaching

The distinction between group and team has implications for the design of student teamwork projects, particularly for structuring team architecture. For instance, active course design should target work products that require a collective approach. Either compressed time formats or semester-long projects lend themselves better to a team focus, with student workload a pertinent factor (Zeff, Higby, & Bossman, 2006). Research supports team heterogeneity for greater creativity and productivity but potential conflict should be addressed. In terms of

team composition, lecturer nomination of diverse student teams produces better outcomes than self-selection. Instructors can compose teams based on surface-level criteria such as gender or deep-level criteria like cognitive style, however, this requires access to student profiles or pre-surveys. Findings for the relative benefits of culturally heterogeneous and homogeneous teams remain inconclusive (Kimmel & Volet, 2010).

There is some consensus that students require preparation about the purpose and nature of teamwork; clear goals and roles; and facilitator-led team development that includes opportunities for the direct acquisition of team-based skills. Regular opportunities for feedback and reflection are pivotal for team learning. Some in-class time to pursue tasks and instructor monitoring of team diversity, conflict and progress are also recommended. When determining the content and style of team projects, those activities emulating real-life professional roles, dilemmas and decisions are preferable. Such tasks include report writing, case studies, role playing and the creation of products for genuine customers (Caspersz, Skene, & Wu, 2005; Chen, Donahue, & Klimoski, 2004; Hansen, 2006; Humes & Reilly, 2008).

Clear parallels exist between best practice pedagogy that includes the design of the structural conditions for student teamwork and organizational leadership that enables the success of workplace teams. Both team settings require contextual support that provides sufficient direction for team purpose, structure and function (Hackman *et al.*, 2000). Hackman (2002) identifies three key conditions that leaders can harness for team success: firstly, a compelling direction; secondly, an enabling context and structure; and thirdly, expert coaching. The rationale behind the design of teamwork projects and the workplace parallels could be made more explicit to students in order to increase their motivation to fully engage in teamwork. Moreover, what is known about the “science of team effectiveness” (Kozlowski & Ilgen, 2006) can be shared with students in the form of team training.

#### 2.4 Training student teams

Team training systematically develops teamwork knowledge, skills, abilities and other factors such as attitudes (KSAO's) (Rapp & Mathieu, 2007). Indeed, training may be a primary mechanism for the convergence of team members' mental models of teamwork to better team performance (Cannon-Bowers, 2007). Formal team training is less common at university than in work settings and tends to happen later, for example as part of capstone or MBA courses. Yet there is a sound case for offering team training to undergraduates prior to involvement in discipline-based team projects.

Chen, Donahue and Klimoski (2004) propose that team knowledge and skills should be developed and assessed at an individual level. They taught a semester-long undergraduate psychology course entitled, “The Psychology of Working in Groups and Teams”, which combined book learning with exercises simulating real-world team decision-making tasks followed by self, peer and instructor review and then self-reflection. Blind ratings showed improvement in both students' team knowledge and skills compared to control groups but not in self-efficacy for teamwork. Similarly, Rapp and Mathieu (2007) provided fifteen weeks' training to MBA students based on Marks' team processes taxonomy. Training was delivered individually with CD technology. Student teams subsequently competed in business simulations over an eight-week period. Once again, the trained students outperformed controls. In both studies students were assessed but not trained in team contexts and the training period was lengthy.

Group-centered delivery appears a more effective method for learning about teamwork than individual training, and generally team training correlates with successful team performance in both student and workplace teams. Pineda and Lerner (2006) highlight the contribution of “transition” team-building activities to goal attainment, student satisfaction and learning outcomes. One recent meta-analysis of workplace teams conducted by Klein *et al.* (2009) reveals moderate positive effects for team-building components across all team outcomes. In fact, Hackman (2011) argues that, “thirty percent of the variation in team effectiveness depends on the quality of the team's launch.” (p. 9) Training may also have lasting positive effects. For example, another meta-analysis by Salas, Nichols and Driskell (2007) found a small to moderate tendency for team training to increase team performance across the entire lifespan of teams. It is not clear, however, whether the benefits of team training generalize to student's work across different teams. Although didactic and experiential learning are well-established training methods (Kozlowski & Ilgen, 2006), research on what, how and when to train student teams remains sparse (Mathieu *et al.*, 2008). Even less is known about the impact of short, one-off team-based training approaches, such as the model trialed in our project.

