

**Developing Psychological Capital
in a Student Population**

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Abstract

Psychological Capital (PsyCap) is a construct which comprises of four components - Optimism, Self-Efficacy, Hope and Resilience. The state-like property of PsyCap suggests that it can be developed through a short training intervention. The aim of this study is to investigate if a Psychological Capital Intervention can enhance PsyCap in a student population. Using a convenience sample, data was collected from 24 students in Dublin Business School. An experimental, mixed within participant and between group design was applied. Participants were randomly assigned to complete either a treatment or control intervention. Levels of PsyCap were assessed pre and post each intervention. Data was analysed using a two-way mixed ANOVA. Results showed a significant increase in PsyCap from Time 1 to Time 2 for both interventions. PsyCap Intervention participants had greater PsyCap at Time 2 than participants in the control group. The results demonstrate the potential for PsyCap development in student populations.

Introduction

Since its introduction to literature, Psychological Capital (PsyCap) has been associated with the field of positive organisational behaviour and as a result has been primarily studied within the organisational context. Research has highlighted the positive relationship between PsyCap and workplace performance, attitudes and behaviours (Avey, Luthans & Youssef, 2009; Avey, Reichard, Luthans, & Mhatre, 2011; Larson & Luthans, 2006; Luthans, Avolio, Avey, & Norman, 2007; Norman, Avey, Nimnicht & Graber Pigeon, 2010). However few studies exist in the academic setting and in particular on the development of PsyCap in a student population. Given the research on the positive effects of PsyCap on organisational performance and on PsyCap's malleable characteristic (Luthans, 2002a), it is reasonable to hypothesise that PsyCap would have a similar positive effect in the educational setting. To this end, this study will explore the development of PsyCap in a student population in their usual academic classroom environment. The objective of this study is to determine if a Psychological Capital Intervention (PCI), which mirrors Luthans, Avey, Avolio, Norman & Combs (2006) model, will increase PsyCap and each of its four constructs, in a student sample compared to a control group from the same college programme. This research continues the validation of the PCI training model originally designed to enhance levels of PsyCap for individuals in the organisational context and further extends that research into the Irish college setting.

1.1 Psychological Capital

PsyCap is a higher order core construct which meets all of the inclusion criteria to be categorised as a Positive Behaviour (Luthans, 2002b). The criteria

require that constructs are (i) measurable, (ii) open to development, and (iii) linked to performance. PsyCap consists of four components, as presented in Figure 1, namely; Hope (Snyder, Rand, & Sigmon, 2002b), Self-Efficacy (Bandura, 1997), Resilience (Masten & Reed, 2002) and Optimism (Carver & Scheier, 2003). Each of these components have strong theoretical foundations in clinical and organisational psychology.

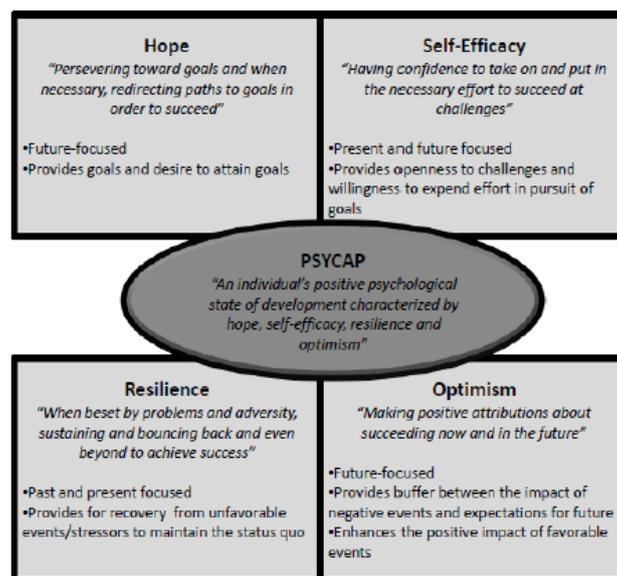


Figure 1: *Diagram of Psychological Capital. Adapted from Newman, Ucbasaran, Zhu & Hirst (2014).*

PsyCap first appeared in the literature in 2002 (Luthans, 2002a) and is defined by Luthans, Youssef & Avolio (2007, p. 3) as

an individual's positive psychological state of development that is characterized by: (i) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (ii) making a

positive attribution (optimism) about succeeding now and in the future; (iii) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (iv) when beset by problems and adversity, sustaining and bouncing back and even beyond (resiliency) to attain success.

In contrast to Social Capital ‘who you know’, (Adler & Kwon, 2002; Wright & Snell, 1999) and Human Capital, ‘what you know’ (Van Marrewijk & Timmers, 2003), PsyCap is both “who you are” (Luthans & Youssef, 2004) and from a developmental perspective, “who you are becoming” (Luthans et al., 2007; Avolio & Luthans, 2006).

Many studies have found empirically based discriminant and convergent validity between the constructs of PsyCap (Luthans et al., 2007; Youssef & Luthans, 2007; Luthans, Norman, Avolio & Avey, 2008) meaning the four components are conceptually and psychometrically distinct. By combining the four components into one, higher order core construct which operates synergistically, it becomes easier to understand how individuals with greater amounts of the combined resources, perform at higher levels than those with high levels of one component alone, (Luthans et al., 2007). PsyCap has been shown both conceptually (Luthans et al., 2007) and empirically (Luthans et al., 2007) to be a higher order core construct (Avey et al., 2010).

Avey et al., (2010, p. 438) state “the common denominator for the convergence of PsyCap’s four constituent psychological capacities is represented by a core factor of internalised agency, motivation, perseverance, and success expectancies.” Luthans et al., (2007) attribute the combined effect of the PsyCap

constructs as having greater impact than each construct has in isolation on performance (Avey, Wernsing & Luthans, 2008; Luthans, Avolio, Walumbwa & Li, 2005). It is suggested this synergistic effect occurs because one resource is informing the other (Luthans, Avey, Avolio & Peterson, 2010). For example “the hopeful employee who encounters a setback to goal accomplishment, but intentionally and proactively rebounds quickly to pursue an alternative pathway because he or she has high levels of optimism, efficacy, and resilience” (Luthans et al., 2010, p. 48).

1.2 Psychological Capital Constructs

The following paragraphs delineate each of the constructs of PsyCap and describe the workings of each construct and their application.

1.2.1 Hope

Snyder, Irving and Anderson (1991, p. 287) define hope as “a positive motivational state that is based on an interactively derived sense of successful agency (goal-directed energy) and pathways (planning to meet goals).” The individual initiates the pathways to goals attainment and both will-power (agentic) and way-power (pathway) operate in an iterative manner to achieve the goals. Way-power provides for the proactive consideration of alternative pathways should the preferred route prove unsuccessful (Snyder, 2000; Snyder & Lopez, 2002). In this manner, way-power facilitates overcoming challenges and renews determination when faced with obstacles or adversity.

People with high hope have the determination and motivational capacity (will-power) to set and pursue challenging goals and generate various alternative pathways to attain goals (Snyder, 2002; Luthans & Church, 2002b). In contrast, individuals

with low-hope are more tenuous in their pathways thinking (Snyder, 2002) have fewer goals (Langelle, 1989) and are less likely to have the flexible thinking required to consider alternate routes to goal attainment. Adams, Snyder, Rand, King, Sigman and Pulvers (2002) state that people with higher levels of hope were inclined to be more successful than those with lower hope levels, as they use their agentic thinking to stay motivated in pursuit of their goals (Avey, Patera & West, 2006) and are always prepared with alternative plans to ensure success (Luthans et al., 2010).

1.2.2 Self-Efficacy

Self-efficacy is grounded in Bandura's (1997) social cognitive theory and is defined as "one's conviction (or confidence) about his or her abilities to mobilise the motivation, cognitive resources or courses of action needed to successfully execute a specific task within a given context" (Stajkovic & Luthans, 1998, p 66). Efficacy can be developed via task-mastery, vicarious learning/role modelling, social persuasion, and psychological or physiological arousal. Self-efficacy increases when one (i) enacts task-mastery by successfully executing a given task; (ii) learns vicariously or through a role model by watching relevant others accomplish the task (iii) when relevant and respected others express confidence in the individuals to complete a given task and provides positive feedback on progress and (iv) through psychological and physiological arousal, i.e. the belief that one is mentally and/or physically fit to accomplish the task.

Theory suggests that personal efficacy leads to (i) positive choices in terms of challenging work assignments, (ii) greater motivation and effort toward tasks, (iii) perseverance when faced with problems, (iv) positive self-thought, and (v) is resistance to stress and burnout (Luthans & Church, 2002b). Self-efficacious people

choose challenging tasks and goals, are motivated to provide the effort to successfully accomplish their goals, and persevere when faced with obstacles. They are driven by beliefs in their ability to succeed and are tenacious and persistent in overcoming obstacles in pursuit of their goals. Efficacious individuals view challenges as ultimately achievable rather than overwhelming or excessively difficult. Rather than focusing on the existence of a problem, they tend to behave in a proactive, productive manner when faced with obstacles and focus on actions to succeed in the challenge (Luthans, 2002a; Avey et al., 2006). Conversely, those with low efficacy are more inclined to avoid difficult challenges (Bandura, 2008) and are easily convinced that efforts to address difficulties are futile so they are more likely to decrease effort prematurely (Stajkovic & Luthans, 1998; Bandura, 1997) and experience negative stress symptoms (Avey, Luthans & Jensen, 2009). Matsui and Onglatco (1992) found individuals with a lower sense of efficacy were more stressed by heavy workloads and responsibilities than those with higher self-efficacy.

1.2.3 Resilience

Luthans (2002a, p. 702) defined resilience as “the developable capacity to rebound or bounce back from adversity, conflict, failure or even positive events, progress, and increased responsibility.” Resilience occurs when inherent adaptational processes employ psychological resource assets to endure adversity or recover from setback (Masten & Reed, 2002). Resilience is conveyed via its proactive and a reactive element. From a proactive perspective resilience recognises that setbacks can provide opportunities for growth and learning (Bonanno, 2004; Luthans, 2002a). This view presents risk in a positive light (Masten, 2001). Reactively, resilience acknowledges that both setbacks and positive overwhelming events, such as a

promotion, can have an adverse affect. Reactive recovery occurs by overcoming obstacles (Youssef & Luthans, 2007) and developing effective coping mechanisms to conquer setbacks and rebound with a greater level of motivation (Richardson, 2002).

