Does Providing Undergraduate Students the Opportunity to Draw Facilitate Verbal Reports of Emotional Experiences?

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Abstract

The transition to a tertiary institution is a major period of change for individuals as they encounter increased access to new experiences and opportunities while adapting to different living arrangements, styles of teaching, and other changes to their lifestyle. During this transition, levels of psychological distress are at their highest. The high prevalence of mental illness in the adolescent student population is a major concern and developmentally appropriate assessment tools are required. The main aim of this thesis was to examine the utility of using drawing with undergraduate students to elicit information about emotional experiences that may be relevant in clinical settings.

Thirty-five undergraduate psychology students from the University of Otago, aged between 17- and 22-years-old were asked to provide an account of a time when they experienced four different emotions; two positive (happy or proud/confident) and two negative (angry or worried/nervous). Participants were given the opportunity to draw while describing one negative event and one positive event; for the remaining two events participants were just asked to tell. Overall, drawing did not facilitate the recall of emotional events in undergraduates. When the data were compared to prior studies conducted with children, undergraduates reported two to three times more information than did children. In fact, even without the addition of drawing, the undergraduates’ reports contained much more information than did the reports of children. Given their more sophisticated language and narrative skills, participants of this age (17- to 22-years) no longer benefited from the additional support that was provided by drawing. This initial finding suggests that drawing may not be a particularly useful tool to utilise in mental health settings with undergraduate students.
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Introduction

Each year, approximately 30% of 18-24-year-olds in New Zealand enrol in public tertiary institutions (Robins, 1996). In 2006, 58% of the 2005 school leavers continued their education in the tertiary sector (Ministry of Education, 2008). Similarly, in the United States of America, in 2000, 25% of 18-24-year-olds were enrolled in tertiary education (Kisch, Leino, & Silverman, 2005), and in 1994, 75% of school leavers were enrolled in tertiary education within two years of leaving secondary education (Berkner & Chavez, 1997). The OCED (Organisation for Economic Co-operation and Development) publication ‘Education at a Glance’ (2008) stated that, in Australia, Finland, Hungary, Iceland, New Zealand, Norway, Poland, the Slovak Republic, and Sweden, and the partner country, the Russian Federation, it was estimated that 65% or more of individuals would enter tertiary-type A programmes (programmes that are largely theory-based and designed to provide qualifications for entry into advanced research programmes and highly skilled professions). These figures indicate that a large number of school leavers, in New Zealand and in other parts of the world, make the transition from high school to a tertiary institution each year. In addition, the current global recession has made a notable impact on the number of students attending tertiary institutions. Statistics taken from tertiary institutions in the United Kingdom have shown a 7.8% increase in applications from 2008 to 2009, with 34,000 more applications in 2009 than in 2008 (University and Colleges Admission Service, 2009). In New Zealand, the University of Auckland reported a 12% rise in applications from 2008 to 2009 (Smith, 2009). The University of Melbourne reported that applications to tertiary institutions have increased by a more modest 3.5% across Australia (Marginson, 2009), reflecting its stronger economy.
The transition to University typically occurs when individuals are aged between 17-24-years-old. The definition of adolescence varies depending on the organization and the type of report or study being produced. Traditionally the onset of adolescence has been marked by the start of puberty and the increase in social behaviours leading to reduced dependence on caregivers (Smith, Cowie & Blades, 2003). In addition, the period of adolescence has long been perceived as limited to second decade of life. More recently however, investigations of brain development have extended the boundary of adolescence into the early-twenties, where by the attainment of maturation; physically, emotionally, socially, cognitively and sexually, has been achieved (Smith et al., 2003). In addition, over the past decade, magnetic resonance imaging (e.g. structural MRI and functional MRI) studies have found that although total brain volume is relatively established by early school-age years and the remodelling of gray and white matter occurs throughout adolescence and into early adulthood (Durston, Hulshoff, Casey, Giedd, Buitelaar & van Engeland, 2001). Furthermore, studies looking at structural volume of the brain have discovered that the dorsolateral prefrontal cortex does reach full volume until early twenties, which correlates with the development of many complex cognitive processes (Giedd, 2004; Hogan, Vargha-Khadem, Kirkham & Baldeweg, 2005). In light of this many researchers and developmental professionals world-wide use the age span 10-24-years-old as a working definition of adolescence. In accordance with this, for the purpose of the current study the period of adolescence will be defined as 10-24 years old.

Therefore, the transition to tertiary education typically occurs during later adolescence (17-24-years-old) and is regarded by many as a significant period of adjustment and change (Paul & Brier, 2001). The changes that arise from the
transition to tertiary education are often considered to be exciting and positive; many individuals have increased access to new experiences and opportunities (Bouteyre, Maurel, & Bernaud, 2007; Paul & Brier, 2001). Despite these obviously positive experiences, new tertiary students are also required to adapt to dramatically different living arrangements, styles of teaching, and significant changes to their lifestyle. It is therefore not surprising that the transition can also be a difficult time for many individuals. Research has shown that, on average, individuals’ expectations when entering tertiary institutions are extremely positive; in fact, for many, their expectations are more positive than the actual tertiary experience itself, suggesting that new undergraduates underestimate the difficulties that they may face (King & Walsh, 1972; Schoemer, 1973; Smith & Wertlieb, 2005; Standing & Parker, 1964). The overarching goal of the present research is to examine the contribution to drawing on students’ descriptions of some of the positive and negative emotions that they experience during their transition to University.

*The Transition to University Is Stressful*

Research has shown that the transition to University, like many other life transitions (e.g., to parenthood, to employment, retirement), appears to be a time of considerable stress and anxiety for students (Dyson & Renk, 2006). Ross, Niebling, and Heckert (1999) conducted a Student Stress Survey in which they examined sources of stress for 100 students at a community college in the United States. The survey consisted of 40 items that were divided into four categories of potential sources of stress: interpersonal sources of stress (resulting from interactions with other people), intrapersonal sources of stress (internal sources of stress), academic sources of stress, and environmental sources of stress. The participants were asked to place a tick next to each item on the questionnaire that they had experienced during
the current academic year. On the basis of the questionnaire, 75% of the participants could be categorised as “moderately stressed” and 12% could be categorised as “highly stressed;” only 13% were stressed at a “low level.” The five most frequently reported stressors were (in order): change in sleeping habits (89%), vacations/breaks (82%), change in eating habits (74%), new responsibilities (73%), and increased class workload (73%). Financial difficulties (71%) and change in social activities (71%) were also frequently reported stressors.

In a similar study, Pierceall and Keim (2007) administered The Perceived Stress Scale to 212 undergraduate students at two community colleges in the United States. The Perceived Stress Scale provides a measure of the degree to which individuals find their lives overloaded, unpredictable, and uncontrollable. Pierceall and Keim (2007) found that 75% of the participants were under moderate stress, 12% were under high stress, and again, only 13% were under low stress. In addition, female students were more stressed than males. The most common methods that students used to cope with stress included talking to family and friends (77%), leisure activities (57%), and exercising (51%). Less socially desirable coping strategies, however, were also reported, such as drinking alcohol (39%), smoking (37%), and using illegal drugs (15%) (Pierceall & Keim, 2007).

Changes in Living Situation

Many students move away from home to study at tertiary institutions. In New Zealand, between 70-90% of tertiary students aged 18-24 years old live away from their family home (NFO Research, 2002), in Canada approximately 60% of undergraduate students are not living in their family home (Cervenan & Usher, 2004). Thus, there is often a break with aspects of students’ previous lives and lifestyles when they move on to tertiary education (Fisher & Hood, 1987). During this
transition period, students leave home, move into an apartment or dormitory/hall of residence, often with no (or significantly reduced) adult supervision, and must learn to manage their lives independently, assuming increasingly ‘adult’ responsibilities (Larose & Boivin, 1998). For a large majority of students, going to a tertiary institution is the first time that they have spent a long, definitive, period of time away from their families and childhood friends.

One negative consequence that often arises when leaving home to attend tertiary institutions is “homesickness.” Homesickness is defined as a “complex cognitive-motivational-emotional state concerned with grieving for, yearning for and being preoccupied with thoughts of home” (Fisher & Hood, 1987, p. 426). This experience has been associated with increased levels of psychological distress (e.g., anxiety and depression) and cognitive impairment (e.g., absent-mindedness) (Fisher & Hood, 1987; Beck, Taylor & Robbins, 2003). Thurber and Walton (2007) suggested that according to the classification of the American Psychiatric Association severe cases of homesickness could be regarded as forms of adjustment disorder with anxiety and depressed mood. In accordance with this, the defining feature of homesickness is a precipitating stressor of actual or imagined separation from home and of recurrent thoughts about home. Therefore, although homesickness may be comorbid with other mental health disorders, it is possible to distinguish it from other anxiety, mood and adjustment disorders (Thurber & Walton, 2007). Flett, Besser and Endler, (2009) demonstrated that individuals with higher levels of state separation anxiety were more likely to experience homesickness and Fisher (1989) demonstrated that homesick students had heightened levels of depression prior to leaving home, suggesting a vulnerability factor for some students to homesickness.
Kazantzis and Flett (1998) examined the psychological effects of the transition to tertiary institutions in 100 New Zealand undergraduate students. The participants completed a 7-page questionnaire consisting of three sections. One section examined homesickness using the Dundee Relocation Inventory (DRI), which assesses attitudes and feelings toward home, security, family, future events, and general satisfaction (Kazantzis & Flett, 1998; Fisher & Hood, 1987). The authors reported that nearly all participants reported homesickness, which suggests that it is a common phenomenon in undergraduate students.

Homesickness is not unique to New Zealand students. Larose and Boivin (1998) examined adjustment during the transition to tertiary education in undergraduate students in Canada. The participants completed self-report measures that assessed attachment security, general and specific perceptions of social support, and perceptions of emotional adjustment throughout the transition from high school. Larose and Boivin (1998) found that attending a tertiary institution tends to initially be more stressful for individuals who leave home than for those who commute. Individuals who left home reported increases in anxiety and loneliness during the transition period, which was associated with a perceived reduction in social support.

Financial Pressures

For many students, the transition to tertiary education signals the beginning of financial independence. Only one third of full-time tertiary students studying in New Zealand are eligible for a government-provided living allowance. Approximately 67% of tertiary students aged 18–24 years who do not receive government-provided living allowances do not live with their families (NFO Research, 2002). As a result, many students experience stress regarding everyday finances, course fees, student loans, and the added challenge of balancing part-time work with full-time study (Mulder & Clark,
In addition, students who struggle financially and who spend a lot of time working at a job, have poorer mental health than those who do not (Roberts, Golding, Towell, & Weinreb, 1999). For example, Eisenberg, Gollust, Golberstein, and Hefner (2007) administered a web-based survey to more than 2,800 students (graduate and undergraduate) at a large American tertiary institution, and assessed depressive and anxiety disorders with the Depressive Patient Health Questionnaire [(Spitzer, Kroenke, Williams, & the Patient Health Questionnaire Primary Care Study Group, 1999)]. Eisenberg et al. (2007) found that students who reported current financial struggles were more likely to screen positive for depression and anxiety disorders.