The following section will include a description of the content of the team-training module derived from recent teamwork literature, followed by the action learning pedagogy trialed.

### 3. Model of teamwork

Team training for this project was structured in accordance with the model in Figure 1. The content of the team-training module was derived from present conceptual empirical work outlining some of the elements of effective teamwork. This model offers a meta-cognitive map of teamwork that acknowledges the complex, multilayered nature of teams and the simultaneous contributions of personal, interpersonal, team and task processes to team effectiveness, each lens associated with a primary skill set that can be learned. A fundamental assumption of the model is that embedded and ongoing team reflexivity permits team self-regulation, learning and adaptation.

Following Figure 1, at the individual (Self) level, members need to be aware of their personal goals, preferences and strengths in teams and cognizant of their personality style and typical role adoption. Self-awareness and self-management skills such as mindfulness are useful in team situations and can be taught.

At the interpersonal (Relationship) level, respect for diversity fosters inclusion in order to become familiar with members' strengths and skills. Respect includes appreciation of cultural values and avoidance of stereotyping. Pertinent skills are respect, empathy, communication and assertiveness skills.

At the Team level, there are two aspects; namely, group process and team structure. Group process refers to the group dynamics underlying team functioning. Here the most relevant topics for participants are group stages, mood, climate, motivation and efficacy. Emotion-regulation skills and a capacity to reflect about groups can be fostered. The second aspect involves the establishment of team structure, function and direction, where team charters can serve as a scaffolding tool to set norms, goals and roles. Team-level skills include team communication strategies such as regular meetings and joint decision making, problem solving and conflict resolution.

The Task level refers to the management of the project and creation of the "product". Task skills include being able to generate ideas, solve problems, hold productive meetings and manage timelines. Reflexivity operates at all levels of the model.

#### 3.1 Team training – teaching through experience

Drawing on background theoretical and empirical work, a one-off team-training session of 90 minutes' duration was delivered as part of the student preparation for a team focus on case studies in the ALTC graduate skills project. Students were seated in groups around large round tables during the session. Facilitation occurred at several levels. In terms of framing and structuring the process, a group agreement and session goals were negotiated early in the session. At a didactic level, student groups were taught via the meta-cognitive model of teamwork in Figure 1, anchored by a presentation. In addition to traditional lecture pedagogy, our experiential learning model combined content with the process of learning. Interspersed with teaching, groups were invited to engage in firsthand experiments. High-intensity mini learning activities were used to stimulate active involvement and both direct and vicarious learning dynamics. Attention was given to "whole of person experiential learning" that simultaneously involves affective, cognitive and behavioral dimensions (Hoover, Giambatista, Sorenson, & Bommer, 2010). The presentation order of the didactic material and associated mini learning activities was designed to rapidly shift from the individual experience through to the team level. The activities assisted teams to develop at a rapid rate in order to make decisions and solve problems. Students were given the opportunity to practice their team skills in order to promote their self-efficacy for teamwork.

Activities directed at the individual (self) level included an early request by the facilitator for students to share their thoughts about how to work effectively in teams (with self-efficacy linked to motivation and developing collective efficacy). Students were also asked to reflect on their personal preferences for teamwork, strengths, personality and role adoption in teams. At the relationship level, students were specifically asked to consider how to include all team members, value contributions and how they themselves could be stereotyped by other team members. The influence of a cultural values dimension was explored, and students also practiced active listening skills. At the team level, groups engaged in the tower-building activity outlined below which was intended to provide a supportive climate, and they participated in an exercise requiring teams to cooperate on behalf of an organization.

#### 3.2 Example of a team activity

An example of a team activity was an exercise in the Group Dynamics segment which was designed to highlight the effect of group climate, mood contagion and encouragement. Student teams – typically consisting of 5-7 members – were asked to build a paper tower using paper clips for ten minutes within a competitive atmosphere. Three members constructed the tower, while one member was asked to make critical unhelpful comments and

another to express encouragement and support. Two members were nominated to observe task progress and process. Teams debriefed at the end and then shared some of their experience with other teams in a reflective discussion led by the instructor. In sum, students were given a cognitive framework that identified a skill set and gave opportunities for practicing skills as well as for individual and collective feedback about the process and outcomes of the experiment.