Resilient people are recognised as having (i) an ability to adapt and cope with adversity or risk (Masten & Reed, 2002; Avey et al., 2008) (ii) a deeply held belief that life is meaningful and (iii) an acceptance of reality (Coutu, 2002). Furthermore, as resilience begets resilience, a resilient person may become more adaptable in the face of change (Hind, Frost, & Rowley, 1996; Luthans, et al., 2006).

1.2.4 Optimism

Luthans and Youssef (2007, p. 331) state that optimism is an attributional style (Seligman, 1998) which “explains positive events through personal, permanent, and pervasive causes and negative events through external, temporary, and situation-specific ones.” In essence, an optimists’ motivation to attain their goals is built on the positive expectation of success. When failure is experienced, an optimistic person will attribute the unsuccessful scenario to specific, unstable and external causes (Seligman & Schulman, 1986). Carver and Scheier (2002), theorise an expectancy framework, i.e. the expectation that a desirable outcome will result from increased effort. Realistic optimism is grounded in reality and is an objective assessment of what can be achieved in a given situation with the available resources (Peterson, 2000). Flexible optimism refers to the ability to correctly appraise a situation and choose an appropriate explanatory style i.e. optimistic or pessimistic (Dawkins, 2014). According to Luthans and Youssef (2007, p. 332) “realistic, flexible optimism simultaneously allows recognition of positive achievements in oneself and others and accountability and acceptance of responsibility for challenges and difficult situations.”

Optimists are highly motivated to work hard, set stretch goals and persevere toward them. Optimists believe that a desired outcome will result from increased effort. Carver et al. (2002) suggest that an optimists positive expectancy, increases effort when faced with challenges. Optimists attribute setbacks to temporary and unique situations which occur due to external circumstances. Pessimists, on the other hand, have a tendency to attribute positive outcomes to factors such as luck or chance (Peterson, Balthazard, Waldman & Thatcher, 2008) decreasing the potential for increased effort to overcome challenges. Optimists give themselves credit for favourable events which in turn increases feelings of self-confidence. They also distance themselves from unfavourable outcomes, protecting themselves from guilt and self-blame (Dawkins, 2014; Luthans & Youssef, 2004).

1.3 Psychological Capital Development

A key characteristic of PsyCap is that it is state-like in nature, meaning it is theoretically suited to development through training interventions. Initial research has demonstrated that PsyCap can be developed. Luthans, Avey & Patera (2008) experiment found support for the use of web-based training intervention of 2-hour duration to develop psychological capital when compared to a control group involved in a decision-making exercise. Luthans et al., (2010) highlighted the effectiveness of a 2-hour face-to-face PCI in developing PsyCap in practicing managers. PsyCap was measured one week before and one week after the workshop and showed that it had improved significantly by 3%. The professionals who received PsyCap training had significantly higher levels of PsyCap (Time 1 M = 4.79, Time 2 M = 4.93).

Published research on PsyCap development in the academic context is as yet limited, nevertheless preliminary findings from experimental designs, demonstrate

that PsyCap can be developed. Luthans et al., (2010) randomised control group design study with management students found a significant increase in participants PsyCap from Time 1 to Time 2 on completion of a 2-hour PCI. Ertosun, Erdil, Deniz and Alphan, (2015) used a Solomon four group experimental design and found that a 2-hour PCI significantly increased PsyCap levels in management students. In a quasi-experimental study, Dello Russo and Stoykova's, (2015) analyses of Bulgarian students revealed a significant improvement of within-participant development of PsyCap following a PCI compared to the control group. This study also found that PsyCap remained stable over a one month time-frame. These initial findings provide further indications and support that PsyCap, is malleable and open to development. Figure 2 shows a model of the PCI, indicating how the intervention will affect each construct and overall PsyCap. The following paragraphs will describe the development strategies for each of the constructs of PsyCap.

Snyder (2000) argues that hope is developable through various methods which help the individual adopt an approach rather than an avoidance orientation. It can be developed in a practical sense by (i) gaining commitment to goals through participation and involvement in setting stretch goals, (ii) break-down complex long-term goals into clearer, smaller sub-units, (iii) identifying contingency plans to achieve goals when difficulties block goal attainment and (iv) re-goaling to avoid false hope when goal pathways are blocked and (v) engaging in mental rehearsals for important activities (Luthans, Luthans & Luthans, 2004; Luthans & Church, 2002b; Snyder, 2000).

Bandura (1997) discussed four strategies to positively develop self efficacy. Firstly, through the experience of task-mastery and success – when an individual is successful in accomplishing a task or overcoming adversity, they are more likely to

believe they can do so again. Next, through vicarious learning / role modelling – when a person observes someone, who they perceive to be similar to themselves, successfully achieve tasks, attain goals and cope with difficult challenges. Thirdly, from positive persuasion including useful information to increase understanding and/or receiving positive feedback from respected role model, lecturer or mentor – receiving social persuasion, feedback or assurances that one has the capability to be successful in a task and rise above difficulties. Finally, by enhancing physiological and/or psychological arousal and wellness, thereby motivating the student at an emotional and physical level to complete the task or overcome the challenge presented (Avey et al., 2008; Luthans & Church 2002b).

Resilience can be “increased by reducing the risks and stressors (risk-focus strategy), by emphasising and enhancing resources (asset-focused strategies), and by mobilising the power of one’s adaptation system” (Luthans & Youssef, 2004, p. 156). According to Masten and Reed (2002) resilience assets’ include qualities that predict positive future outcome and/or adaption to adverse situations such as cognitive ability, positive outlook, humour, training and initiative. Resilience risk factors include stress, lack of knowledge and insufficient time. Developing assets and minimising risk factors are the targets of resilience development interventions (Masten, 2001).

Carver et al., (2002, p. 240) stated, “a change in an optimistic direction is possible” through developmental interventions. Optimism can be increased using the three-step process of learning to accept the past, appreciating the present, and viewing the future as a source of opportunity (Schneider, 2001). Individuals need to be able to evaluate the impact of holding onto negative feelings about past events and experiences on their ability to learn and appreciate the positives of the situation and prevent similar situations occurring again in the future. Luthans and Church (2002b)

suggest optimism training should include (i) challenging self-doubt when faced with problems or setbacks, ii) assessing the use and accuracy of such doubts and (iii) discounting the doubts and substituting them for constructive beliefs.

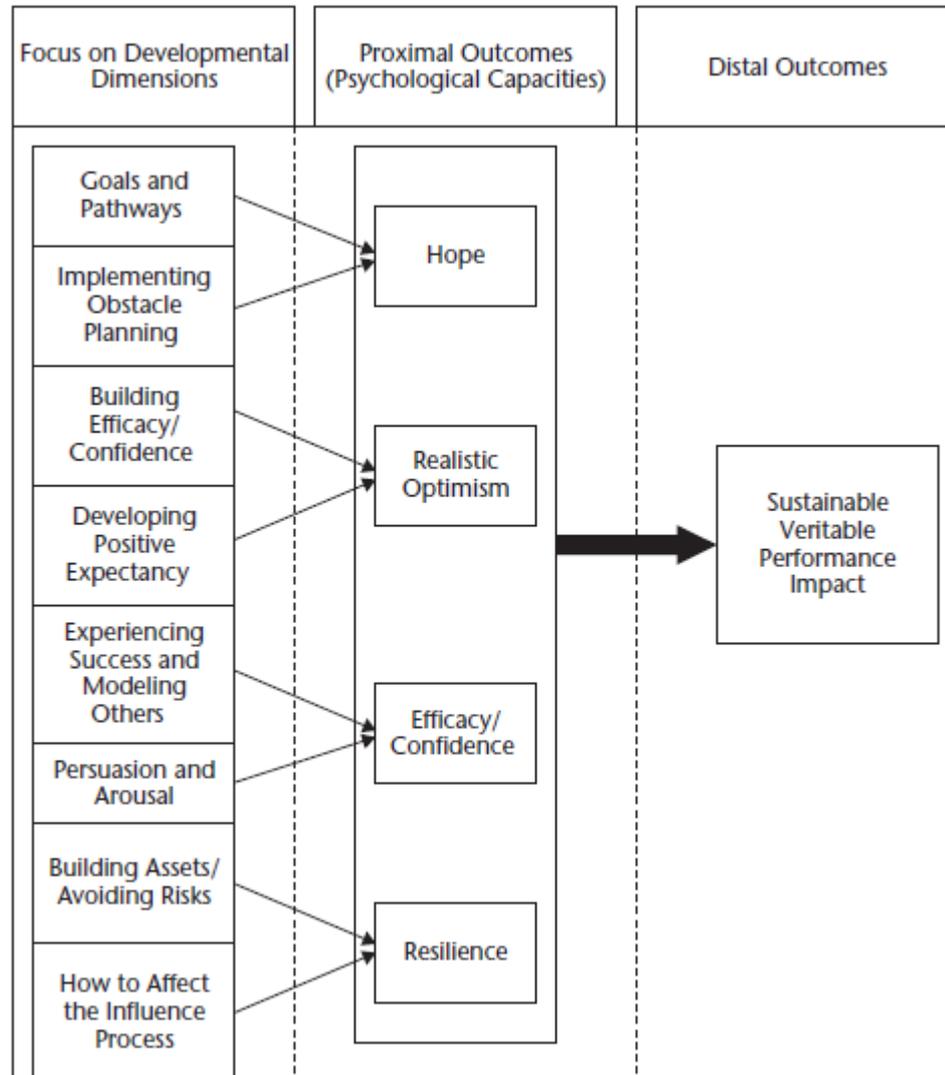


Figure 2: *Psychological Capital Intervention* (Luthans, Avey et al. 2006)