New Learning Environment

Another stressor for tertiary students is the new learning environment that includes exposure to new terminology, new styles and paces of teaching and of learning, increased volume of reading, and an increased need for time management (Kantanis, 2000). In a study of Western and African students attending 11 universities in China, Hashim (2003) asked participants to complete a stress survey and an assessment inventory of coping skills. The results suggested that academic sources of stress were one of the most common stressors perceived by the students with approximately 30% of stressors identified by the students being academic.

There are several factors that undoubtedly contribute to academic stress during the transition to tertiary study. For example, students may be worried about meeting their own academic expectations and also the expectations of their families and their friends (Blimling & Miltenberg, 1981). In addition, Stanford University’s Bridge Project (Venezia, Kirst, & Antonio, 2003) reported that secondary institutions place emphasis on different knowledge and skills than do tertiary institutions. Stanford
University’s Bridge Project also reported that there is limited connectivity between high school coursework and tertiary coursework and that undergraduates move from high school with a set of standards that are often irrelevant to tertiary study (Venezia et al., 2003). As a result, many students do not know what is expected of them when they enter university.

Olpin (1996) conducted a survey of 559 American undergraduate students to assess the perceived levels of stress experienced by tertiary students. Participants completed the Perceived Stress Scale (PSS), The Inventory of College Students' Recent Life Experiences (ICSRLE), and The Relaxation Frequency Inventory (RFI). Olpin (1996) reported that the primary stressors that the students experienced were associated with their academic life, including stress over grades, academic standards, and time management. Tyrrell (1992) also identified time pressures, concerns about academic ability, and fears of falling behind in coursework, as additional sources of academic-related stress.

High levels of stress increase psychological distress and interfere with students’ academic performance. In 2003, the American College Health Association (ACHA, 2005) surveyed 19,500 tertiary students and found that stress was the number one self-reported impediment to academic performance. Similarly, in an earlier study, Brackney and Karabenick (1995) assessed motivation (Motivated Strategies for Learning Questionnaire), the use of learning strategies, and psychopathology (Ego Strength scale of the Minnesota Multiphasic Personality Inventory—2 and the Beck Depression Inventory) in undergraduate students. They found that tertiary students with higher levels of psychological distress had higher test anxiety and self-efficacy, less effective time management and less effective use of academic resources. In addition Eisenberg et al. (2007) in their web-based survey of students at an American
tertiary institution found that 18.4% of undergraduates reported missing academic obligations because of difficulties with mental health, and 44.3% of undergraduate students reported that their academic performance was affected by emotional or mental health difficulties in the past month. For some students, psychological difficulties lead them to end their studies prematurely (Kessler, Foster, Saunders, & Stang, 1995). Gerdes and Mallinckrodt (1994) conducted a longitudinal study of tertiary students over six years. They found that poor personal and emotional adjustment to the tertiary environment was a significant predictor of attrition.

**New Social Environment**

Venezia et al., (2003) have argued that many students are unprepared for the new pressures and changes that arise during the transition to tertiary institutions because social networks in high school and in tertiary institutions tend to have different standards and expectations. During the transition to a tertiary institution, individuals characteristically need to form a new social network. The move away from family members and childhood friends promotes the development of new interpersonal relationships (Shaver, Furman, & Buhrmester, 1985). This process of transition often introduces an increased opportunity for peer interaction, increasing the significance of peer norms and the introduction of new peer pressures such as alcohol, drugs, and sexual experiences.

The formation of new social networks is often a positive experience; it can, however, also become a source of stress and worry for new tertiary students. Sullivan, Farrell, and Kliweer (2006) have argued that adolescents desire social acceptance, inclusion, and identification with their peers. A large body of research has shown that being ostracised by others has negative psychological effects. For example, Pharo, Gross, Richardson, and Hayne (in press) investigated the effects of social exclusion
and rejection on New Zealand postgraduate students (23-27 years old), New Zealand undergraduate students (18-22 years old) and high school students (13-17 years old). Participants attended the experiment with four same-sex friends. In the pre-ostracism phase, participants’ peer affiliation and their self-esteem were assessed. In the ostracism phase, participants played a ball-toss computer game in four separate rooms, and were either included (thrown the ball 25% of the time) or ostracised (thrown the ball twice out of thirty throws). In the post-ostracism phase, participants completed a questionnaire to assess their perception of inclusion and their emotional reaction (hurt feelings, anger and mood) to the game. Participants were also asked to rate their experiences of four basic psychological needs; sense of belonging, self-esteem, meaningful existence and control.

Pharo et al. (in press) found that participants in the ostracism condition reported experiencing more hurt feelings, more feelings of anger, and increased feelings of bad mood. In addition, the self-esteem of the adolescents and the undergraduate students was more susceptible to the negative effects of ostracism than was the self-esteem of post-graduate students. In fact, ostracised undergraduate students displayed a larger decrease in their self-esteem than did their younger adolescent counterparts. On the basis of these findings, Pharo et al. concluded that individuals may be at greater risk of experiencing negative effects of ostracism during the transition to university. Therefore, the new social environments that undergraduates experience may promote the experience of stress and psychological distress as well as opportunities for positive experiences.

**Increased Alcohol Use**

Perhaps the biggest change during the transition to tertiary education is the introduction of a “drinking culture.” Individuals between the ages of 18-24 show the
highest rates of alcohol use and have the highest percentage of individuals with
drinking problems (US Department of Health and Human Services [DHHS], 1997). A
study of students from the University of Otago in New Zealand found that, on
average, male tertiary students consumed 24 alcoholic drinks per week and
participated in between 2 and 2½ episodes of drinking per week. Female tertiary
students consumed 13.5 drinks per week and participated in 2 episodes of drinking per
week (Kypri, Langley, McGee, Saunders, & Williams, 2002). In addition, an
American survey of more than 17,000 tertiary students found that 50% of men and
39% of women engaged in binge drinking (five or more drinks for men, four or more
drinks for women) at least once in the prior two weeks (Wechsler, Davenport,
Dowdall, Moeykens, & Castillo, 1994).

The drinking culture that exists in universities is not without consequence to
both the alcohol consumer and to those in their environment. Wechsler et al. (1994)
found that American students who reported engaging in binge drinking on a regular
basis were 7-10 times more likely to have unprotected sexual intercourse, to damage
property, to be injured, and to drive while intoxicated. In addition, a survey conducted
at the University of Otago of 1,500 undergraduate students found that 34% had been
insulted or humiliated, 15% had been assaulted, 40% had to look after another
intoxicated student, 60% had study or sleep interrupted, 28% had unwanted sexual
advances, and 20% had property damaged as a result of someone else’s alcohol
consumption (Langley, Kypri, & Stephenson, 2003).

Increased alcohol consumption has clear behavioural consequences for
undergraduate students and for those around them. Research has also demonstrated
that excessive drinking during this period of development has significant negative
consequences on the brain. The prefrontal cortex and the limbic brain regions are still
actively developing during late adolescence (Spear, 2000). These brain structures contribute to cognitive and emotional regulation and are said to be particularly vulnerable to alcohol exposure during adolescence (Clark, Thatcher, & Tapert, 2008). Studies of alcohol use in undergraduates have shown negative short-term and long-term consequences. For example, in one study on the short-term consequences of alcohol consumption, Acheson, Stein, and Swartzwelder (1998) examined the effect of a single low dose of alcohol on the memory of younger adults (21-24 years old) and older adults (25-29 years old). The participants were given either a dose of ethanol or a placebo before memory testing took place during a 70-minute “window” of stable blood ethanol levels. The participants were given the Hopkins Verbal Learning Test (Brandt, 1991) to assess semantic memory acquisition, and the Medical College of Georgia Complex Figure Task (Lezak, 1995) was used to assess nonverbal memory. The results showed that the younger adults were significantly more impaired in memory measures, both semantic and verbal, than the older adults when given a single low dose of alcohol. Acheson et al. (1998) concluded that alcohol has a significant short-term effect on the developing prefrontal cortex in younger adults.

Tapert et al. (2001, 2004) conducted studies to examine the long-term effects of heavy drinking during adolescence. The studies found that “non-drinker” 15-16-year-old males and “healthy control” 18-25-year-old women, performed better on decision-making tasks than age- and socioeconomic-status-matched “heavy drinker” males and female “weekend bingers.” In addition, Tapert et al. (2001, 2004) found that, when sober, 15-16-year-old “heavy drinker” males had substantially reduced neural activity compared with non-drinkers and that 18-24-year-old women classified as “weekend bingers” had significantly less neural activity than the “healthy controls”. These findings suggest that heavy drinking during adolescence may impair
high level decision-making processes, which may lead to increased risk-taking or poor decision making in adolescents.

Mental Health in the Transition to Tertiary Education

The unfamiliarity of university life together with the developmental transition to adulthood can challenge an individual’s personal security, need for acceptance, need for comfort, and their social support network (Beck, Taylor, & Robbins, 2003; Blimling & Miltenberg, 1981). In light of the stressors placed on tertiary students and the negative consequences that often arise, there has been great concern regarding the psychological problems that tertiary students may experience. In particular, prior research has examined stress, anxiety, depression, eating disorders, drug and alcohol abuse, and suicide (Ginn, 2004; Hamilton & Schweitzer, 2000; Heiligenstein, Guenther, Hsu, & Herman, 1996; Read, Wood, Davidoff, McLaken, & Campbell, 2002; Vohs, Heatherton, & Herrin, 2001).

The World Health Organisation (2002) has estimated that mental disorders, including anxiety and depression, account for almost half of health issues for young adults in the United States. In addition, the United States Department of Education, National Centre for Education Statistics (2005) reported that the experience of mental health problems is becoming increasingly more common among tertiary students. Gallagher (2005) found that in 86% of tertiary counseling centres across the United States that were surveyed, severe psychological problems reported at the centres had increased from past years. In the College of the Overwhelmed: the Campus Mental Health Crisis and What to Do About It, (Kadison & DiGeronimo, 2004) documented that within the past 7 years, the likelihood that a tertiary student will suffer from depression has doubled and the number of students who have reported thoughts of suicide has tripled.
A number of studies worldwide have investigated the prevalence of depression and anxiety in the tertiary population. For example, Bouteyre et al. (2007) administered a questionnaire to 233 French undergraduate students, which included the Beck Depression Inventory (BDI: Beck, Ward, & Mendelson, 1961) and a Daily Hassles Scale which was adapted to relate to students (Delongis, Folkman, & Lazarus, 1988). They found that 41% of the students surveyed reported clinically significant levels of depressive symptoms; the authors concluded that the ‘daily hassles’ experienced by undergraduate students could be considered a relevant risk factor for depression. Similar statistics have been found in other studies. For example, Nolan and Willson (1994) found that 25% of undergraduates at Louisiana State University surveyed were experiencing depression and Wong and Whitaker (1993) found that 30% of tertiary students studying at the University of Northern Iowa reported experiencing at least mild dysphoria. The general trend has been for stressors to increase since these studies were undertaken.