### *3.3 Facilitating team development*

At the same time as learning the principles of effective teamwork and team skills, students were purposefully engaged in an affective process of team formation. The instructor utilized cooperative learning and social constructivist methods to create a positive affective climate for student-centered learning (Hanson & Sinclair, 2006; Lane, 2008). A respectful attitude, positive tone, open dialogue and active listening were modeled to students as norms. A shared positive affect, including interest, enthusiasm and optimism, has been linked to the development of swift trust in temporary teams, effective team formation, team cooperation and a learning orientation. A learning climate of curiosity was fostered: "Let's see what we can learn ... where this will take us."

Targeting student motivation, both self-efficacy for teamwork and growing team efficacy were key features, the latter reinforced by the performance of enjoyable, challenging tasks. The facilitator's attention rested on the meaning of both student's and team's experiences in order to facilitate the development of their mental models of teamwork. Reflexive process was embedded in the session, through members and teams being invited to reflect critically about what they noticed about themselves, relationships, the tasks, their team and the training session, by means of periodic feedback in the large group discussions (following Hedberg's (2009) ideas on student reflection). The instructor based such reflective questions on the ORID framework for critical reflection; that is, objective, reflective, interpretative and decisional questions (Lane, 2008).

Favorable conditions were also created for initial team formation based on knowledge of the group affective dynamics that underpin team function (Hare, 2010). In the role of temporary leader and coach, the instructor created a safe psychological space for the expression of group anxieties about dependence and inclusion. A climate of psychological safety was promoted by a respectful, accessible and fallible "leader", so that team members were less anxious about maintaining their image with others and more willing to take learning risks associated with performance and innovation such as asking questions, making mistakes or proposing new ideas (Edmondson, 2003). Establishing initial psychological safety is consistent with the nature of group affective processes and Edmondson's writings about team learning.

## **4. Case study: the generic skills workshop**

This section will focus on the teamwork experiences of the student cohort who participated in the workshop. A total of 35 students from seven universities across Australia, and studying different majors, participated in a three-day residential program.

### *4.1 The workshop program*

Following icebreaker activities, the 90 minute team-training module was delivered on the first day of the program as preparation for student allocation to teams in order to work on ethical and sustainability case studies and presentations (see also Petocz & Dixon in this Issue). Students also received training in critical thinking skills. Diverse teams were then selected by the ALTC team of senior academics. Selection was based on student performance in the team-training module and teams included students from different universities and disciplines.

An hour was allocated on the morning of day two of the program to focus on team formation and structure prior to the case study work. The instructor provided scaffolding by inviting members to becoming better acquainted; to share expectations, preferences and strengths in teams; to develop their team's purpose, norms, goals and roles; and to discuss how the team would make decisions, deal with conflict, give feedback and maintain communication. Teams were also encouraged to make use of a team charter. The ALTC grant team worked closely with the student teams and they were available for consultation. Twenty-minute reflection sessions were embedded in the program at the end of each day. Students gave pre- and post-test written responses about their understanding of teamwork and the other three generic skills being assessed. Feedback about the team training and subsequent teamwork will be considered next as well as suggestions by participants for future classroom applications.

### *4.2 Student feedback*

Towards the end of the team training, each student was requested to make one brief comment about what they took away from the session. Three comments were indiscernible from the audiotape transcript, but all the other comments are included in Table 1. The comments have been organized into themes related to the meta-cognitive

model of teamwork taught and also to reflect the skills practice (such as active listening) and experiential learning activities (such as a request to offer encouragement in the tower task). These comments indicate that the session was a useful learning experience for the participants.