1.4 Psychological Capital and Performance

An increasing amount of empirical research on PsyCap, and its constructs, has highlighted its positive correlations with performance. Luthans, Avey, Clapp-Smith and Li, (2008) completed a study of Chinese workers in two organisations, a state

owned enterprise and a private company, and found PsyCap is a predictor of performance. Peterson, Luthans, Avolio, Walumbwa & Zhang (2011) conducted a longitudinal study of a financial service organisation and found within-individual changes in PsyCap were related to supervisor-rated performance and financial performance. Research has found that hope leads to higher performance outcomes (Luthans et al., 2007; Luthans et al., 2005; Youssef et al., 2007; Peterson & Luthans, 2003). A meta-analysis of 114 studies found that self-efficacy has a correlation of .38 with work-related performance (Stajkovic et al., 1998). Resilience has been found to be positively associated with job performance (Luthans et al., 2005). Various studies have shown that optimism is related to performance (Youssef et al., 2007; Luthans et al., 2005). Performance of insurance sales agents was found to be positively related to levels of optimism. Optimistic sales representatives outsold pessimistic colleagues by 37% (Seligman, 1998). In relation to the synergistic properties of PsyCap as a higher-order construct, a recent meta-analysis, Avey et al., (2011) found a positive, significant relationship between PsyCap and various indicators of work-place performance including self-rated performance ($r = 0.33$), supervisor performance evaluations ($r = 0.35$), and objective performance ratings such as sales ($r = 0.27$). Researchers have indicated that PsyCap predicts employee performance above its individual constructs (Luthans et al., 2007; Luthans et al., 2007) and it accounts for about 10% of the variance in employee performance (Luthans, 2012, p. 5).

Further to the positive implications of PsyCap research findings conducted in organisational settings, research on PsyCap and its constructs, has more recently begun in the educational context. Various studies highlight the positive effects of the constructs of PsyCap on academic performance. Hopeful students were found to perform better than students with less hope (Gilman, Dooley & Florell, 2006). Rand,

Martin & Shea's (2011) longitudinal study found that hope predicted better academic performance in first year law students. Resilience also has been found to be connected to academic success. A strong positive correlation was found amongst students levels of resilience and their GPA scores (Scales, Roehlkepartain, Neal, Kielsmeier & Benson, 2006). Students with an optimistic view significantly outperform pessimists in education (Solberg, Evans & Swgerstrom, 2009). A meta-analysis by Valentine, DuBois, and Cooper (2004) has shown efficacy to be a strong predictor of academic success. In relation to PsyCap, although the number of studies are limited, the initial findings indicate that PsyCap has a positive significant influence on student's GPA index performance (Tjakraatmadja & Febriansyah, 2007). Luthans, Luthans & Jensen (2012) found a significant and predictive relationship between the PsyCap of undergraduate business students and GPA results explaining 7% of the variance. Jafri's (2013) mixed between-group and correlational study showed that high performers have significantly higher PsyCap compared to low performing students and that PsyCap moderately explains the performance of high performing students. These findings suggest that "PsyCap contributes to student performance" (Jafri, 2013, p. 14).

1.5 Rationale

The theoretical implications of the PsyCap research conducted in educational settings suggests that PsyCap contributes to student performance, that is, when PsyCap is high student performance is high. This study examines the direct effects of a 60 minute classroom training intervention on a student sample to determine if PsyCap can be developed in an Irish college setting using the PCI model (Luthans, et al., 2006). The primary research question of this study is: Can PsyCap and each its

four constructs, be developed in a short training intervention in an academic setting?

This study proposes that PsyCap and each of its individual constructs will be enhanced following the PCI. The research hypotheses are;

Hypothesis 1: Hope will increase from Time 1 to Time 2 for PCI participants.

Hypothesis 2: Efficacy will increase from Time 1 to Time 2 for PCI participants.

Hypothesis 3: Resilience will increase from Time 1 to Time 2 for PCI participants.

Hypothesis 4: Optimism will increase from Time 1 to Time 2 for PCI participants.

Hypothesis 5: PsyCap will increase from Time 1 to Time 2 for PCI participants.

Hypothesis 6: PCI participants will increase their levels of PsyCap compared to the Control Group.

Method

2.1 Participants

The target population of this study was a convenience sample of students in an Irish college. Specifically, level three, full-time undergraduate psychology students in Dublin Business School, completing the Psychology Research Methods module. Data was collected from a total of 24 students who attended for class on the morning the experiment took place. 14 participants attended the PsyCap intervention (3 Male, 7 Female, 4 Undisclosed) and 10 the control intervention (1 Male, 5 Female, 4 Undisclosed).

2.2 Design

This study adopted a true experimental design consisting of a mixed between group and within participant design. This design type is also referred to as pre-test, post-test, control group design. The independent variables are Group – experiential group (PsyCap Intervention) and control group (Decision-Making Intervention) and Time Periods – Time 1 and Time 2. The dependent variables are levels of PsyCap, Hope, Efficacy, Resilience and Optimism. The Group, PsyCap or Decision-Making Interventions, are the between group variables, and the Pre-test, Post-test contrast in levels of PsyCap, Hope, Efficacy, Resilience and Optimism are the within-participant variables. Participants were randomly assigned to either the PsyCap experimental group or the control group.

2.3 Materials

Validated scales were used to collect and measure PsyCap in this study. The PCQ-24 item questionnaire (see appendix B for copy of PsyCap questionnaire) developed by Luthans et al, (2007), originally developed and tested for employees in the workplace, was adapted for this study to college students in accordance with Luthans et als., (2012) approach. The PsyCap questionnaire consists of four subscales, each subscale comprised of six items giving a total of 24 items. The subscales include Hope, Self-Efficacy, Resilience, and Optimism. Examples of the items include;

- I feel confident in discussing with my classmates and teachers about the module / course work. (Self-Efficacy)
- If I find myself in a jam at study, I could think of many ways to get out of it. (Hope)
- When I have a setback at my study/ course work, I have trouble recovering from it, moving on. (Resilience)
- When things are uncertain for me at study, I usually expect the best. (Optimism)

Responses were rated on a 6-point Likert-scale ranging from 1 (strongly disagree) to 6 (strongly agree). Participants were asked to indicate their level of agreement or disagreement with each statement by circling their rating on the Likert scale. Reliability Measures for the PCQ-24 item questionnaire range from .94 (Luthans et al., 2007) to .796 (Jafri, 2013).

2.4 Procedure

Time 1 PsyCap questionnaire was issued to students of the Psychology Research Methods module at the beginning of class. The paper and pencil

questionnaire was prefaced by a cover letter (see appendix A for copy of cover letter) stating the voluntary and confidential nature of the study. Informed consent was also communicated on the cover letter. In addition, the letter highlighted the longitudinal aspect of the study and stated that follow-up activities and discussions would take place during class time later in the year. The questionnaire was issued to the 11 students who were present. Students were also verbally advised of the voluntary and confidential nature of the study and were invited to participate by completing and returning the questionnaire. The questionnaire took approximately 10 minutes for the students to complete. Questionnaires were collected and students were given a debrief sheet to take away (see appendix C for copy of debrief sheet).

The experimental element of the study was scheduled to take place 5 weeks after the Time 1 PsyCap questionnaire was issued. Due to the low student attendance on the day the Time 1 questionnaire was initially distributed, the questionnaire was subsequently reissued to additional students of the Psychology Research Methods module at the beginning of their class, and directly before the interventions were delivered. A cover letter outlining the nature of the study, confidentiality, voluntary participation and informed consent prefaced the PsyCap questionnaire. As before, the researcher verbally advised students of the voluntary and confidential nature of the study. Students were invited to participate by completing and returning the paper and pencil questionnaire which took about 10 minutes to complete. Questionnaires were collected and students were given a debrief sheet.

To minimise any student concern that they could be identified via their student number, the researcher verbally reminded participants when issuing the Time 1 PsyCap questionnaire of the purpose of that data, i.e. that it is used as a code to match pre and post experiment survey questionnaires. This information was also stated in the

cover letter. Additionally, the researcher reminded participants that she does not have access to the student database to identify students via their student numbers.

Participants were randomly assigned to the experimental or control group by issuing a green or yellow post-it. Those who received a green post-it moved room and completed the 60 minute experimental PsyCap Intervention. Students were advised they were completing a Goal-Setting Workshop. Those with a yellow post-it received the control workshop on Decision-Making also of 60 minute duration. Both interventions began at 11am and ended at 12pm.

The objective of the PCI was to impact the participants' levels of Efficacy, Hope, Optimism, and Resilience, and to enhance the overall PsyCap of participants in the treatment group. The PCI intervention followed the guidelines as outlined in Luthans et al. (2010) and included five individual exercises, incorporating self-reflection and goal-setting. For example, the self-reflection exercise asked students to work individually and reflect on what might stop them from accomplishing their goals. The question encouraged students to anticipate, plan for, and overcome potential obstacles to goal attainment. Small group sessions were also leveraged to encourage positive thinking and vicarious learning through peer role-modelling and to optimise participant's psychological resources (see appendix D for copy of the PCI). Throughout the PCI the facilitator encouraged positive self-talk amongst participants and maintained the focus on goal-setting, identification of pathways and overcoming obstacles (Luthans et al., 2006).

In keeping with practice in previous studies (Luthans et al., 2010; Dello-Russo et al., 2015) the control group completed a decision-making intervention (see appendix E for copy of Decision-Making Intervention). The intervention was of the same duration and exercise format to maintain as much equivalence to the

experimental conditions as possible.

Directly after completion of the interventions, all participants, both experiment and control groups, were asked to complete the second self-report PsyCap questionnaire (Time 2).

2.5 Ethical Considerations

In advance of this research commencing, formal ethical approval was sought and secured from the Psychology Filter Committee at Dublin Business School and the Human Research Ethics Committee. Additionally, to address any possible concerns arising from the questionnaire, appropriate contacts were provided in a debrief page at the end of the survey.