Eisenberg et al. (2007) examined depression, anxiety, and suicidality in the tertiary population. They administered the Depressive Patient Health Questionnaire (Spitzer et al., 1999) to 2,843 American tertiary students. They found that 13.8% of undergraduate and 11.3% of graduate students met the criteria for a depressive disorder. Eisenberg et al. also examined anxiety and found that 4.2% of undergraduates and 3.8% of graduates met the criteria for either panic disorder or for generalised anxiety disorder. The results also showed that 2.5% of undergraduates and 1.6% of postgraduates had experienced suicidal thoughts in the past month.

The transition to university is clearly a period of elevated risk of emotional difficulties and mental illness. The transitional year (or first year) of tertiary education is when levels of psychological distress are at their highest, declining in subsequent
years for most students (Sher, Wood, & Gotham, 1996). However, there are a number of students for whom high levels of psychological distress are pervasive and do not decrease over time. Thus, there is a clear need to focus on the transition to tertiary education and to provide support and effective treatment and intervention to individuals experiencing the transition. One key step in doing so is to effectively engage the undergraduate student in mental health settings. There are many components to effective engagement (e.g., accessible mental health resources, the identification of those in need, positive therapeutic relationships, helpful assessments, and efficacious treatments).

**Working with Adolescent Undergraduates in Mental Health Settings**

As mentioned earlier, the transition to tertiary education occurs mostly in late adolescence (17-24 years old). Unfortunately, adolescents are often a difficult group to engage in mental health settings as they are often referred by someone else (e.g., a parent or doctor) and the decision to enter therapy may be against their will, they may feel that it is out of their control and/or they may not understand why they were referred. As a result, adolescents may not be enthusiastic or willing to engage in assessment and/or treatment and are at risk of failing to engage in treatment and of dropping out. In addition, for many individuals, a perceived stigma of attending mental health services can create resistance (Crenshaw, 2008). For these reasons, it is important to find ways to engage undergraduates in clinical settings.

Therapeutic engagement is a mutual interaction in which both the clinician and the client work to establish rapport. As this engagement progresses, a therapeutic alliance is created, in which a sound mutual relationship and collaborative effort develops (Ogrodniczuk, Piper, Joyce, & McCallum, 2000). The development of a sound therapeutic alliance is largely reliant on the attitude of the client towards the
clinician and vice versa (Blatt, Zuroff, Quinlan, & Pilkonis, 1996; Garcia & Weisz, 2002). A positive therapeutic relationship yields more self-report during an assessment, than in a relationship regarded less positively. In addition, the more positive the therapeutic alliance, the more positive the clinical outcome. Research has suggested that, to establish a solid therapeutic alliance with adolescents, that clinicians should use developmentally appropriate assessment approaches (Oetzel, & Scherer, 2003).

The standard techniques used to interview adolescents in clinical settings are structured and semi-structured interview schedules (Reich & Earls, 1990). While a great number of interview strategies have been specifically designed and developed for assessing children and adults, few have been designed exclusively for adolescents. The interview schedules that are commonly used with adolescents are often the same as those used to interview either children or adults (see Hodges & Zeman, 1993 for a review of such interview schedules). However, the interviewing guidelines and formats that have been developed to assess children and adults do not usually have norms developed distinctively for adolescents, nor are they validated specifically for adolescents.

Adolescence is recognised as a developmental period of intense emotional expression, impulsive actions, and expanding intellectual abilities which generate a presentation distinct from what is seen in childhood and adulthood (Yurgelun-Todd, 2007). Investigations of brain development have placed the upper boundary of adolescence in the early-twenties, whereby the attainment of maturation; physically, emotionally, socially, cognitively, and sexually, is achieved (Smith, Cowie, & Blades 2003). Therefore, adolescents (including undergraduate students) are developmentally neither children nor adults; one major consequence of this unique period of
development is that the interviewing protocols regularly used with adolescents may be inappropriate and not relevant. The use of developmentally inappropriate interview schedules may be detrimental to the therapeutic relationship and given the prevalence of mental health difficulties in the undergraduate population, it is important that appropriate methods of assessment are utilised in the assessment of undergraduates.

Few tools have been trialled with adolescent populations to establish developmentally appropriate ways of assessing adolescents and engaging them in therapeutic settings. One technique that has been explored is the use of diaries as a method of data collection (Egbert Maikler, Broome, Bailey, & Lea, 2001; Maikler, 2000). Using diaries with adolescents is reported to reduce errors in recall, to provide a descriptive and intimate picture of an event, and to record a series of events that can be studied for causal relationships. A major limitation of diary use in the assessment process however, is that unless the adolescent has recorded a diary prior to engaging with the mental health provider, there will be no past diary entries and therefore no descriptions of past experiences to be examined and discussed.

A second tool that has been used to engage adolescents in therapeutic settings is narrative therapy (Handler, 2007). In this approach, the adolescent has the opportunity to tell his or her “story” to the clinician who then offers the adolescent a chance to reformulate the “story” to see him/herself in a more positive way. While narrative approaches tend to be utilised for treatment purposes, Handler (2007) stated that it may be considered as a therapeutic assessment tool, in which the goal is not only to collect information about the client, but to also guide the client to an awareness of their personal issues. Although narrative assessment in adolescents has yet to be reviewed in the literature, Handler (2007) outlined several benefits that it
may hold as a therapeutic assessment approach; for example, establishing and building rapport quickly, and allowing issues and problems to become evident swiftly.

A further therapeutic tool suggested for adolescents is motivational interviewing (Boyle, 2007). In many traditional assessment situations, adolescents develop negative emotions regarding the therapeutic environment as they have typically been referred for emotional problems. In addition, engaging in mental health care can be a stressful process, resulting in confusion, anxiety and anger. Motivational interviewing is a treatment package which empowers the individual to achieve change. The first part and perhaps the most essential part of motivational interviewing is the assessment phase, which focuses on building rapport and establishing a safe environment so that an adolescent client feels that personal information can be disclosed comfortably. From there, motivational interviewing treatment packages require that healthcare professionals follow four principles: the genuine expression of empathy, the development of discrepancy between the patient’s current behaviour and his or her treatment goal, to roll with the client’s resistance, and to support the patient’s self-efficacy (Erickson, Gerstle, & Feldstein, 2005). The mental healthcare practitioner works to communicate acceptance of the client and understanding of their ambivalence to change and engage in therapy. Collaboration between the practitioner and client is formed, supporting the client’s autonomy to select and enact change.

Although there is limited empirical research conducted on motivational interviewing as a standalone assessment technique, Boyle (2007) suggested that motivational interviewing as an assessment tool can be beneficial to the adolescent. Consistent with this, studies looking at alcohol use and dietary control in adolescents have found that motivational interviewing packages can be highly effective in increasing self-efficacy.
to enact change (e.g., Barnett, Monti, & Wood, 2001; Berg-Smith et al., 1999; McCambridge & Strang, 2004).

Due to the lack of specific assessment tools developed to engage adolescents in the assessment process, tools trialled with children can be examined for application to adolescent populations with the developmental differences considered and accounted for. One assessment tool that has been investigated to facilitate children’s descriptions of past experiences is drawing.

**Drawing**

Over the past decade, interest has increased in the use of drawing in interviewing and assessing children. In the past, drawing has been used as a projective technique for assessing intelligence and psychological or emotional disturbances in children (Goodenough, 1926; Machover, 1949; Koppitz, 1966). Numerous studies however, have provided no empirical evidence to support the use of drawing as a projective technique (Prewett, Bardos, & Naglieri, 1989; Willcock, 2004; Yates, Beutler, & Crago, 1985). More recently, drawing has been used to facilitate communication with children, shifting the focus from what children draw to what children say about what they draw. An increasing number of studies have shown that children’s ability to talk about their past experiences is facilitated by the use of drawing (Butler, Gross & Hayne, 1995; Gross & Hayne, 1998, 1999; LaGreca, 1990; Patterson & Hayne, in press; Pipe, Salmon, & Priestley, 2002; Stafstrom, Rostasy, & Minster, 2002; Weinle, 2002; Wesson & Salmon, 2001). For example, Butler et al. (1995) conducted the first study to examine the effects of drawing on children’s verbal reports of a past experience. In one experiment in that study, 5- and 6-year old children were taken on a trip to the fire station and were interviewed about the event after a 1-day delay. In the second experiment from that same study, 3- and 4-year olds
and 5- and 6-year olds participated in the same event and were interviewed after a 1-month delay. In each experiment, participants were randomly assigned to one of two interview conditions; in one condition, children were asked to verbally recall the event (tell condition), and in the other condition, children were asked to verbally recall the event while they were drawing (draw-and-tell condition). Within each interview condition, there were two phases of questioning. First, children were asked an open-ended question to assess their free recall of the target event. Second, when the children’s spontaneous reports of the event ceased, the interviewer asked the children four direct questions about the target event. Butler et al. (1995) found that the 5- and 6-year old children in the draw-and-tell condition in Experiment 1 reported more information than did children in the tell condition. The same pattern was observed for 5- and 6-year-olds who were interviewed after a 1-month delay in Experiment 2; however, drawing after this delay was not effective for the preschool-aged children.

In a subsequent experiment, Gross and Hayne (1999) assessed the effect of drawing on children’s reports after very long delays. In their study, 5- and 6-year-old children participated in a unique event (trip to a chocolate factory) and were subsequently interviewed about that event after one of two delays; one day after the event or 6 months after the event. After each delay, half of the children were asked to draw and tell about the memory event, while the remaining children were asked only to tell about the event. Children in the draw-and-tell condition reported significantly more information after both delays than did children in the tell-only condition. In a second experiment in the same study, the researchers extended the delay between the event and the interview to 1 year. The children who participated in Experiment 1 were re-interviewed after a 1-year delay. Overall, children in the draw-and-tell condition
reported more information during both free and directed recall than did the children in the tell condition. Importantly, the researchers found that drawing did not increase errors. That is, draw-and-tell children were just as accurate as tell-only children.

The ability of children to report on emotional experiences is essential in therapeutic and clinical settings. Given this, researchers have also examined drawing as a technique to elicit information from children about emotional experiences. Gross and Hayne (1998) interviewed 3- and 4-year-old and 5- and 6-year-old children about their own emotional experiences. Children were asked to describe a time when they felt happy, sad, angry or scared. Each child was asked to tell about two emotional experiences and to draw-and-tell about the other two. Children of both ages reported more than twice as much information when they were given the opportunity to draw than when they were not. Parental verification of the children’s reports confirmed that the increase in the amount of information reported did not occur at the expense of accuracy.

Wesson and Salmon (2001) also examined the effect of drawing on children’s report of an emotional event. This study extended the work of Gross and Hayne (1998) by including a third interview condition: draw, tell, and show. Children aged 5–6-years and children aged 8–9-years were randomly assigned to one of three conditions. Children were either asked to draw, tell, or re-enact (show) everything they could remember about a time when they were scared, happy, and sad. Wesson and Salmon (2001) found that children reported more than twice the amount of information when they were drawing or showing than when they were telling.