## 5. Discussion

Initial qualitative data from the ALTC generic skills project indicates that business students can learn professional teamwork practice while focused on discipline-specific, work-relevant projects. There is evidence for the benefit of participation in a brief team-training session. Themes emerging from student feedback about the team training suggest that as a group they understood teamwork as a complex multi-level construct, and were able to reflect on the value of member diversity, affective group process, team structure, task focus, communication, team climate, leadership roles and team efficacy as well as upon themselves in teams. The breadth of response supports the continued development of team training based on the emerging science of team effectiveness and further attention to student experience of team affective processes, reflexivity and learning facilitated in a setting of psychological safety (Millward, Banks, & Riga, 2010). Opportunities to learn about the nature of emotional processes in team formation are less common than learning about teamwork theory and concepts (Hanson & Sinclair, 2008). In a recent critical review of research about student learning in higher education, Haggis (2009) noted there have been few attempts to, “document different types of dynamic interaction and process through time in relation to learning situations,” (p. 389) – student teamwork processes are ripe for this kind of research.

Kolb and Kolb (2005) argue that greater space needs to be created in curricula for deep experiential learning. Students expressed satisfaction with the productive climate and experiential pedagogy associated with team training, team project design and their teamwork experiences during the workshop. Student perception of the positive side of teamwork, also observed by the project team, may facilitate greater tolerance for ambiguity, cognitive flexibility and openness to learning about teamwork leading to upward spirals of self-efficacy for teamwork. Follow-up interviews with students revealed that 54% had been able to apply their learning about teams to their courses and had continued to improve their teamwork skills.

Student teamwork occurred against a background of leadership from the ALTC grant team who structured the team projects and student teams and were also available as consultants. The grant team modeled constructive team norms and created conditions for team success; that is, a compelling direction, enabling structure and expert coaching. Students advised that they found the trialed pedagogy relevant to inform both business course design and their transition to future professional roles. In this regard, the grant team, educators and students became a community of practice seeking to improve generic skills pedagogy for both university and business communities. Project participants tended to be motivated, high-achieving students. The next challenge will be to explore avenues for engaging further student interest in team-based learning as we continue to investigate best teaching practices. The role of team training and projects in developing team competence across years of study, the most effective components of training, generalization of learning, and models of team development offer interesting avenues for future research.

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Table 1. Student comments on team-training session

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**Respect for diversity**

Different, everyone is different, so they bring different things to a group.

The importance of respecting all ideas.

Different personalities are needed for the group to perform well.

Just the importance of showing respect to everybody in the team.

Everyone has different approaches to a group.

Diversity

**Group process**

Group cohesion is important.

Understanding that the group has a life in itself, as apart to the individuals within it.

For me the big breakthrough was that the group has a life in itself and that it has specific behaviors, I think I can now identify those behaviors.

Constructive conflict, I think that is also important to bring out new ideas and be able to debate about it and discuss it.

There is unity in diversity and diversity in unity.

### Team structure

To set guidelines to avoid conflict in the group. I think that would be a really strong thing that I will take back.

### The task

Mind on the task.

That if everyone has a set goal then it is hard to have the distractions as well, because they are good at ignoring them.

### The skills

Team work is highly dependent on communication.

Active listening.

That you should encourage others to give opinion so that you have a comprehensive consideration and, you know, decision ... deliberately creating a space for the quiet person to involve them in the team.

Loud encouragement can be distracting.

Constructive criticism.

Encouraging people for wrong reasons can lead to false illusions.

I say, unwise encouragement can be deconstructive.

### Leadership

Seeing different leadership styles, not just reading about them.

Yes, management. Management has got a lot of potential. It's not just 'hey you have got to do that', you feel sort of like the boss or something, you know, but it's good to know that you should do that.

### Team learning

What you can achieve in a team, if you are well organized and how fast you can do it, that's great.

Teamwork is fun, with creative conversation.

### Self-knowledge

Reflection of self.

That I am an optimist pessimist.

Greater understanding of how I perform with it.

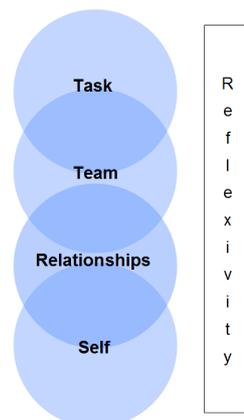


Figure 1. A model of teamwork