Results

3.1 Descriptive Statistics

Mean, standard deviation, minimum and maximum scores for each of the dependent variables at Time 1 and Time 2 can be found in Table 1 and Table 2.

Table 1 *Descriptive Statistics of Psychological Measures Time 1*

| Variable | Group | Mean | Standard Deviation | Minimum | Maximum |
|------------|--------------|-------|--------------------|---------|---------|
| PsyCap | Total | 97.09 | 15.04 | 63.00 | 118.00 |
| | Experimental | 99.36 | 17.73 | | |
| | Control | 93.56 | 9.40 | | |
| Hope | Total | 23.17 | 4.51 | 13.00 | 31.00 |
| | Experimental | 23.71 | 5.06 | | |
| | Control | 22.40 | 3.72 | | |
| Efficacy | Total | 24.39 | 5.04 | 11.00 | 31.00 |
| | Experimental | 25.51 | 5.75 | | |
| | Control | 22.67 | 3.28 | | |
| Resilience | Total | 24.50 | 3.86 | 18.00 | 31.00 |
| | Experimental | 25.71 | 4.07 | | |
| | Control | 22.80 | 2.94 | | |
| Optimism | Total | 24.52 | 3.78 | 17.00 | 30.00 |
| | Experimental | 24.43 | 4.35 | | |
| | Control | 24.67 | 2.92 | | |

Histograms did not clearly indicate if the data was normally distributed, therefore a Shapiro Wilk test of normality was completed. For Time 1 dependent variables the test scores are; PsyCap $p = .150$; Hope $p = .312$; Efficacy $p = .186$; Resilience $p = .235$; Optimism $p = .088$. Shapiro Wilk test scores for Time 2

dependent variables are; PsyCap $p = .186$; Hope $p = .466$; Efficacy $p = .295$; Resilience $p = .322$; Optimism $p = .136$. None of these test scores are significant indicating that the data is normally distributed.

Table 2 *Descriptive Statistics of Psychological Measures Time 2*

| Variable | Group | Mean | Standard Deviation | Minimum | Maximum |
|------------|--------------|--------|--------------------|---------|---------|
| PsyCap | Total | 101.13 | 13.61 | 77.00 | 124.00 |
| | Experimental | 101.14 | 15.37 | | |
| | Control | 98.00 | 10.37 | | |
| Hope | Total | 25.35 | 3.70 | 19.00 | 33.00 |
| | Experimental | 26.14 | 4.07 | | |
| | Control | 24.11 | 2.80 | | |
| Efficacy | Total | 24.79 | 4.73 | 17.00 | 33.00 |
| | Experimental | 25.71 | 4.83 | | |
| | Control | 23.50 | 4.53 | | |
| Resilience | Total | 25.25 | 3.69 | 19.00 | 31.00 |
| | Experimental | 25.71 | 4.14 | | |
| | Control | 24.60 | 3.03 | | |
| Optimism | Total | 25.13 | 3.73 | 19.00 | 31.00 |
| | Experimental | 25.57 | 3.92 | | |
| | Control | 24.50 | 3.57 | | |

3.2 Reliability Tests

In this study, Cronbach's alpha reliabilities at T1 were PsyCap $\alpha = .92$ (Hope $\alpha = .82$, Efficacy $\alpha = .77$, Resilience $\alpha = .71$, Optimism $\alpha = .67$). At T2 Cronbach's alpha were PsyCap $\alpha = .92$ (Hope $\alpha = .81$, Efficacy $\alpha = .82$, Resilience $\alpha = .72$, Optimism $\alpha = .62$).

Nunnally and Bernstein (1994) suggest that reliability alphas of .70 or more are acceptable in research. Notwithstanding the reliability alpha of less than .70 for Optimism at Time 1 and Time 2, the researcher decided to use the scale as a meta-analysis of Cronbach's alpha indicates that .60 is a reasonable reliability value (Peterson 1994). In addition, Briggs and Cheek (1986) suggest that in scales of less than 10 items, lower alpha values are more common.

3.3 Inferential Statistics

A two-way mixed between group and within participant ANOVA was used to analyse the data. The interaction effect measured is the change in the dependent variable over time for the two different groups - PsyCap intervention and Control intervention. The main effect for time measured in the analysis is the change in within-participant levels of the dependent variables over the two time periods. The main effect for the groups is the comparison of the impact of the two interventions on the dependent variables. The dependent variables are PsyCap, Hope, Self-Efficacy, Resilience and Optimism.

Hypothesis 1: Hope will increase from Time 1 to Time 2 for PCI participants.

A comparison of the mean values for participants in the experimental group pre and post intervention show that the mean Hope score pre-PCI was 23.71 ($SD = 5.06$). The post-PCI mean Hope score increased to 26.14 ($SD = 4.07$). A mixed ANOVA found that there was no significant interaction effect between the Interventions completed and levels of participants Hope ($F(1, 21) = .651, p = .429$). However there was a significant increase in Hope levels from Time 1 to Time 2 ($F(1, 21) = 5.97, p = .024$) with an effect size of .221. Figure 3 shows that the PsyCap

Intervention participants had greater Hope at Time 2 than participants in the Decision-Making Intervention. There was no significant difference between Interventions on the increase in Hope levels of participants ($F(1, 21) = .802, p = .38$). These results support hypothesis 1.

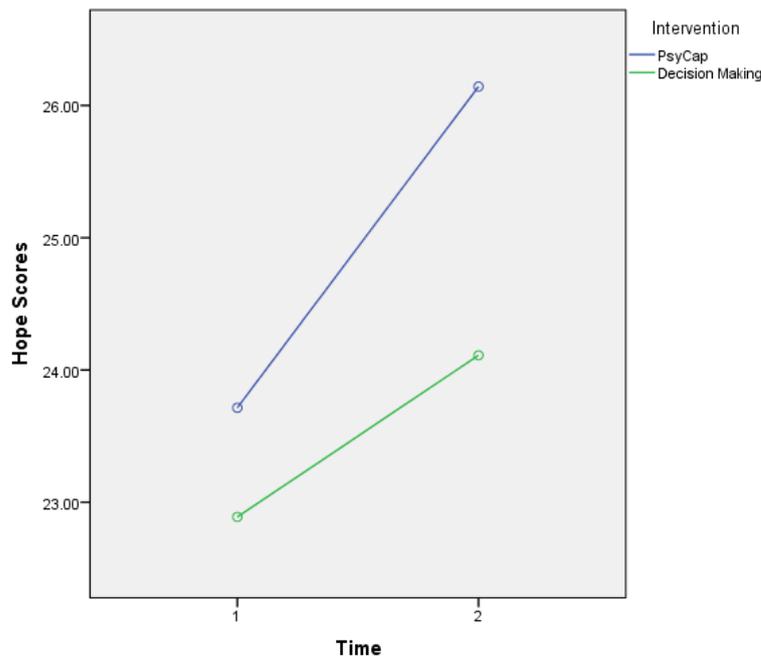


Figure 3: Interaction over time between the Intervention Groups and Hope Scores

Hypothesis 2: Efficacy will increase from Time 1 to Time 2 for PCI participants.

A comparison of the mean values for participants in the experimental group pre and post intervention show that the mean Self-Efficacy score pre-PCI was 25.51 ($SD = 5.75$). The post-PCI mean Self-Efficacy score increased to 25.71 ($SD = 4.83$). A mixed ANOVA found that there was no significant interaction effect between Interventions and participant Efficacy levels. ($F(1, 21) = 1.012, p = .326$). This means that the intervention undertaken by participants did not have a significant differing effect on their levels of Self-Efficacy. With regard to main effects, there was no significant increase in Efficacy levels from Time 1 to Time 2 ($F(1, 21) = 1.76, p =$

.199) There is no significant difference on Efficacy levels of participants for those who completed the PCI versus those who completed the control intervention ($F(1, 21) = 1.26, p = .274$). These results support hypothesis 2.

Hypothesis 3: Resilience will increase from Time 1 to Time 2 for PCI participants.

A comparison of the mean values for participants in the experimental group pre and post intervention show that the mean Resilience score pre-PCI was 25.71 ($SD = 4.07$). The post-PCI mean Resilience score increased to 25.71 ($SD = 4.14$). A mixed ANOVA found that there was no significant interaction effect between Interventions and Resilience levels of participants ($F(1, 22) = 3.59, p = .071$). In relation to main effects, there was no significant increase in Resilience levels from Time 1 to Time 2 ($F(1, 22) = 3.59, p = .071$). There was no significant difference between interventions on Resilience levels of participants ($F(1, 22) = 1.93, p = .179$). These results do not support hypothesis 3.

Hypothesis 4: Optimism will increase from Time 1 to Time 2 for PCI participants.

A comparison of the mean values for participants in the experimental group pre and post intervention show that the mean Optimism score pre-PCI was 24.43 ($SD = 4.35$). The post-PCI mean Optimism score increased to 25.57 ($SD = 3.92$). A mixed ANOVA found that there was no significant interaction effect between interventions and optimism levels ($F(1, 21) = .851, p = .367$). In relation to main effects, there was no significant increase in Optimism levels from Time 1 to Time 2 ($F(1, 21) = .576, p = .456$). There was no significant difference between interventions on Optimism levels of participants ($F(1, 21) = .067, p = .799$). These results support hypothesis 4.

Hypothesis 5: PsyCap will increase from Time 1 to Time 2 for PCI participants.

A comparison of the mean values for participants in the experimental group pre and post intervention show that the mean PsyCap score pre-PCI was 99.36 ($SD = 17.73$). The post-PCI mean PsyCap score increased to 103.14 ($SD = 15.37$). These results support hypothesis 5.