Patterson and Hayne (in press) extended these findings further in a study that investigated the effect of drawing on the memory reports of children up the age of 12. Children aged 5- to 6-years old, 7- to 8-years old, 9- to 10-years old and 11- to 12-
years old were asked to provide a narrative account of a time when they were happy, sad, scared, or angry. Each child was required to draw-and-tell about two emotional experiences and to only tell about the two other emotional experiences. The researchers found that irrespective of age, children reported more when asked to draw-and-tell about an emotional experience, rather than to tell only. In addition, there were no negative effects of draw-and-tell on the accuracy of the child’s report. Therefore, drawing appears to be a useful interview tool for children up to the age of twelve. In addition, the researchers found that drawing-and-telling was associated with an increase in the number of questions and responses used by the interviewer. This increased level of communication between the interviewer and the child may facilitate the development of rapport in an interview context which may be useful in clinical and forensic settings. Taken together, the literature suggests that drawing is a helpful technique to elicit accurate and detailed information from children about events and emotional experiences. While individual personality and temperament is likely to affect the amount of information reported in different interview conditions, drawing appears to be a developmentally appropriate interview technique for use with children.

There are several possible reasons why drawing might facilitate children’s verbal accounts of their prior experiences. One possibility is that drawing about an experience may provide additional retrieval cues, by providing images or ideas that activate other memories of the same experience (Butler et al., 1995). Another possibility is that drawing may provide the opportunity for children to describe aspects of an event that are not explored in standard conversational interviews. For example, in the Butler et al. (1995) study, the children in the draw group reported specific aspects of the experience that were not described in the tell condition (e.g.,
particular aspects of the bus ride, who was sitting where, and what colours things were).

Drawing may also reduce the perceived social demands of an interview and facilitate the development of rapport between the interviewer and the child (Gross & Hayne, 1998). As a result, children may feel more comfortable when given the opportunity to draw in an interview than when they are required to only tell. This may increase their ability and willingness to focus on the recall task (Butler et al., 1995; Gross & Hayne, 1998, 1999). In addition, drawing tends to extend the duration of the interview, which may increase the amount of information that children report.

Current Experiment

The prevalence of mental health difficulties in the undergraduate population is relatively high, making it extremely important that clinicians engage undergraduates in therapeutic settings. The assessment process is the first point of engagement in therapeutic settings. Therefore, what we need is a developmentally appropriate assessment tool for use with adolescents. Studies have shown that drawing facilitates children’s ability to talk about their past experiences. To date, however, there has been no research investigating the use of drawing as a tool for eliciting verbal information from adolescents or adults. If drawing provided a way to enhance communication and gain verbal information from undergraduates, it may be a useful tool in psychological settings. Therefore the purpose of the current experiment was to examine the use of drawing in undergraduate students to elicit information about emotional experiences that are relevant in clinical settings. The first aim of the experiment was to extend past research by investigating whether drawing would facilitate undergraduate students’ reports of happy and angry emotional experiences. Although facilitating communication about emotional experiences that make an
individual feel ‘angry’ and ‘happy’ is important in mental health settings, these are not the only emotions that a clinician might want to explore. Given this, the second aim of the current experiment was to extend past research by examining the effect of drawing on participants’ reports of two other clinically-relevant emotions; worried or nervous and proud or confident.

At least three studies have shown that interviewers use more non-directive prompts (Wesson & Salmon, 2001) and ask more open-ended questions when using the draw technique (Gross, Hayne, & Drury, 2009; Patterson & Hayne, in press). Given this, the third aim of the current experiment was to examine the effect of drawing on the interviewers’ behaviour.

To this end, 35 undergraduate psychology students from the University of Otago, aged between 17- and 22-years-old were asked to recall and provide an account of two negative emotional experiences and two positive emotional experiences. The participants were required to describe everything that they could remember about one negative emotional experience and one positive emotional experience. To examine the effect of drawing in participants’ reports of their emotional experiences, participants were given the opportunity to draw while describing the events.

Past research lead us to make two different hypotheses about the potential effect of drawing on the recall of undergraduate students. Studies have clearly shown that when children are presented with the opportunity to draw in an interview, their reports are facilitated. However, adolescents are developmentally different from children and we do not know whether drawing would continue to facilitate their reports of emotional experiences. It is likely that drawing facilitates children’s recall by extending interview durations and by making both the interviewer and the child
feel more relaxed (Butler et al., 1995; Willcock, 2004). Therefore by those mechanisms, drawing may be useful for adolescents too.

On the other hand, adolescence is a critical period of increasing self-awareness and the development of self-identity. In addition, as children age, they become increasingly self-conscious about their drawing abilities (Malchiodi, 1998). This increase in self-awareness and self-consciousness, combined with an increased desire to draw objects realistically, may actually interfere with older participants verbal reports if they are also given the opportunity to draw during an interview (Patterson & Hayne, in press). Furthermore, an adolescent tends to have better verbal and communication skills than a younger child, which enables them to naturally provide a more comprehensive report of an event. Therefore, drawing may not be as effective with adolescents.
Method

Participants

Thirty-five undergraduate psychology students from the University of Otago, aged between 17- and 22-years-old (18 female and 17 male; mean age = 19.45 years, $SD = 1.19$) participated in the current experiment. Students satisfied a small portion of course assessment by completing a worksheet based on the experiment. The participants were predominantly Pakeha (New Zealanders of European descent) and all gave their written consent to participate.

Procedure

Interview

Each participant was interviewed individually by a female experimenter in a quiet room at the University.

Each participant was asked to give a detailed description of four personal emotional experiences. They were asked to provide an account of two negative emotions (a time when they were “really really angry” and a time when they were “really really worried or nervous”) and two positive emotions (a time when they were “really really happy” and a time when they were “really really proud or confident”).

Participants were each asked to tell everything that they could remember about one positive emotional experience (happy or proud/confident) and one negative emotional experience (angry or worried/nervous). For the other positive and negative emotions, the participants were asked to draw everything that they could remember about the emotional experience, talking about it as they drew. For each draw experience, the participants were provided with a blank piece of A4 white construction paper and 10 coloured crayons.
The order of emotional experiences that the participants were asked to recall, was counterbalanced across all participants; however the participants always ended with being asked about a positive emotion. The two draw emotions were completed consecutively and the two tell emotions were completed consecutively. The interview lasted approximately 30-45 minutes.

**Interview procedure**

The interviewer began by asking each participant “Can you tell me about the types of things that make people your age feel angry [nervous/worried; proud/confident; happy]?” After the participant had provided suitable examples, thus determining that they understood the specified emotion, he or she was asked “Can you think of a time when you felt really, really angry [nervous/worried; proud or confident; happy]?” Once the participant had stated that he or she could think of a suitable time, the experimenter said “I’d like you to tell [draw and tell] me everything that you can remember about that time.” If the participant did not narrate as he or she was drawing, he or she was prompted to do so. In addition, the experimenter utilized minimal responses (e.g., “uh huh,” “yeah,” or by repeating portions of the participant’s narration) to maintain the flow of the narration and conversation. The experimenter also encouraged the participant by saying “Can you draw/tell me anything else about the time you felt really, really angry [nervous/worried; proud/confident; happy]?”

**Post-interview questions**

When the participants had finished talking about all four emotional experiences, they were asked seven questions about the interview experience. The experimenter said “Now I’d like to talk to you about what you thought about the drawing compared to the telling.” The experimenter told the participant that he or she could use a four-point scale to answer the questions and presented them with a scale
containing the following response options: 1 = not at all, 2 = not much, 3 = a little, 4 = a lot. Each participant was then asked the following questions.

1) Did you feel embarrassed about drawing?
2) Did you feel embarrassed about telling?
3) Do you enjoy drawing?
4) Did you take art at school?
5) Did the drawing get in the way of thinking about what you were saying?

The four-point scale was then removed and the participant was asked two further questions.

6) How well do you think you draw compared to other people your age?
   (“Better than”, “the same as”, or “worse than”?)

7) Was it easier to remember the time you were worried/happy/proud/angry when you were drawing or telling? Why?

At the conclusion of the interview, participants were then debriefed and provided with an outline of the study.

**Coding**

All of the interviews were video- and audio-recorded, and were transcribed verbatim. The transcripts were then coded.

**Clauses.** To determine the amount of verbal information that participants reported, each transcript was divided into clauses. A clause was defined as a sentence with one explicit or implicit verb. Participants were only given credit for clauses that were related to the actual experience that they were describing. In addition, any information contained in drawings that was not verbally described, was omitted from
analysis. Each clause was then coded into 1 of 10 categories using the coding scheme outlined below:

1. **Emotions (CE).** Information provided about the participant’s feelings and emotions, relevant to the emotional experience (e.g., “I was too upset,” “I wanted to hit him,” and “it was fun.”).

2. **Thoughts (CT).** Clauses containing words such as “think” “thought” “thinking,” or implying a thought or an idea that ran through the participant’s mind (e.g., “I couldn’t stop thinking,” “I expected it to be easy,” and “I knew he would say that.”). If the clause contained a thought about an emotion (e.g., “I was thinking that I hated him.”), it was coded as an emotion (CE).

3. **Object/concrete (CO).** Clauses containing objects, things, places, and physical components present during the experience, as the subject of the clause (e.g., “the TV was there”).

4. **Narrative (CN).** Clauses providing information about the event and what happened (e.g., “then we went inside” “we were talking and he said he didn’t want to go” “we had to take our shoes off.”). If the clause contained an action and an object, but the object was not the subject of the clause, it was coded CN (e.g., “we sat on the couch”). Information about people was also coded as CN (e.g., “mum was there,” “Jessie said no”).

5. **Leading (CL).** Information that a participant provided after the interviewer gave an illegal prompt, which would have received credit had an illegal prompt not been used.

6. **Off Topic (COT).** Questions that participants asked about the task (e.g., “what kind of thing do you want me to say?”), thinking aloud while
drawing (e.g., “sun” “sky”), talking about immediate distractions (e.g., tape recorder, noises, crayons) and drawing self and saying “that’s me.”

7. **Repetitions (CR).** If the participant repeated part of their story.

8. **Finish (CF).** Turns where the participant was ending the discussion (e.g., “I don’t know,” “that’s all,” “I can’t remember.”) were coded as CF.

9. **Minimal (CM).** Minimal responses and statements that the participant used to continue the flow of the conversation (e.g., “yeah,” “I know”)

10. **Other (Cother).** Information that did not fit into the other coding categories (e.g., double negatives, inaudible responses etc.)

**Interviewer Turns.** The number and type of conversational turns taken by interviewers during the interviews were also examined. Each interviewer turn was coded into 1 of 4 categories using the coding scheme outlined below:

1. **Prompt (IP).** The interviewer used questions and prompts that were related to the emotion experience (e.g., “Are you sure?” “What else can you remember?”).