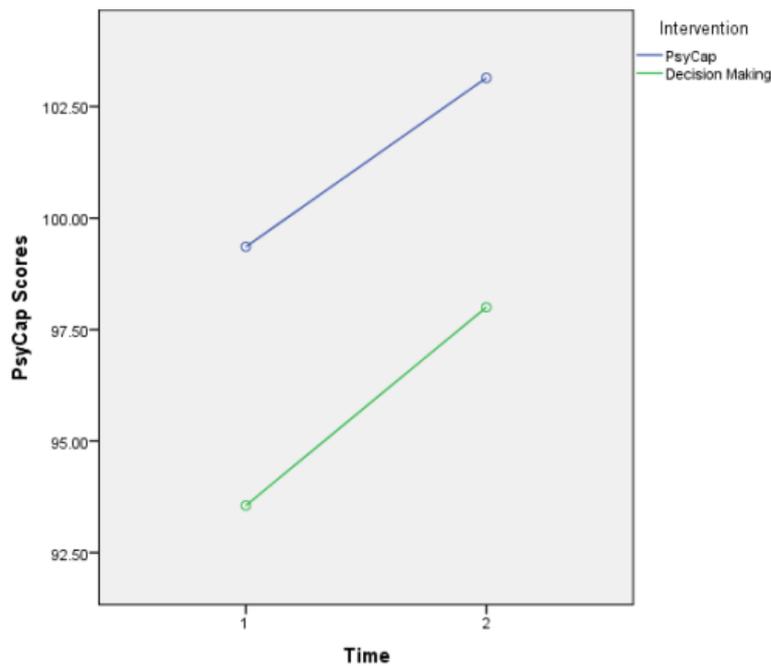


Figure 4: *Interaction over time between the Intervention Groups and PsyCap Scores*

Hypothesis 6: PCI participants will increase their levels of PsyCap compared to the Control Group.

A two-way mixed ANOVA examined the effect of the Interventions completed on the levels of participants PsyCap and found no significant interaction effect ($F(1, 21) = .029, p = .867$). However in relation to main effects, there was a significant increase in PsyCap levels from Time 1 to Time 2 on completion of the Interventions. ($F(1, 21) = 4.47, p = .047$) with a small effect size of .175. Figure 4

shows that the PsyCap Intervention participants had greater PsyCap at Time 2 than participants in the Decision-Making Intervention. There is no significant difference between interventions on the increase in PsyCap levels from Time 1 to Time 2 ($F(1, 21) = .878, p = .360$). However, these results should be interpreted with caution as Levene's tests of homogeneity were not met for PsyCap Time 1 $p = .048$ and for PsyCap Time 2 $p = .045$. These results do not support hypothesis 6.

Discussion

4.1 Findings

The purpose of this study was to examine if a PsyCap Intervention would increase the level of PsyCap in a student population and to determine if the PCI had a different effect when compared to a control intervention. In addition, the study explored whether or not each of the PsyCap constructs of Hope, Self-Efficacy, Resilience and Optimism would increase after the PCI. Support was found in this study for the hypotheses in relation to increases in levels of PsyCap, Hope, Optimism and Self-Efficacy post-PCI. However an increase in Resilience was not observed post-PCI. Likewise, support was not found for a significant increase in PsyCap for participants of the PCI compared to the control intervention.

Findings from the study show that participants PsyCap increased significantly on completion of the PCI. Whilst the PCI participants had greater PsyCap at Time 2 than participants in the Decision-Making Intervention, no significant difference was found between the interventions. These findings are in contrast to other studies which uncovered significant increases in PsyCap for participants of the PCI compared to the control intervention (Luthans et al., 2008; Luthans et al., 2010; Ertosun et al., 2015). A possible explanation may lie in the homogeneous nature of this study sample and the common characteristic of the study participants, that is, they are all 3rd level college students from the same programme. Previous studies included samples from a wide cross-section of participants from various industries (Luthans et al., 2008); practising managers from various organisations (Luthans et al., 2010); professionals from diverse sectors and students from differing business programmes (Dello-Russo et al., 2015; Luthans et al., 2012). Additionally, the PsyCap results in this study may

be attributable in part to the study samples possible pre-disposition to development. The participants intrinsic motivation to develop and participate in this voluntary study, may have contributed to the results obtained from both interventions in relation to the PsyCap. Also of note is the duration of the PCI in this study. Luthans et als. (2010) PCI is a 2 hour micro-intervention, which as previously mentioned, produced positive PsyCap results. Dello-Russo et als (2015) replication study used a 3 hour PCI. The PCI undertaken in this study was of 1 hour duration. Perhaps an intervention of longer duration would have been more effective in having a significant effect on the experimental group. Overall, however, the results of this study provide support for PsyCap as a core construct, where the four psychological resources interact synergistically to enhance PsyCap.

The study also found that three of the four PsyCap constructs showed increases on completion of the PCI. The exception was the Resilience construct which remained unchanged from Time 1 to Time 2. Similar to previous research on PsyCap development, an increase in scores was evident in this study for Hope, Optimism and Self-Efficacy (Dello-Russo et al., 2015).

A reason for the divergence in the Resilience score is perhaps due to the operationalisation of Resilience in the PCI. The PCI exercise, relied on anticipation and imagination to increase awareness, which perhaps was not sufficiently practical to facilitate the application of participants resilience during the 60 minute intervention. Additionally a lack of opportunity for participants to display Resilience between completion of the PCI and submitting the Time 2 PsyCap questionnaire may have contributed to the pre-test result. Resilience is demonstrated by one's ability to adjust and adapt to adverse or overwhelming events and is improved through direct experience, that is, 'resilience begets resilience'. Similar studies have found that

Resilience did not increase directly after the PCI. However a follow-up one month after the PsyCap intervention found increases in resilience levels of participants after they had an opportunity to test that psychological resource (Dello-Russo et al., 2015).

In relation to Hope, the study found a significant increase in Hope from Time 1 to Time 2. Participants in the PCI had greater Hope at Time 2 than those in the control intervention. Hope involves perseverance towards goals and as necessary finding alternative pathways to succeed. It is a combination of goal-directed thinking and agentic behaviour, meaning participants believe that they can identify pathways to achieve their desired goals and have the motivation and willpower to follow-through. The PCI actively focused on goal-setting and breaking larger goals into sub-goals. Both of these activities are a necessary component of increasing Hope and were perhaps the more salient aspects of the 60 minute PCI. This may explain the resultant significant increase in Hope from Time 1 to Time 2.

A slight upward change was found for Self-Efficacy between time points, with no significant increase in Efficacy found in either intervention. A possible explanation is that the development of Self-Efficacy in the PCI is dependent on vicarious learning from others through shared experience and discussion. The perceived expertise and relevance of role models has an impact on their ability to influence others. Given the relative homogeneity of the full-time student population it is plausible that there was insufficient divergent thinking and/or experience amongst the students for participants to really benefit through vicarious learning within their small group discussion. This may have resulted in the limited increase in the Self-Efficacy construct.

Also of interest is the level of increase in Optimism for the PCI participants compared to the control group participants which showed a decline in Optimism levels. Optimists make positive attributions about succeeding. The PCI required

participants to forecast potential obstacles to goal achievement and then strongly encouraged participants to find alternative pathways to achieve those goals by minimising the impact of potential obstacles. Through this process worst-case scenarios are anticipated and proactive plans are considered as an alternative, in this manner realistic optimism is fostered and enhanced.

4.2 Strengths and Limitations

Validity and reliability of the measurement tool and research design are strengths of this study. The random allocation of participants to the experiment and control groups supports and controls the internal validity of the study. The PCQ-24 questionnaire used in the study has been shown to be consistently reliable with high levels of Cronbach's alpha in all published literature.

When interpreting the results there are some limitations that have to be considered. A clear limitation of the study is the sample size, only 24 students participated and provided measurements at both time points. Cohen's (1992) power primer indicated that a total of 90 students is the optimum number of participants for this study, 45 for both the control and experimental groups. However because the sample was too small there were no significant conclusions which can be seen as a limitation of the study and a recommendation for future research.

A second limitation is in relation to common method bias. Although attempts were made to collect the data at two separate time points in order to reduce common method bias, nevertheless, over half (54%) of the participants completed the first and second questionnaire on the same day. As a result common method variance may be a factor in the analysis because the variable of interest, PsyCap was rated by the same

source and was answered at the same point in time (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

4.3 Future Research

Future studies should continue to explore the association between PsyCap development and student's academic performance with a more heterogeneous and larger sample size. To date PsyCap has been found to have a positive significant influence on student's performance and moderately explains the performance of high performing students. Further studies should use controlled experiments to determine the measurable impact of PsyCap development on academic performance.

Further research should also include a more longitudinal design to investigate the durability of increases in PsyCap, for example 1 month and subsequent follow-up at 3 months. Should the sustainability of PsyCap over longer time-frames be determined, leveraging PsyCap to enhance students' performance could gain merit.

Another direction for future research on PsyCap could explore alternative PsyCap Interventions. The published literature refers exclusively to the PCI model defined by Luthans et al. (2006). Given the depth of clinical research behind each of the PsyCap constructs, perhaps other PsyCap training interventions can be formulated and validated. Future research could compare and contrast the various PCI models to identify those most suited to differing contexts.

4.4 Practical Implications

The developmental nature of PsyCap increases its practical application in various contexts including as outlined in this study the academic settings. From an educational perspective, initial studies in PsyCap suggest that it is a predictor of

academic achievement (Luthans et al., 2012) and has a moderate effect size on the performance of high performing students (Jafri, 2013). Emerging studies are indicating that a PCI can enhance student PsyCap, (Dello Russo et al., 2015; Ertosun et al., 2015; Luthans et al., 2010). On aggregate these studies are providing preliminary support for the integration of PsyCap development within the academic curriculum. Education settings which provide students the opportunity to improve their PsyCap may find an increase in student performance. A series of PsyCap micro-interventions of 2-3 hour duration could enhance levels of PsyCap among students. The positive effect on students include the provision of additional resources to overcome obstacles to academic success such as increasing demands on work-life balance and increasing levels of stress. A greater cost-benefit return on student investment both in terms of time and finance, coupled with the potential to enhance academic performance would also provide a competitive edge for education settings which leverage PsyCap development.

4.5 Conclusion

To conclude, this study has shown some mixed results in relation to PsyCap development. Although there was no significant contrast between the experimental and control intervention, overall the study found support for the positive effect of a 1 hour PCI to enhance student PsyCap. This study further generalises the practical application of the PCI training when conducted in an Irish college setting.

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Appendices

6.1 Appendix A – Cover Letter

Dear Student,

As part of my BA Degree in Psychology in Dublin Business School, I am conducting longitudinal research into the development of psychological capital. Psychological capital is a construct with traits that correlate with performance. This research is being conducted as part of my studies and will be submitted for examination.

You are invited to participate in this research by completing and returning the attached psychological capital questionnaire. The questionnaire will take about 10 minutes to complete. Participation is completely voluntary and so you are not obliged to take part. The questionnaire does not require you to give your name, however it does ask for your student ID, so that the questionnaires at Time 1 and Time 2 can be matched. I will be returning later in the academic year to invite you to take part in a series of activities and discussions in place of your normal class lecture. Participation in these activities is also voluntary.

The completed surveys will be treated with absolute confidentiality. Your individual information will not be shared with anyone nor will your individual responses be used for any other purpose. For this reason it will not be possible to withdraw from participation after the questionnaire has been collected.

The questionnaires will be securely stored and data from the questionnaires will be transferred from the paper record to electronic format and stored on a password protected computer.

It is important that you understand that by completing and submitting the questionnaire that you are consenting to participate in the study.

This research project adheres to the DBS Ethical Guidelines for Research with Human Participants and is being supervised by Dr Patricia Frazer of DBS.

I would like to thank you for taking the time to participate in this research. Should you require any further information about the research, please contact me at.

Yours sincerely,

Annette O' Reilly

6.2 Appendix B - Psychological Capital Questionnaire (Sample Questions)

Student ID: _____

Gender: Male Female **Please circle your answer.**

Instructions: Below are statements that describe how you may think about yourself **right now**. Use the following scale to indicate your level of agreement or disagreement with each statement. **Please circle your answer.**

| Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree |
|----------------------|----------|----------------------|-------------------|-------|-------------------|
| 1 | 2 | 3 | 4 | 5 | 6 |

1. Right now I see myself as being pretty successful at my college studies. 1 2 3 4 5 6
4. When things are uncertain for me at college, I usually expect the best. 1 2 3 4 5 6
12. I'm optimistic about what will happen to me in the future as it pertains to college. 1 2 3 4 5 6
17. I feel confident contacting people in college to discuss problems when they arise. 1 2 3 4 5 6
24. At the present time, I am energetically pursuing my college-related study goals. 1 2 3 4 5 6

6.3 Appendix C - Debrief Sheet

Should you have been affected by any aspect of this research, you can contact the Samaritans by phone [\(01\) 872 7700](tel:018727700) or by email jo@samaritans.org.

Further information on the Samaritans can be found at www.samaritans.org.

6.4 Appendix D - Psychological Capital Intervention

Psychological Capital Intervention

Learning Objective:

The experimental group will received a 60 minute training intervention that incorporates individual exercises, reflection and group discussion designed to impact the participants' level of efficacy, hope, optimism, and resilience, individually and overall in terms of their PsyCap. The training is modelled on Luthans et al., (2010) psychological capital intervention (PCI).

Group Size:

Five participants

Time Required:

Approximately 60 minutes as follows:

- 5 mins - Introduction and Briefing
- 20 mins - Individual Exercise and Reflection
- 25 mins - Group Exercise and Discussion
- 10 mins - Debrief

Resources:

All Instructions and Materials:

- Individual Goal Setting Exercise – Part 1
- SMART Goals Overview and Individual Reflection
- Individual Goal Setting Exercise – Part 2
- Work Group Briefing Sheet

Psychological Capital Intervention

The experimental group will received a 60 minute training intervention that incorporates individual exercises, reflection and group discussion designed to impact the participants' level of efficacy, hope, optimism, and resilience, individually and overall in terms of their PsyCap. The training is modelled on Luthans et al., (2010) psychological capital intervention (PCI).

- 1) Participants will be asked to generate a personally valuable academic goal related to their study of Research Psychology.
- 2) Participants will read through a series of techniques to set and phrase goals to increase agentic capacity including ensuring goals are measurable, reasonably challenging, have an approach framework i.e. outlining what needs to be accomplished to attain the goal, have a clear beginning and end point and can be chunked into manageable unit's thereby increasing efficacy over smaller sub-goals.
- 3) Working individually, participant will then practice generating multiple pathways to achieve their goal and identify various resources required to pursue each pathway. Students will be encouraged to brainstorm as many alternative pathways as possible, regardless of the practicality of implementation. Participants were asked to list what resources they could leverage to accomplish their goal.
- 4) Working individually, students are asked to reflect on 'what can stop you from accomplishing your goal?' This question encourages students to anticipate, plan for, and overcome potential obstacles to goal attainment.
- 5) Students will reflect, diagnose, and identify self-defeating beliefs when faced by adversity such as a poor continuous assessment results. Students are then asked to reflect and evaluate the accuracy of their beliefs about this event. Finally, if their beliefs are discounted or questioned, they would be replaced with more realistic, constructive, and accurate beliefs. This process helps students to be aware of initial thoughts and feelings when facing adversity and to choose resilient thoughts based on resources and options available to overcome adversity.
- 6) After completing the exercise individually, participants will work in small groups to share their goal with others and explain each sub-goal to the group. Group members will ask questions on how the goals will be accomplished and what resources can be leveraged. Each student will share their various pathways with group members and receive feedback from the group on alternative potential pathways to goal achievement. The group collectively consider the resources required to pursue each pathway. Unrealistic pathways are discarded and a smaller number of realistic pathways are identified.
- 7) Still in groups, participants hear alternative perspectives on potential obstacles and strategies to overcome them. The facilitator focuses on utilizing this process to identify obstacles in advance and choose an alternate pathway to avoid pathway blockage. This practice will increase pathway generation and students

ability to plan for obstacles, thus reducing the negative impact of potential obstacles on agency and increasing optimism for success.

- 8) Continuing in small groups students will be asked to assist each other to objectively evaluate the accuracy of any negative expectations that goals would not be accomplished and to help each other replace negative beliefs with realistic constructive and accurate beliefs. The process of counteracting pessimism supports the development of realistic, yet optimistic, expectations and is reinforced by positive 'self-talks.'

Process

Psychological Capital Intervention

1. *Introduction and Briefing* - (5 minutes).
 - The facilitator briefly introduces self and the activity by explaining its purpose and outlines the process. The facilitator distributes copies of the Exercises.
2. *Individual Goal Setting Exercise - SMART Goals, Sub-Goals, Pathways Identification and Obstacles* - (20 minutes).
 - Participants are asked to self-reflect and generate a personally valuable and reasonably challenging academic goal related to their study of Research Psychology.
 - Participants are further asked to read the material on SMART Goal setting and to ensure their goal is SMART.
 - Participants are asked to chunking down goals into manageable units or sub-goals. Participants put time-frames against each sub-goal.
 - Participants brainstorm multiple pathways to achieve their goals and identify the various resources required to pursue each pathway.
 - Participants consider and list obstacles to goal achievement and ways to overcome those obstacles.
 - Participants consider negative thoughts when faced with adversity and replaced them with resilient thoughts based on available resources and options to overcome any challenges.
3. *Group Exercise and Discussion* – (25 minutes)
 - Groups of 5 are formed, and participants share their goal with others and explain each sub-goal.
 - Group members will ask questions on how the goals will be accomplished and what resources can be leveraged, for example, study groups, review of past-papers, library facilities.
 - Each student will share their various pathways with group members and receive feedback from the group on alternative potential pathways to goal achievement.
 - The group collectively consider the resources required to pursue each pathway. Unrealistic pathways are discarded and a smaller number of realistic pathways are identified.
 - Group members are asked to assist each other to objectively evaluate the accuracy of any negative expectations that goals would not be accomplished and to help each other replace negative beliefs with realistic constructive and accurate beliefs.

Individual Goal Setting Exercise – Part 1

Self Reflection:

Spend a few minutes thinking about what you have learned in Research Psychology this academic year. Reflect on your general awareness of this topic and the increase in your knowledge and skills in this subject to date. Consider why this topic is important in the context of your overall degree. For example, how will the knowledge you acquire in Research Psychology assist you in your final year project? Does this subject potentially have any broader application for you? Is this a skill set you would like to apply in your career or further education? As you reflect, identify what your personal goal is in relation to Research Psychology.

Your Task:

Generate a personally valuable and reasonably challenging academic goal related to your study of Research Psychology. Complete the sections below.

➤ My goal is: _____

➤ This goal is important to me because: _____

SMART Goals Overview and Individual Reflection

A SMART Goal is: Specific, Measurable, Achievable, Realistic and Time-Bound.

Specific - A specific goal has a much greater chance of being accomplished than a general goal. EXAMPLE: A general goal would be, “Get fit.” But a specific goal would say, “Join a gym and workout 3 days a week.”

1. What specifically do you want to achieve in relation to your study of Research Psychology? Is this goal reasonably challenging for you?

Measurable – Establish concrete criteria for *measuring* progress toward the attainment of your goal. When you measure your progress, you stay on track, reach your target dates, and experience the exhilaration of achievement that spurs you on to continue effort required to reach your goal.

- What will be the measure of your achievement? What grade do you want to achieve? How many hours will you study?

Achievable - When you identify a goal that is important to you, you begin to figure out ways you can achieve it. Begin by breaking down larger goals into more realistically achievable sub-goals. The process helps you to identify the smaller tasks involved in achieving your goal. You can attain any goal you set when you plan your steps wisely and establish a time frame that allows you to carry out those steps. Achieving your sub-goals along the way, you can also feel a constant and building sense of achievement. Ensure that every sub-goal represents substantial progress.

- What are the various actions you need to take to achieve your goal? What conditions have to exist to accomplish this goal? What do you need to start, stop or continue doing to achieve your goal?

Realistic - To be realistic, a goal must represent an objective toward which you are both willing and able to work. Your goal is probably realistic if you truly *believe* that it can be accomplished. List the potential obstacles to achievement of this goal. What are the

- Is the achievement of this goal and sub-goals realistic for you? What are the potential obstacles to achieving this goal and sub-goals?