2. **Minimal (IM).** The interviewer used Minimal responses and repetitions (including repetitions of previous utterances made by the participant) to maintain conversational flow (e.g., “Did he?” “Cool,” and “Yeah”).

3. **Leading (IL).** The interviewer provided a prompt that was considered leading or suggestive (e.g., “who is this,” “what did she do next,”) it was coded as IL.

4. **Off Topic (IOT).** The interviewer talked about immediate distractions (e.g., tape recorder, video, crayons, and noises).

**Coding reliability.** To ensure that the coding scheme was reliable, 25% of coded transcripts were randomly selected and recoded by an independent, trained
coder. Interobserver reliability for the content coding was 97% (kappa = .97). Interobserver reliability for type of interviewer turn (i.e., prompt or minimal responses) was 100%.

*Emotion Drawings.* A rater ranked the representational quality of each drawing produced by participants during the draw interviews from 1 (lowest) to 70 (highest). Each participant drew about 2 emotional experiences so received a ranking for each drawing. These individual rankings were then averaged to assign a mean ranking for each participant. A second rater ranked 25% of the drawings; a Pearson product-moment correlation yielded an interobserver reliability coefficient of .90, p < .05.
Results

The participants in this experiment were initially asked to provide examples of the kinds of things that made people their age feel angry [nervous/worried; proud/confident; happy]. The answers that participants provided were assigned to 1 of 5 categories: Academic-related, Adjustment-related, Friend-related, Family-related, and Other. The number of events that were placed in each category was expressed as a percentage of the total number of events provided for each emotion (happy, proud/confident, angry, and worried/nervous). Table 1 provides examples of events that were assigned to each category for each emotion and the percentage of examples that participants reported under each category for each emotion. There were a wide range of example events provided by participants, most of which were relevant to the transition to tertiary education, most commonly classified into the Academic, Adjustment-related, and Friend-related categories (see Table 1).

Participants were also asked to think of a time when they had felt angry [nervous/worried; proud or confident; happy]. We also assigned these examples into 1 of the same 5 categories: Academic-related, Adjustment-related, Friend-related, Family-related, and Other. The number of personally-nominated events in each category was expressed as a percentage of the total number of events provided for each emotion (happy, proud/confident, angry, and worried/nervous). Table 2 shows the percentages of personally-nominated events that participants reported under each category for each emotion. When participants were asked to describe personally-nominated events, the majority described events that were relevant to their transition to university. For personally-nominated events pertaining to proud/confident and worried/nervous emotions, the majority of undergraduates described an event relating...
to academia; for events pertaining to happy, the majority described an event relating to friendship; and for angry, the majority described an adjustment-related event.
Table 1

The types of things that make undergraduate students feel happy, proud/confident, angry, and/or worried/nervous as a function of category (academic-related, adjustment-related, friend-related, family-related, and other) and the percentage of events for each emotion that fell into each category.

<table>
<thead>
<tr>
<th></th>
<th>Happy</th>
<th>Proud/Confident</th>
<th>Angry</th>
<th>Worried/Nervous</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic-Related</strong></td>
<td>o Good/high marks</td>
<td>o High/good marks</td>
<td>o Online tests</td>
<td>o Sitting exams and tests</td>
</tr>
<tr>
<td></td>
<td>o Acceptance into courses</td>
<td>o Success &amp; passing in exams/tests</td>
<td>o Unhappy with unsatisfactory marks in exams, tests, assignments</td>
<td>o Exam and test results</td>
</tr>
<tr>
<td></td>
<td>o Success at school &amp; University</td>
<td>o Understanding information</td>
<td></td>
<td>o Assessment deadlines</td>
</tr>
<tr>
<td></td>
<td>o Passing &amp; finishing exams</td>
<td>o Success at University &amp; school</td>
<td></td>
<td>o Not succeeding at University</td>
</tr>
<tr>
<td></td>
<td>o Getting reports/assignments handed in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>o Good lecturers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>% of Events</strong></td>
<td>22.12</td>
<td>43.04</td>
<td>14.29</td>
<td>50.00</td>
</tr>
<tr>
<td><strong>Adjustment-Related</strong></td>
<td>o Leaving home (moving cities)</td>
<td>o Being independent</td>
<td>o Flatmate issues</td>
<td>o Leaving home (moving cities)</td>
</tr>
<tr>
<td></td>
<td>o Meeting new people</td>
<td>o Meeting new people</td>
<td>o Job difficulties</td>
<td>o Getting used to how university works</td>
</tr>
<tr>
<td></td>
<td>o New job</td>
<td>o Leaving home (moving cities)</td>
<td>o New views e.g., prejudice</td>
<td>o Meeting new people</td>
</tr>
<tr>
<td></td>
<td>o New flat</td>
<td>o New job</td>
<td>o Romantic relationship difficulties</td>
<td>o Living in a hall</td>
</tr>
<tr>
<td></td>
<td>o Going to university</td>
<td></td>
<td>o Difficulty in the hostel/hall</td>
<td>o Financial worries</td>
</tr>
<tr>
<td></td>
<td>o Romantic relationships</td>
<td></td>
<td>o Homesick</td>
<td></td>
</tr>
<tr>
<td><strong>% of Events</strong></td>
<td>16.84</td>
<td>13.92</td>
<td>32.86</td>
<td>22.86</td>
</tr>
<tr>
<td></td>
<td>Happy</td>
<td>Proud/Confident</td>
<td>Angry</td>
<td>Worried/Nervous</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------------------------------</td>
<td>----------------</td>
<td>-------------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td><strong>Friend-Related</strong></td>
<td>Socialising with friends (parties, concerts, holidays, going to town)</td>
<td>Compliments from friends</td>
<td>Arguments with friends</td>
<td>Making friends</td>
</tr>
<tr>
<td></td>
<td>Reuniting</td>
<td>Having a lot of friends</td>
<td>“Falling out” with friends</td>
<td>Leaving friends behind (e.g., “drifting away from your mates”)</td>
</tr>
<tr>
<td></td>
<td>Celebrations</td>
<td>“Hanging out with people”</td>
<td>Friends leave you out of certain activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Holidays</td>
<td>Network of friends</td>
<td>“Social attention”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of Events</td>
<td>37.89</td>
<td>12.66</td>
<td>22.86</td>
<td>5.71</td>
</tr>
<tr>
<td><strong>Family-Related</strong></td>
<td>Family holidays</td>
<td>Help or assist family members</td>
<td>Siblings annoying you</td>
<td>Sick parent</td>
</tr>
<tr>
<td></td>
<td>Family phone calls</td>
<td></td>
<td></td>
<td>Telling your parents – marks</td>
</tr>
<tr>
<td></td>
<td>Family visits</td>
<td></td>
<td></td>
<td>Parent’s financial situation</td>
</tr>
<tr>
<td></td>
<td>Trips home</td>
<td></td>
<td></td>
<td>Pressure from family</td>
</tr>
<tr>
<td>% of Events</td>
<td>7.37</td>
<td>0</td>
<td>0</td>
<td>5.71</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Sports</td>
<td>School prefect/captain</td>
<td>Losing in sports</td>
<td>Personal safety</td>
</tr>
<tr>
<td></td>
<td>Hobbies and interests</td>
<td>Sport achievement</td>
<td>Others cheating in sports</td>
<td>Big sports games and races</td>
</tr>
<tr>
<td></td>
<td>School prefect/captain</td>
<td>Achievement in hobbies/interests</td>
<td>Injustices, war etc.</td>
<td>Public speaking</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Helping someone out</td>
<td></td>
<td>Theft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meeting personal goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>When someone pays you a compliment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of Events</td>
<td>15.79</td>
<td>30.38</td>
<td>30.00</td>
<td>15.71</td>
</tr>
</tbody>
</table>
Table 2

The percentage of personally-nominated events reported in each category for each emotion

<table>
<thead>
<tr>
<th></th>
<th>Happy</th>
<th>Proud/Confident</th>
<th>Angry</th>
<th>Worried/Nervous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic-Related</td>
<td>17.14</td>
<td>51.43</td>
<td>17.14</td>
<td>62.86</td>
</tr>
<tr>
<td>Adjustment-Related</td>
<td>20.00</td>
<td>5.71</td>
<td>40.00</td>
<td>28.57</td>
</tr>
<tr>
<td>Friend-Related</td>
<td>42.86</td>
<td>0</td>
<td>20.00</td>
<td>2.86</td>
</tr>
<tr>
<td>Family-Related</td>
<td>8.57</td>
<td>2.86</td>
<td>8.57</td>
<td>2.86</td>
</tr>
<tr>
<td>Other</td>
<td>11.43</td>
<td>40.00</td>
<td>14.29</td>
<td>2.86</td>
</tr>
</tbody>
</table>

*Data Analysis*

The amount of information that participants provided about their own personal experiences was analysed separately for each emotion that participants were asked to describe. The same analysis strategy was used for each emotion. Not all content codes and interviewer codes were analysed in the current experiment. We collapsed across thoughts and emotions and did not analyse content coding categories numbered 5-10 or interviewer coding categories numbered 3-4 (they did not yield sufficient data for analysis).

The data for the amount of information that participants reported was analysed using a series of 2 (Gender) X 2 (Test Group: Draw and Tell, Tell) X 3 (Content Code: Narrative, Thoughts and Emotions, Objects) analyses of variance (ANOVA) with repeated measures over Code (Greenhouse-Geisser correction factor). Any significant effects were further analysed using post hoc Student Newman-Kuels tests ($p < .05$). The full ANOVA tables are shown in Appendix A1.

The data for the interviewers’ behaviour was analysed using a series of 2 (Participant Gender) X 2 (Test Group: Draw and Tell, Tell) X 2 (Interviewer Codes: Interviewer Prompts, Interviewer Minimal Responses) ANOVA with repeated measures over Interviewer Code.
Any significant effects were analysed using Student Newman Kuels ($p < .05$) post hoc tests. The full ANOVA tables are shown in Appendix A2.

**Amount Reported**

Previous studies have shown that 5- to 12-year-olds report more information about happy and angry emotional events when they are given the opportunity to draw and tell about those events compared to when they are only asked to tell. The first aim of the present experiment was to extend past research by investigating whether drawing would also facilitate undergraduate students’ (aged 17 to 22 years of age) reports of happy and angry emotional experiences as well.

Figure 1 shows the amount of information that participants reported about their happy event (left panel) and their angry event (right panel) as a function of test group and coding category. As shown in Figure 1, in contrast to prior research with children, drawing did not facilitate undergraduate students’ reports of either a happy or an angry event; participants asked to draw about an event that made them feel happy or about an event that made them feel angry reported the same amount of information as participants who were asked to tell about what happened. In addition, male and female participants did not differ in the amount of information that they reported about either event.
For both the happy and angry events, participants reported significantly more narrative information than information about thoughts and emotions or about objects (Happy: $F(2, 62) = 52.25, p < .01$; Angry: $F(2, 62) = 52.04, p < .01$). For happy events, however, the main effect of coding category was qualified by a significant Coding Category X Gender interaction, $F(2, 62) = 4.21, p < .05$. As shown in Figure 2, for the happy event, males and females did not differ in the amount of information that they reported about thoughts and emotions and objects; however, males reported more narrative information than did females. There were no other significant interactions for either emotion.
The results described above indicated that drawing did not facilitate undergraduates’ reports of either a happy event or an angry event. The second aim of the current experiment was to extend past research by examining the effect of drawing on participants’ reports of two other clinically-relevant emotions; worried or nervous and proud or confident.