Time-bound – A goal should be grounded within a time frame. Putting a time-line against your sub-goals will help to generate a sense of urgency and keep you apace your goals.

- By when do you want to achieve this goal? What are the milestones related to achieving this goal?

Individual Goal Setting Exercise – Part 2

1. Consider your initial goal - is it a SMART goal? If not, take a few minutes to re-write your goal, ensuring it meets all the SMART criteria.

- What specifically do you want to achieve in relation to your study of Research Psychology?
- What will be the measure of your achievement? For example, what grade do you want to achieve?
- Is this goal achievable and realistic? Are you willing and able to work towards it?
- By when do you want to achieve this goal?

Your SMART goal: _____

2. What are the sub-goals and actions you need to meet to achieve this goal? In what time-frame will you achieve these sub-goals?

List your sub-goals, actions and time line for completion:

(i) _____

(ii) _____

(iii) _____

(iv) _____

(v) _____

(vi) _____

5. Reflect on any self-defeating beliefs which typically occur to you when faced by adversity such as a disappointing continuous assessment results. Consider how accurate those beliefs truly are.

Provide a counter-thought to discount that initial belief. Replace your negative thought / feeling with a more realistic, constructive, and accurate belief.

Work Group Briefing Sheet

You have just completed various exercises focused on developing your goal-setting skills and helping you identify pathways to achieve your goal. You have considered potential obstacles to goal attainment and ways to reduce/avoid those obstacles. You have also become aware of potential negative thoughts when faced with adversity and replaced those them with resilient thoughts based on resources and options available to overcome difficulties.

Now you will work collectively in your groups. The group pools the knowledge and experience of all its members, to be supportive and constructively assist each other with your goal-setting task. In turn, each of you will read out your goal and answer questions from the group about how you will achieve it. Group members will support you by providing their thoughts and respectfully challenging any negative expectations you have that your goals will not be accomplished, highlight resources and supports to achieve goal success.

During this exercise each group member, in turn, will:

1. Read out their goal, answering any questions the group may have about how it will be achieved. Share the various pathways to goal attainment with group members.
2. Take notes on the groups feedback, thoughts and ideas below.

The remainder of the group will:

1. Ask questions on how the goal will be accomplished and what resources will be leveraged, for example, study groups, review of past-papers, individual skills etc...
2. Provide feedback on alternative potential pathways to goal achievement. Discard any unrealistic pathways and note realistic pathways identified.
3. Support group members by highlighting ways to plan to overcome and minimise any obstacles.
4. Respectfully challenge any negative expectations that goals will not be attained and identify alternative pathways to help your group member achieve their goals.
5. Assist each other to objectively evaluate the accuracy of any negative expectations that goals would not be accomplished and to help each other replace negative beliefs with realistic constructive and accurate beliefs.

Take notes on feedback and group ideas below and on the attached pages.

6.5 Appendix E - Decision-Making Intervention

Decision Making Exercise Winter Survival Exercise – Can Science Save My Life?

Learning Objective:

This activity is intended for imparting experiential messages about each of two fundamental lessons that everyone on an effective work team must learn:

- To teach the effectiveness of decision-making behaviour in task groups through comparative experiences with both individual decision making and group decision making.
- To explore the concept of synergy in reference to the outcomes of group decision making.

“Winter Survival” is about conveying the message that: A group of people who pool their knowledge and think together generally will arrive at better decisions than a person thinking alone.

Group Size:

Five participants – including a Time Keeper / Observer

Time Required:

Approximately 60 minutes as follows:

- 5 mins - Introduction and Briefing
- 10 mins - Individual Exercise and Individual Scoring
- 20 mins - Group Exercise and Group Scoring
- 15 mins - Expert Rationale and Scoring
- 10 mins - Debrief and Discussion

Resources:

All Instructions and Materials:

- The Situation
- Score Sheet
- Role of Time Keeper
- Work Group Briefing Sheet
- Background Information
- Expert Rationale
- Expert Score Key

Participants Materials:

- The Situation
- Score Sheet

Time Keeper Materials:

- Role of Time Keeper
- Work Group Briefing Sheet
- Background Information

Facilitator Materials:

- Expert Rationale
- Expert Score Key

Process

Winter Survival Decision Making Exercise

3. *Introduction and Briefing* - (5 minutes).
The facilitator briefly introduces self and the activity by explaining its purpose and outlines the process.
2. *Individual Decision-Making Exercise and Scoring Form* - (10 minutes).
The facilitator distributes copies of The Situation and Individual Decision Form. The participants read the Situation and complete the Individual Decision. When complete participants are asked to fold over the page and write their name on the back.
4. *Group Exercise and Group Scoring* - (20 minutes).
 - (i) Groups of 5 people are formed, and copies of the Background Information are distributed to all participants.
 - (ii) 1 person in the group is nominated by group members to keep time and make observations. The group decide who this person will be.
 - (iii) Participants will give their Individual Scores to the Time-Keeper at this point.
 - (iii) After participants have read the Background Information silently, they work in their groups on the decision-making task.
3. *Expert Rationale and Scoring* – (15 minutes)
The facilitator distributes the Exercise Score Sheets to each participant and reads through the Expert Rationale for the decisions and follows up with the Expert Scoring Key/ Answers. Each participant scores his or her own Exercise Score Sheet. Each participant receives a copy of the Expert Rationale and Scoring Key.
4. *Debrief and Discussion* – (10 minutes)
The facilitator leads a group discussion on the decision-making process and outcomes with a focus on behaviours that help or hinder productivity. The facilitator can draw on the observations of the group Time-Keeper during the debrief and discussion.

Possible Debrief Questions

- How were decisions made?
- Who influenced the decisions and how?
- How could better decisions have been made?
- Did people listen to each other? if not why not?
- What roles did group members adopt?
- How was conflict managed?
- What kinds of behaviour helped or hindered the group?
- How did people feel about the decisions?
- How satisfied was each person with the decisions made?
- What have you learnt about the functioning of this group?
- How would you do the activity differently if you were asked to do it again?
- What situations at work/home/school do you think are like this exercise?

Role of Observer and Time Keeper Winter Survival Decision Making Exercise

- Take notes on your observations.
- Keep the task focused and mindful of time. Agree how and when you will provide reminders of time to the group.
- Hold the folded page with group members Individual Scores (The Time-Keeper will not read the Individual Scores)
- Encourage groups to complete the task without the use of tactics such as voting, trading in or averaging.
- Watch for participants avoiding conflict or changing their minds simply to come to agreement. Highlight these kinds of behaviours during the debrief.
- An important outcome of this exercise can be learning that sometimes a bit of give and take is necessary in order to move forwards to a solution.
- Watch for over emphasis by some participants on needing 100% accurate answers. Steer the group towards the aim of the exercise which is heightening awareness of communication and decision making processes, rather than over emphasis on 'getting the answers exactly right'. Display of this need is a point of observation and one worthy of debrief.
- Return the group members individual scores them to you at the end of the group exercise so that you can complete the Final Score Sheet.
- Provide your observations to the facilitator during the group debrief.

The Situation

Winter Survival Decision Making Exercise

- ◇ You have just crash-landed in the woods of northern Minnesota and southern Manitoba. It is 11:32am in mid-January.
- ◇ The small plane in which you were travelling has been completely destroyed except for the frame. The pilot and co-pilot have been killed, but no one else is seriously injured.
- ◇ The crash came suddenly before the pilot had time to radio for help or inform anyone of your position. Since your pilot was trying to avoid a storm, you know the plane was considerably off course. The pilot announced shortly before the crash that you were eighty miles northwest of a small town that is the nearest known habitation.
- ◇ You are in a wilderness area made up of thick woods broken by many lakes and rivers. The last weather report indicated that the temperature would reach minus twenty-five degrees in the daytime and minus forty at night.
- ◇ You are dressed in winter clothing appropriate for city wear - suits, pantsuits, street shoes, and overcoats.
- ◇ While escaping from the plane, your group salvaged the fifteen items listed below.
- ◇ **Your task is to rank these items according to their importance to your survival.**
- ◇ You may assume that the amount of each item is the same as the number in your group and that the group has agreed to stick together.



Individual Decision-Making Form Winter Survival Decision-Making Exercise

Rank the following items according to their importance to your survival, starting with “1” for the most important and proceeding to “15” for the least important!

___ Compress kit (with 28 ft. of 2-inch gauze)

___ Ball of steel wool

___ Cigarette lighter without the fluid

___ Loaded .45-caliber pistol

___ Newspaper (one per person)

___ Compass

___ Two ski poles

___ Knife

___ Sectional air map made of plastic

___ 30 feet of rope

___ Family-sized chocolate bar (one per person)

___ Flashlight with batteries

___ Quart of 85-proof whiskey

___ Extra shirt and pants for each

___ Can of shortening survivor

When you have completed this exercise, fold over the page and put your name on the back of the folded page.

Work Group Briefing Sheet

Winter Survival Decision-Making Exercise

You have just completed an individual solution to Winter Survival: Decision Making Exercise. Now your group will decide on a group solution to the same dilemmas. Remember, decision by consensus is difficult to attain, and not every decision may meet with everyone's unqualified approval.

Decision-Making is a method in which all the parties involved actively discuss the issues surrounding the decision. The group pools the knowledge and experience of all its members. Any final decision must be supported by each member of the group.

There should be, however, a general feeling of support from all members before a group decision is made. Take the time you need to listen for understanding, consider all members' views, make your own view known, and be reasonable in arriving at a group decision.

The ideas and feelings of all the members are integrated into a group decision, thus allowing several people to work together on a common problem, rather than producing a "we-they" stand-off.

As you might imagine, decision by consensus is usually difficult to attain and will consume more time than other methods of deciding an issue. As the energies of the group become focused on the problem at hand (rather than on defending individual points of view), the quality of the decision tends to be enhanced. This approach to decision making results in a significantly higher-quality decision than by implementing other methods such as the use of majority power (voting), minority power (persuasion), and compromise.

In the Decision-Making Exercise, each group member is asked to:

1. Recognize an obligation to express his or her own opinion and explain it fully, so that the rest of the group has the benefit of all members' thinking.
2. Recognize an obligation to listen to the opinions and feelings of all other group members and to be ready to modify one's own position on the basis of logic and understanding.
3. Consensus can be hard to reach, however, set the aim for all participants to at least partially agree to each ranking on their final list.
4. Avoid conflict-reducing techniques such as voting, compromising, or giving in to keep the peace and to realise that differences of opinion are helpful; in exploring differences, the best course of action will make itself apparent.

As a Group you are asked to complete the following:

- Nominate a Time-Keeper
- Hand the folded page with your Individual Scores to the Group Time Keeper (The Time-Keeper will not read your Individual Scores and will return them to you at the end of the Group Exercise so that you can complete the Final Score Sheet).
- Decide on a Group Solution to the Winter Survival Task.
- Participate in the debrief discussion on this exercise.

Background Information

Winter Survival Decision-Making Exercise

Mid-January is the coldest time of the year in Minnesota and Manitoba. The first problem the survivors face, therefore, is to preserve their body heat and to protect their body against its loss. One can solve this problem by building a fire, minimising movement and exertion, and using as much insulation as possible.

The participants have crash-landed. Many individuals tend to overlook the enormous shock reaction this has upon the human body, and the death of the pilot and co-pilot increases the shock. Decision making under such conditions is extremely difficult. Such a situation requires a strong emphasis upon the use of reasoning not only to make decisions, but also to reduce the fear and panic every person would naturally feel. Along with fear, shock reaction is manifested in the feelings of helplessness, loneliness, and hopelessness. These feelings have brought about more fatalities than perhaps any other cause in survival situations. Through the use of reasoning, hope for survival and the will to live can be generated. Certainly the state of shock means that movement of individuals should be at a minimum and that an attempt to calm them should be made.

Before taking off, a pilot always has to file a flight plan. The flight plan contains the vital information regarding the flight, such as the course, speed, estimated time of arrival, type of aircraft, number of people on board, and so on. Search-and-rescue operations would begin shortly after the plane failed to arrive at its destination at its estimated time of arrival.

The eighty miles to the nearest known town is a very long walk even under ideal conditions, particularly if one is not used to walking such distances. Under the circumstances of being in shock, dressed in city clothes, having deep snow in the woods and a variety of water barriers to cross, to attempt to walk out would mean almost certain death from freezing and exhaustion. At the temperatures given, the loss of body heat through exertion is a very serious matter.

Once the survivors have found ways in which to keep warm, their most immediate problem is to provide signalling methods to attract the attention of search planes and search parties. Thus, all the items the group has must be assessed according to their value in signalling the group's whereabouts.

Expert Rationale

Winter Survival Decision-Making Exercise

The correct ranking of the survivors' items was made on the basis of information provided by Mark Wanig and supplemented from Rulstrum. Wanig was an instructor for three years in survival training in the reconnaissance school in the 101st Division of the U.S. Army and later an instructor on wilderness survival for four years at the Twin City Institute for Talented Youth. He conducted wilderness survival programs for Minneapolis teachers.

1. *Cigarette lighter (without fluid)*. The gravest danger facing the group is exposure to the cold. The greatest need is for a source of warmth and the second greatest need is for signalling devices. This makes building a fire the first order of business. Without matches something is needed to produce sparks to start a fire. Even without fluid, the cigarette lighter can be used to produce sparks. The fire will not only provide warmth; it will also provide smoke for daytime signalling and firelight for night-time signalling.
2. *Ball of steel wool*. To make a fire, a means of catching the sparks made by the cigarette lighter is needed. Steel wool is the best substance with which to catch a spark and support a flame, even if it is a little bit wet.
3. *Extra shirt and pants for each survivor*. Clothes are probably the most versatile items one can have in a situation like this. Besides adding warmth to the body, they can be used for shelter, signalling, bedding, bandages, string when unravelled, and tinder to make fires. Even maps can be drawn on them. The versatility of clothes and the need for fires, signalling devices, and warmth make this number three in importance.
4. *Family-sized Hershey bar (one per person)*. To gather wood for the fire and to set up signals, energy is needed. The Hershey bars would supply the energy to sustain the survivors for quite some time. Because they contain basically carbohydrates, they would supply energy without making digestive demands upon the body.
5. *Can of shortening*. This item has many uses the most important being that a mirror-like signalling device can be made from the lid. After shining the lid with the steel wool, the survivors can use it to produce an effective reflector of sunlight. A mirror is the most powerful tool they have for communicating their presence. In sunlight, a simple mirror can generate 5 to 7 million candlepower. The reflected sunbeam can be seen beyond the horizon. Its effectiveness is somewhat limited by the trees, but one member of the group could climb a tree and use the mirror to signal search planes. If the survivors have no other means of signalling, they would still have better than 80 percent chance of being rescued within the first twenty-four hours.

Other uses for the item are as follows: The shortening can be rubbed on the body to protect exposed areas, such as the face, lips, and hands, from the cold. In desperation it could be eaten in small amounts. When melted into oil, the shortening is helpful in starting fires. Melted shortening, when soaked into a

piece of cloth, will produce an effective candlewick. The can is useful in melting snow to produce drinking water. Even in the wintertime, water is important as the body loses water in many ways, such as through perspiration, respiration, shock reactions, and so on. This water must be replenished because dehydration affects the ability to make clean decisions. The can is also useful as a cup.

6. *Flashlight.* Inasmuch as the group has little hope of survival, if it decides to walk out, its major hope is to catch the attention of search planes. During the day the lid mirror, smoke, and flags made from clothing represent the best devices. During the night the flashlight is the best signalling device. It is the only effective night-signalling device besides the fire. In the cold, however, a flashlight loses the power in its battery very quickly. It must, therefore, be kept warm if it is to work, which means that it must be kept close to someone's body. The value of the flashlight lies in the fact that, if the fire burns low or inadvertently goes out, the flashlight could be immediately turned on the moment a plane is heard.
7. *Piece of rope.* The rope is another versatile piece of equipment. It could be used to pull dead limbs off trees for firewood. When cut in pieces, the rope will help in constructing shelters. It can be burned. When frayed, it can be used as tinder to start fires. When unravelled, it will make good insulation from the cold if it is stuffed inside clothing.
8. *Newspaper (one per person).* The newspaper could be used for starting a fire much the same as the rope. It will also serve as an insulator; when rolled up and placed under the clothes around a person's legs or arms, it provides dead-air space for extra protection from the cold. The paper can be used for recreation by reading it, memorizing it, folding it, or tearing it. It could be rolled into a cone and yelled through as a signal device. It could also be spread around an area to help signal a rescue party.
9. *.45-caliber pistol.* This pistol provides a sound-signalling device. (The international distress signal is three shots fired in rapid succession.) There have been numerous cases of survivors going undetected because, by the time the rescue party arrived in the area, the survivors were too weak to make a loud enough noise to attract attention. The butt of the pistol could be used as a hammer. The powder from the shells will assist in fire building. By placing a small bit of cloth in a cartridge, emptied of its bullet, a fire can be started by firing the gun at dry wood on the ground. At night the muzzle blast of the gun is visible, which also makes it useful as a signalling device.
10. The pistol's advantages are counterbalanced by its dangerous disadvantages. Anger, frustration, impatience, irritability, and lapses of rationality may increase as the group waits to be rescued. The availability of a lethal weapon is a real danger to the group under these conditions. Although it could be used for hunting, it would take a highly skilled marksman to kill an animal and then the animal would have to be transported through the snow to the crash area, probably taking more energy than would be advisable.

11. *Knife*. A knife is a versatile tool, but it is not too important in the winter setting. It could be used for cutting the rope into desired lengths, making shavings from pieces of wood for tinder, and many other uses could be thought up.
12. *Compress kit (with gauze)*. The best use of this item is to wrap the gauze around exposed areas of the body for insulation. Feet and hands are probably the most vulnerable to frostbite, and the gauze can be used to keep them warm. The gauze can be used as a candlewick when dipped into melted shortening. It would also make effective tinder. The small supply of the gauze is the reason this item is ranked so low.
13. *Ski poles*. Although they are not very important, the poles are useful as a flagpole or staff for signalling. They can be used to stabilize a person walking through snow to collect wood, and to test the thickness of the ice on a lakeshore or stream. Probably their most useful function would be as supports for a shelter or by the fire as a heat reflector.
14. *Quart of 85-proof whiskey*. The only useful function of the whiskey is to aid in fire building or as a fuel. A torch could be made from a piece of clothing soaked in the whiskey and attached to an upright ski pole. The danger of the whiskey is that someone might try to drink it when it is cold. Whiskey takes on the temperature it is exposed to, and a drink of it at minus thirty degrees would freeze a person's esophagus and stomach and do considerable damage to the mouth. Drinking it warm will cause dehydration. The bottle, kept warm, would be useful for storing drinking water.
15. *Sectional air map made of plastic*. This item is dangerous because it will encourage individuals to attempt to walk to the nearest town—thereby condemning them to almost certain death.
16. *Compass*. Because the compass may also encourage some survivors to try to walk to the nearest town, it too is a dangerous item. The only redeeming feature of the compass is the possible use of its glass top as a reflector of sunlight to signal search planes, but it is the least effective of the potential signalling devices available. That it might tempt survivors to walk away from the crash site makes it the least desirable of the fifteen items.

Expert Scoring Winter Survival Decision-Making Exercise

The correct ranking of the survivors' fifteen items is as follows:

1. Cigarette lighter without the fluid
2. Ball of steel wool
3. Extra shirt and pants for each survivor
4. Family-sized chocolate bar (one per person)
5. Can of shortening
6. Flashlight with batteries
7. 30 feet of rope
8. Newspaper (one per person)
9. Loaded .45-caliber pistol
10. Knife
11. Compress kit (with 28 ft. of 2-inch gauze)
12. Two ski poles
13. Quart of 85-proof whiskey
14. Sectional air map made of plastic
15. Compass