Figure 3 shows the amount of information that participants reported about their worried/nervous event (left panel) and their proud/confident event (right panel) as a function of test group and coding category. As shown in Figure 3, again, drawing did not facilitate undergraduate students’ reports of either a worried/nervous or a proud/confident event; participants asked to draw about an event that made them feel worried/nervous or about an event that made them feel proud/confident reported the same amount of information as participants asked to tell about what happened for both events. In addition, male and female...
participants did not differ in the amount of information reported about either event. For both events, participants reported significantly more narrative information than information about thoughts and emotions or about objects (Worried/Nervous: $F(2, 62) = 61.49, p < .01$; Proud/Confident: $F(2, 62) = 41.40, p < .01$). There were no significant interactions for either emotion.

![Figure 3](image-url)

**Figure 3.** Left Panel: The amount of information (+1SE) that participants reported about an event that made them feel *worried or nervous* as a function of test group and coding category. Right Panel: The amount of information (+1SE) that participants reported about an event that made them feel *proud or confident* as a function of test group and coding category. For both emotions, the total amount of information that participants reported is also shown.
Interviewer Behaviour

The third aim of the current experiment was to examine the effect of drawing on the interviewers’ behaviour. In particular, we examined the number of minimal responses (facilitative non-directive prompts) and prompts (open-ended questions) made by the interviewer as a function of test group.

Figure 4 shows the number of interviewer turns as a function of emotion, test group, and interviewer code. For all four emotion interviews, there was no effect of interview condition (Draw versus Tell) on the number of prompts that the interviewer made. For angry and proud interviews, interviewers used the same number of minimal responses in the Tell group as they used for participants in the Draw group.

For the happy and worried interviews, interviewers made a greater number of minimal responses for participants in the Draw group than they made for participants in the Tell group (Happy: $F(1, 31) = 12.54, p < .01$; Worried: $F(1, 31) = 4.78, p < .05$). There were no effects of gender and no other interactions.
Individual Differences

In contrast to prior research with children, the data reported so far have shown that drawing did not increase the amount of information that undergraduates reported about their prior emotional experiences. In fact, participants reported a large amount of information about each emotion irrespective of whether they were asked to draw or to tell about it. Consistent with prior research with children, however, we did observe that there were large individual differences in the amount of information reported. Given this, we wanted to investigate if there were any factors that might predict how effective an interview technique (i.e., Drawing versus Telling) might be for an individual participant.

There were three categories of individual difference factors:
1) Factors associated with the interviewer (i.e., interviewer prompts and minimal responses);

2) The interview duration; and

3) Factors associated with the participant (i.e., the representational quality of their drawings and the answers to the questions about drawing).

To examine the relation between these individual differences and the amount of information that participants reported, we calculated a mean draw score for each participant by collapsing across the amount reported about his or her two draw emotions and a mean tell score by collapsing across the amount reported about his or her two tell emotions. We then used Pearson product-moment correlations, t-tests, and one-way ANOVA’s where appropriate to assess the relation between participants’ draw score, their tell score, and the eleven individual difference factors.

First, we examined individual difference factors associated with the interviewer. In prior research conducted with children, Willcock (2004) showed that, irrespective of the interview condition (Draw or Tell) or the emotional nature of the event (Happy, Sad, or Scared), the number of interviewer turns was related to the amount of information that children reported (see also Gross et al., 2009; Patterson & Hayne, in press). In the present experiment, we examined whether the number of prompts or minimal responses made by the interviewer was related to the total amount of information that was reported by our undergraduate participants.

Consistent with Willcock (2004) and Patterson and Hayne (in press), we found a significant relation between the number of minimal responses made by the interviewer and the amount of information that participants reported in the draw condition, \( r = .33, p < .05 \). That is, the greater the number of minimal responses that the interviewer made during the draw interviews, the greater the amount of information that participants reported during those
interviews. There were no other significant correlations related to the interviewers’ questions (largest $r = .19, \text{ns}$). That is, an increase in the number of interviewer prompts did not increase the amount of information that participants reported.

Next, we examined the relation between interview duration and the amount of information that participants reported. In their research with children, Butler et al. (1995), found that as the length of a memory interview increased, the amount of information that children reported increased as well. In the present experiment, the draw interviews were significantly longer ($M = 5.87 \text{ min}, SE = .36$) than were the tell interviews ($M = 4.24 \text{ min}, SE = .37$), $t(34) = 4.61, p < .01$. Consistent with Butler et al. (1995), for the draw interviews, the amount of information reported increased as the duration of the interview increased, $r = .42, p < .05$. For the tell interviews, on the other hand, there was no significant relation ($r = .26, \text{ns}$).

Finally, we examined individual difference factors that were associated with the participant. Past research with children has shown that when they are interviewed about a particular past experience, the amount of information that they report during that interview is related to the representational quality of the drawings that they produce during that interview (Butler et al., 1995; Gross & Hayne, 1998). Recall that the representational quality of each drawing produced by participants in the present experiment was ranked from best to worst. In contrast to Butler et al., we found no relation between the representational quality of the drawings and the amount of information that participants reported ($r = .10, \text{ns}$).

In the present experiment, we also asked participants a series of 7 questions about their perceived drawing abilities and their attitudes toward the drawing and telling interviews (see Method Section, p.30).

For Questions 1-5, we used a series of $t$-tests to compare the amount of information that participants reported during the drawing interviews or during the tell interviews as a function of whether they had answered yes (“a little” or “a lot”) or no (“not at all” or not much”) to
each question. Table 3 shows the participants’ mean drawing score and mean telling score as a function of each question. Our analysis indicated that the only difference in draw score or tell score occurred when participants were asked whether drawing got in the way of telling. As shown in Table 3, participants who responded “No, drawing didn’t get in the way of telling” reported more information during the drawing interviews than did the participants who responded “Yes, drawing did get in the way of telling.” Moreover, participants who responded “No, drawing didn’t get in the way of telling” also reported more information during the tell interviews than did the participants who responded “Yes, drawing did get in the way of telling.”

Table 3

Participants’ Mean Drawing Score and Mean Telling Score as a Function of Individual Difference Questions 1-5

<table>
<thead>
<tr>
<th>Response Scale</th>
<th>Drawing Score</th>
<th>Tell Score</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Q1. Embarrassed About Drawing?</td>
<td>31.47 (3.42)</td>
<td>34.53 (4.98)</td>
<td>.52</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2. Embarrassed About Telling?</td>
<td>29.85 (3.77)</td>
<td>34.66 (4.06)</td>
<td>.80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q3. Enjoy Drawing?</td>
<td>31.02 (3.08)</td>
<td>36.42 (6.14)</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q4. Art at School?</td>
<td>29.86 (6.12)</td>
<td>34.25 (3.23)</td>
<td>.70</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q5. Drawing Get in Way of Telling?</td>
<td>25.22 (2.00)</td>
<td>47.54 (5.54)</td>
<td>4.61**</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01

In Question 6, we asked participants to indicate how well they thought that they could draw relative to their peers on a 3-point scale (“Better than,” “The same as,” “Worse than”). We used a one-way ANOVA to examine whether participants’ draw score or tell score differed as a function of their perceived drawing ability. This analysis indicated that the better
the participant thought that he or she could draw, the more information that he or she reported
(Better than: $M = 50.20, SE = 12.20$; Same as: $M = 36.70, SE = 8.66$; Worse than: $M = 28.64,
SE = 2.42$), $F(2, 30) = 3.42, p < .05$. Moreover, the better the participant thought that he or
she could draw, the greater the amount of information that he or she reported during the tell
interviews (Better than: $M = 48.60, SE = 11.35$; Same as: $M = 32.30, SE = 7.82$; Worse than:
$M = 25.44, SE = 2.76$), $F(2, 30) = 4.32, p < .05$.

Next, we examined whether participants’ perceived drawing ability related to the actual
representational quality of their drawings. That is, did the participants who thought that they
drew well actually produce drawings of a higher representational quality? To this end, we
conducted a one-way ANOVA to examine whether participants’ drawing representational
quality score differed as a function of their perceived drawing ability. There was no
significant effect, $F(2, 32) = .01, ns$.

Question 7 asked participants to indicate whether drawing was easier than telling on a
3-point scale (“drawing was easier than telling,” “no difference,” or “telling was easier than
drawing”). A one-way ANOVA examining whether participants’ draw score or tell score
differed as a function of whether they found drawing or telling easier was not significant,
(Draw: $F(2, 30) = .78, ns$; Tell: $F(2, 30) = .60, ns$).
Discussion

Summary

Each year, a large number of school leavers make the transition from high school to a tertiary education setting. This transition often involves major changes in living situations, financial conditions, learning environments, and social experiences. Given the magnitude of many of these changes, it is not surprising that mental health issues such as stress, depression, and anxiety are common in the undergraduate student population. It is important for mental health professionals who work in the tertiary environment to understand the kinds of stressors that students face and to develop effective ways of helping students to make their way through this important transition.

The first step in working with students in a clinical setting is to engage them in the therapeutic process. For many, this step will involve in-depth discussion about the kinds of events or experiences that may be causing difficulty. Over the past decade, a number of studies have shown that drawing can be used to facilitate children’s ability to talk about their past emotional experiences (e.g., Gross & Hayne, 1998; LaGreca, 1990; Patterson & Hayne, in press; Pipe, Salmon, & Priestley, 2002; Stafstrom, Rostasy, & Minster, 2002; Weinle, 2002; Wesson & Salmon, 2001). To date, however, researchers have not yet investigated the use of drawing as a tool for eliciting information from adolescents or from adults. The overarching goal of the present experiment was to extend previous research by examining the effect of drawing on undergraduate students’ recounts of their own emotional experiences. Specifically, we investigated whether drawing while talking about an emotional experience would elicit more information in an interview than simply talking about the experience without the aid of drawing.

The results of the present experiment yielded a number of important findings. First, in contrast to prior research with children, drawing did not enhance the amount of information
that participants reported; irrespective of emotion, participants reported the same amount of information when they were given the opportunity to draw as they did when they told without drawing. Second, irrespective of emotion, participants reported significantly more narrative information than they did information about their thoughts and emotions or about objects. Third, irrespective of emotion, interviewers made the same number of prompts whether the participants were drawing or telling. For the angry and proud events, interviewers made the same number of minimal responses when participants were drawing or telling; for the happy and worried events, however, interviewers made a greater number of minimal responses in the draw condition than in the tell condition. Fourth, consistent with prior research with children, the greater the number of minimal responses made by the interviewer in the draw interviews, the greater the amount of information that undergraduate participants reported; there were no other significant correlations related to the interviewer questions. Fifth, consistent with prior research, draw interviews were significantly longer than tell interviews; participants reported more information as the length of the draw interview increased. Sixth, participants reported less information in draw and tell interviews when they perceived that “drawing got in the way of telling.” Seventh, the better that participants thought that they could draw, the more information they reported in the draw interviews; interestingly, they also reported more in the tell interviews as well. Eighth, the representational quality of the participants’ drawings did not affect the amount of information reported and there was no relation between participants’ perception of their drawing abilities and the actual representational quality of their drawings. Last, there was no difference in the amount of information that participants reported irrespective of whether they found drawing or telling to be easier.
Amount Reported

In light of prior research findings (e.g., Gross & Hayne, 1998; LaGreca, 1990; Patterson & Hayne, in press; Pipe, Salmon, & Priestley, 2002; Stafstrom, Rostasy, & Minster, 2002; Weinle, 2002; Wesson & Salmon, 2001), we thought that it was possible that the undergraduate students would also report more information in the draw interviews than in the tell interviews. Contrary to this possibility, however, the participants asked to draw about an event that made them feel happy, angry, worried/nervous, or proud/confident reported the same amount of information as participants who were asked to tell about what happened for those same events. The key question here is why did drawing fail to facilitate the reports of university undergraduates? One possibility is that, given their more sophisticated language and narrative skills, participants of this age (17- to 22-years) may have no longer required the additional scaffold that is provided by drawing. In order to examine this possibility further, the mean amount of information that was reported by the participants in the current experiment and the mean amount of information that was reported by the child participants in prior studies of this kind has been collated and presented in Table 4. In the absence of drawing, the participants in the present experiment reported two to three times more information than did children who were also asked to tell about the same sorts of events in prior research. In fact, the participants in the tell condition in the present experiment reported more information than did children in the draw condition in prior research. Thus, even without the addition of drawing, undergraduates’ reports contained substantially more information than did the reports of children.
Table 4  
The mean amount of information (and standard error) reported by participants in Draw and Tell interviews as a function of age and study

<table>
<thead>
<tr>
<th></th>
<th>Tell</th>
<th>Draw</th>
<th>Age Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butler et al. (1995)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expt 1</td>
<td>8.19</td>
<td>15.75</td>
<td>5- to 6-years</td>
</tr>
<tr>
<td>Expt 2</td>
<td>7.19</td>
<td>14.63</td>
<td>3- to 6-years</td>
</tr>
<tr>
<td>Gross &amp; Hayne (1998)</td>
<td>2.89</td>
<td>8.02</td>
<td>3- to 6-years</td>
</tr>
<tr>
<td>Gross &amp; Hayne (1999)</td>
<td>18.71</td>
<td>25.04</td>
<td>5- to 6-years</td>
</tr>
<tr>
<td>Patterson &amp; Hayne (in press)</td>
<td>15.17</td>
<td>23.16</td>
<td>5- to 12-years</td>
</tr>
<tr>
<td>Current experiment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Happy</td>
<td>31.10</td>
<td>35.63</td>
<td>17- to 22-years</td>
</tr>
<tr>
<td>Proud/confident</td>
<td>27.75</td>
<td>28.47</td>
<td>17- to 22-years</td>
</tr>
<tr>
<td>Angry</td>
<td>29.56</td>
<td>33.05</td>
<td>17- to 22-years</td>
</tr>
<tr>
<td>Worried/Nervous</td>
<td>30.16</td>
<td>35.13</td>
<td>17- to 22-years</td>
</tr>
</tbody>
</table>

In both the draw and tell interviews, participants reported significantly more narrative information (i.e., information about the event and what happened) than they reported information about their own thoughts and emotions or about objects. On one hand, this finding provides additional support for the conclusion that drawing may not be particularly useful in mental health settings with undergraduates. In these settings, one of the key goals of the clinician is to help clients to express and discuss their thoughts and feelings. We found that not only did undergraduates rarely discuss their thoughts and feelings even when they were specifically asked to describe events on the basis of their emotional content, but that the addition of drawing to the interview did not generate additional information of this kind. On the other hand, the fact that most of the information that participants did report pertained to
the details of the event (e.g., who, what, where, and when), drawing may be a useful tool for participants in this age range in legal or forensic settings, where the recall of specific details of an event is often of great importance. This possibility remains to be tested.

*Interviewer Behaviour*

Past studies with children have shown that interviewers use more non-directive prompts (Wesson & Salmon, 2001) and ask more open-ended questions when using the draw technique (Gross et al., 2009; Patterson & Hayne, in press). Given this, the second aim of the present experiment was to examine the effect of drawing on interviewers’ behaviour. In particular, we examined the number of prompts (open-ended questions) and minimal responses (facilitative non-directive prompts) that were made by the interviewer in each condition. In contrast to past studies with children, we found that interviewers used the same number of prompts in both draw and tell interviews for all four emotion events (happy, angry, worried/nervous, or proud/confident). We also found that an increase in the use of interviewer prompts did not increase the amount of information that participants reported. In contrast to prompts, interviewers did use a larger number of minimal responses in the draw interviews for two of the emotions (i.e., worried/nervous and happy events). Consistent with prior research with children, irrespective of emotion, the greater the number of minimal responses made by the interviewer the greater the amount of information that participants reported in the draw interviews.

Why did drawing fail to alter interviewer behaviour to the same degree as it has in prior research with children? Again, one possibility is that given the more sophisticated reporting skills of the undergraduate participants (17-22-year-olds), interviewers may have felt that unnecessary to provide additional support and encouragement through prompting and minimal responses. To explore this idea further, Table 5 shows the mean number of interviewer prompts and minimal responses that were used in the current experiment and the
mean number of interviewer prompts and minimal responses that were used in the Patterson and Hayne (in press) study for which comparable data are available. The data in Table 5 show that overall, the number of interviewer prompts and minimal responses decreases as the age of the participant increases, yet at the same time, the amount of information reported increases. Taken together, the data presented in Tables 4 and 5 support the conclusion that undergraduates may no longer require the additional support provided by extensive interviewer prompting.

Table 5
The mean number of interviewer prompts (and standard error) as a function of participant age and study

<table>
<thead>
<tr>
<th></th>
<th>5- to 6-years*</th>
<th>7- to 8-years*</th>
<th>9- to 10-years*</th>
<th>11- to 12-years*</th>
<th>18- to 24-years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviewer Prompts</td>
<td>7.37 (.36)</td>
<td>7.70 (.34)</td>
<td>5.67 (.32)</td>
<td>5.22 (.35)</td>
<td>5.41 (.13)</td>
</tr>
<tr>
<td>Minimal Responses</td>
<td>11.01 (1.73)</td>
<td>20.92 (1.61)</td>
<td>14.15 (1.51)</td>
<td>22.36 (1.68)</td>
<td>3.76 (.23)</td>
</tr>
</tbody>
</table>

*Results for children aged 5- to 12-years are from Patterson and Hayne (in press).

Consistent with prior research, an increase in the number of minimal responses was associated with an increase in the amount of information reported by university undergraduates. Patterson and Hayne (in press) have suggested that either 1) the interviewer makes more minimal responses in a draw interview which increases the amount of information provided by the participant or, 2) that participants report more information in the draw interview which increases the number of minimal responses used by the interviewer.

Given the correlational nature of the data to date, it is not possible to know which
interpretation is correct. Future studies are required in which the number of minimal responses that interviewers provide are experimentally manipulated in order to understand the direction of this effect.

Reviews of the interview transcripts suggest that interviewer prompts and minimal responses may be utilised differently with participants of different ages. For example, in the present experiment, prompts were utilised with the undergraduates to help move the interview along. Interviewer prompts were used most frequently when there was a lengthy pause in the interview or when the participant indicated that he or she could not think of any new information to add to the recount. Therefore toward the end of the interviews, the frequency of interviewer prompts increased. In turn, however, toward the end of the interviews, the undergraduate participants tended to respond “I can’t think of anything else” or “that’s all” attempting to draw an end to the interview, rather than producing more novel information. Alternatively, studies have shown that children are more likely to continue responding to repeated questioning; therefore they are likely to produce a greater amount of information in response to increased interviewer prompts. While children are likely to report more when interviewers use prompts; the undergraduate students do not require that additional support and consequently prompts do little but help to structure the interview.

*Individual Differences*

In the current experiment we observed large individual differences in the amount of information that participants reported. What factors might contribute to these individual differences? Prior research with children has identified a number of factors that are associated with the amount of information that is reported. For example, Gross and Hayne (1998) and Butler et al. (1995) found a significant relation between the representational quality of the drawings that were produced in the draw interviews and the amount of information that children reported. In addition, Gross and Hayne (1998, 1999) found a
significant correlation between the children’s scores on a Draw-A-Person Test and the amount of information that they reported. On the basis of these findings, the authors concluded that drawing may be a differentially effective tool depending on the individuals’ drawing skills. Given this, the third aim of the present experiment was to investigate if there were any factors that might predict how effective an interview technique might be for an individual undergraduate participant.

In contrast to prior research with children, we found no relation between the actual representational quality of the drawings and the amount of information that participants reported. That is, participants whose drawings were better did not necessarily report more information during the draw interview. Interestingly, we also found that participants’ perceived drawing ability was unrelated to the actual representational quality of the drawings that they produced in the interview. Although children who draw well relative to their peers may recall more information in draw interviews, the same does not apply to undergraduate students.

The development of a positive therapeutic relationship is largely reliant on the attitude of the client toward the clinician and toward the assessment process. Given this, we asked participants a series of questions about their feelings towards drawing and the drawing interviews. The questions posed reflected the participant’s perception of the interview process. First, we found that the undergraduates reported less information in both the draw and tell interviews when they reported that “drawing got in the way of telling.” Second, the better the participant thought that he or she could draw relative to his or her peers, the more information that he or she reported in the draw and tell interviews. These two findings indicate that, although actual drawing ability is not relevant to performance in draw interviews, how the drawing experience is perceived and how well individuals believe that
they can draw is relevant. It is possible that drawing may be a useful tool if individuals are initially screened for an interest in drawing and/or for their perceived drawing ability.

In addition, the participants’ perceived drawing ability was related to the amount reported in both the draw and the tell interviews. One possible interpretation of this finding is that an individual’s perception of their drawing ability is related to their self-confidence or self-esteem. Individuals with higher levels of self-confidence or greater self-esteem may be more likely to report that they could draw better than their peers, which may also contribute to the finding that the representational quality of the drawings was unrelated to participants’ perceptions of drawing ability. Furthermore, individuals who reported greater perceived drawing ability may recall greater amounts in both draw and tell interviews as a result of their higher level of self-confidence and/or self-esteem.

As children age, they become progressively self-conscious about their drawing abilities and increasingly aware of any negative comments made and misinterpretations of their drawings (Malchiodi, 1998). As a result, adolescents may often be reluctant and embarrassed about drawing, which may interfere with recall if they are given the opportunity to draw in an interview. In the present experiment, we asked participants to indicate whether drawing was easier than telling, whether they were embarrassed about drawing and whether they were embarrassed about telling. Overall there were no significant findings in response to these questions, which suggested that undergraduates’ recall of emotional experiences was not adversely affected by the draw or tell conditions and that they did not significantly prefer one interview condition over the other. Clearly the undergraduate students were not embarrassed about drawing to the extent that it affected their interview performance in draw interviews.

Past research with children has found that draw interviews tend to be longer than tell interviews, and that the amount of information reported increases as the duration of the
interviews increases (Butler et al., 1995). Consistent with past findings, in the current experiment, the draw interviews were significantly longer than were the tell interviews; and for the draw interviews, the amount of information reported increased as the duration of the interview increased. In order to evaluate the length of the present interviews relative to the length of prior interviews with children, we compared the duration of the interviews in the current experiment with those conducted in the Butler et al. (1995) study with 3- to 6-year-old children (see Table 6). As shown in Table 6, overall, the draw interviews were significantly longer than the tell interviews, but this difference was much smaller in the undergraduate sample than it was in the sample of younger participants. In addition, the mean length of the tell interviews in the present experiment was much longer than in Butler et al. (1995). These observations lend further support to the general hypothesis that, even without the aid of drawing, adolescents are more able to engage in the interview process.

Clinical Implications of Duration Findings

What are the implications of this finding for mental health settings? The current findings suggest that using drawing with undergraduate students resulted in slightly longer interviews, without producing more information. In some real-world settings where the recall of information, often under time constraint, is the highest priority, the use of draw interviews with 17-22-year-olds would not be worthwhile. However, in mental health settings, the development of the therapeutic relationship and the engagement of the individual is one of the highest priorities. Therefore, for some individuals for whom the recall of information is not the focus of an interview, using a technique (i.e., drawing) that would help to prolong the duration of an interview, providing more opportunity for the development of a collaborative alliance between the therapist and the client, might be beneficial. In particular for clients who are reluctant to spend much time at all in face-to-face contact with a clinician, any additional time spent in an interview could be helpful. In addition, in draw interviews, the interviewee
must focus on two activities at once (drawing and telling), which may be beneficial for those who find face-to-face interviews with clinicians off-putting or too intense. However, given the relatively small difference in duration between draw and tell interviews, for the majority of individuals that engage in mental health settings, the use of draw interviews purely to increase the length of the interview is probably not worthwhile.

It is important to keep in mind though, that the majority of participants in the current study were likely to have had experiences of mostly transient negative emotions, rather than longer term emotional instability. Therefore, further research should be conducted in mental health settings, where individuals likely experience longer-term emotional instability, before the utility of drawing in emotional recall is dismissed altogether.

Table 6
Estimated mean interview durations (minutes) for 5- to 6-year-old participants in the Butler et al. (1995) study and the actual mean interview durations (minutes) for undergraduate students in the current experiment (averaged across the four emotions).

<table>
<thead>
<tr>
<th></th>
<th>Tell</th>
<th>Draw</th>
<th>Age Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butler et al. (1995)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Recall</td>
<td>.90</td>
<td>4.50</td>
<td>5- to 6-years</td>
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<tr>
<td>Directed Recall</td>
<td>1.10</td>
<td>5.45</td>
<td>5- to 6-years</td>
</tr>
<tr>
<td>Current experiment</td>
<td>4.24</td>
<td>5.87</td>
<td>17- to 22-years</td>
</tr>
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</table>

At the beginning of this thesis, we outlined some of the major life changes that face undergraduate students during their transition from secondary to tertiary education and the growing concern regarding the psychological problems that undergraduate students experience during their transition. In the present experiment, participants were not only asked to describe their own emotional experiences, but they were also asked “what types of things make people your age feel angry [worried, happy, etc]?”. We found that across the four
emotions, the majority of events described by the participants were related to their transition to university (e.g., exams, tests, assignments, friendships, living situations, new jobs).

These findings are highly consistent with reports from Hashim (2003), Olpin (1996), and Tyrrell (1992) that one of the primary stressors that students experience stress as undergraduates is academic-related. This is not surprising given that, during the transition to tertiary study, students experience a new learning environment which includes new terminology, new styles and paces of teaching and of learning, increased volume of reading, and an increased need for time management (Kantanis, 2000). As a result, individuals often experience stress in regard to their grades, academic standards, and time management which often leads to growing concerns about their academic ability and fears of falling behind in their coursework. Of concern is the potential that high levels of stress will increase psychological distress and interfere with aspects of students daily functioning, their overall academic performance, and consequently their general tertiary experience.

Although talking about negative emotions and experiences is often a focus in clinical settings, it is also important to talk about and include positive emotions and experiences. Talking about positive emotions can reveal whether an individual is experiencing age-typical pleasant events in their life, which if not, could then be a target for intervention. Encouraging talk about positive emotions may also reveal aspects of an individual’s personality, which is useful in a therapeutic setting, such as self-esteem, self-confidence, and styles of thinking (for example; optimistic versus pessimistic). Furthermore, although most students experience stressors at some point in time, these do not always result in major problems. The participants in the current experiment described positive events that represented the types of things that make a typical undergraduate student feel proud or confident and happy. Individuals most commonly reported positive events relating to friendships, the adjustment to university life, and to academia.
The positive events typically reported by the participants in the current experiment, were similar to those associated with decreasing levels of internalising problem behaviours in past research. For example, in a study of freshman college students, Pittman and Richmond (2008) examined university belonging, relationships with friends, self competence, and problem behaviours. They reported that a sense of belonging at university was linked to students’ positive self perceptions, social acceptance, and academic competence. Students who had positive changes in their sense of belonging and who made quality friendships had decreasing levels of internalising problem behaviours over time. Therefore, talking about what makes an individual feel proud/confident or happy may help ascertain how well an individual is adjusting to tertiary life.

Deviating away from a negative focus in clinical sessions, to talking about positive experiences, also may provide relief for the client, facilitating the development of a therapeutic bond or alliance. Adolescents are typically a difficult group of individuals to work with in mental health settings. Often someone else has made the decision that the adolescent would benefit from engagement with a clinician, and many adolescents perceive a stigma attached to mental health services. As a result, the development of a therapeutic alliance is one of the most important parts of therapy with adolescents; the better the therapeutic alliance, the better the outcome for the adolescent. Overall, the results of the current experiment found no evidence to support drawing as a useful tool for extracting more information from undergraduates in interviews. However, drawing also did not reduce the amount of information that participants reported; therefore, perhaps in some contexts, drawing may have advantages, for example facilitating the development of the therapeutic alliance in a clinical setting.
Future Directions

The findings in the current experiment were based in a non-clinical population of undergraduate students. In addition, recall that in the transitional year of tertiary education, the levels of psychological distress are at their highest, which then declines in subsequent years for most students (Sher, Wood, & Gotham, 1996). However, there are a number of students for whom high levels of psychological distress are pervasive and do not decrease over time. It is likely that undergraduate individuals experiencing a mental illness have similar positive and negative emotional experiences to the general undergraduate population. For individuals in the clinical population, however, stressors may be experienced more intensely, coped with less efficiently, and positive emotions may be experienced less frequently. It would be useful in future studies to investigate the emotions and stressors faced by undergraduate students over time during their transition to tertiary life, and to differentiate between the experiences of those for whom high levels of psychological distress remains pervasive and those for whom it decreases over time.

In the current experiment the use of drawing did not appear to facilitate or reduce the expression of emotion when recalling past emotional events or experiences in the non-clinical undergraduate population. In a clinical mental health setting, the emotional experiences being described are often ongoing and are experienced more intensely than in an experimental setting. Therefore it would be useful in future studies to include participants who, at the time of participation, are experiencing stress or distress relating to the transition to tertiary institution (for example, prior to exams). These studies would provide the opportunity to compare the development of rapport and the content of participants’ emotional reports in the draw versus tell interviews, to determine whether the use of drawing may have a place in the assessment of adolescents in clinical settings.
Conclusion

Each year, more than 30% of the 18-24-year-olds in New Zealand enrol in tertiary institutions, many of them beginning a transition from secondary to tertiary education. This period of transition is full of changes, many of which are viewed positively by the students such as meeting new people and gaining independence. Despite the many positive experiences that arise, the period of transition can also be a difficult time for many, as students are required to adapt to new living arrangements, styles of teaching, and major changes to their lifestyles. The overarching goal of the present research was to examine some of the positive and negative emotions that students experience during their transition to University and the effect of drawing in eliciting information on those emotions. There were a wide range of events described by participants in the current experiment. Of particular interest, when participants were asked to describe a time they felt worried/nervous, a large majority reported an event relating to academia (for example; assignments, tests, and exams). In addition, when asked to describe a time that they felt proud/confident, 50% reported an event relating to academia. This finding was consistent with past findings (e.g., Hashim, 2003; Olpin, 1996; Tyrrell, 1992) that the academic aspects are one of the major stressors that occur during the transition to a tertiary institution. Brackney and Karabenick (1995) reported that tertiary students with higher levels of psychological distress have higher test anxiety, less self-efficacy, less effective time management, and less effective use of academic resources. In addition, these findings suggest that an individual’s academic success during the transition to university contributes to their sense of self-value and self-competence (feeling proud and confident). Furthermore, Pittman and Richmond (2008) reported that a sense of belonging at university is associated with both positive self-perceptions and academic competence.

In the transitional year of tertiary education, the levels of psychological distress associated with reported stressors (academic, financial, social etc.) are generally at their
highest, which then declines in subsequent years for most students (Sher, Wood, & Gotham, 1996). For a number of students, these high levels of psychological distress are pervasive and do not decrease over time. Therefore it is essential to support individuals undergoing the transition to tertiary institutions and for effective assessments and treatments to be given to them. The first step in doing so is effective engagement in assessment and through the development of the therapeutic alliance. It is often difficult to initiate the development of a therapeutic alliance with young adults as they are often reluctant to engage in mental health services. Providing undergraduate students the opportunity to draw during an interview may prolong the duration of a session, thus providing greater opportunities for the development of a collaborative alliance between the therapist and a client that is reluctant to attend.

Furthermore, drawing and telling in interviews may be beneficial in a clinical setting for undergraduates who find face-to-face interviews with clinicians uncomfortable and off-putting.
References


Kazantzis, N., & Flett, R. (1998). Family cohesion and age as determinants of homesickness in


Appendix A1

Analysis of Variance Table for Participant Behaviour as a Function of Emotion

<table>
<thead>
<tr>
<th></th>
<th>Happy</th>
<th>Angry</th>
<th>Worried</th>
<th>Proud</th>
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<tr>
<td></td>
<td>df</td>
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<tr>
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<td>.08</td>
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<td>Error</td>
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Note. Values enclosed in brackets represent mean square errors.

*p < .05. **p < .01.
### Appendix A2

Analysis of Variance Table for Interviewer Behaviour as a Function of Emotion

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<th>Worried</th>
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Note. Values enclosed in brackets represent mean square errors.

* $p < .05$. ** $p < .01$. 