

Academic procrastination: the role of stress, self-esteem, self-
efficacy, age and gender on undergraduate students

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DECLARATION

'I declare that this thesis that I have submitted to Dublin Business School for the award of BA (Hons) Psychology is the result of my own investigations, except where otherwise stated, where it is clearly acknowledged by references. Furthermore, this work has not been submitted for any other degree.'

Signed: Wendy Quinn
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ABSTRACT

The purpose of this quantitative mixed design study was to examine academic procrastination and the role of stress, self-efficacy, self-esteem, age, gender and hours worked. The convenience sample of full- and part-time undergraduate students (n=129) selected from different courses, both males (n=59) and females (n=70) aged 18-41+, completed a self-report questionnaire comprising of The General Procrastination Scale (Lay, C, 1986); The Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983); General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995) and Rosenberg Self-Esteem Scale (Rosenberg, 1965). Analyses revealed stress was positively related and self-efficacy negatively related to procrastination. No relationship between self-esteem and procrastination was found. There was a difference between self-esteem across age groups, specifically among the age group 33-41. Findings showed no differences between procrastination, gender and hours worked, or between stress among full- and part-time students. Implications of the current study were discussed along with suggestions for future remediation of procrastination.

INTRODUCTION

Academic procrastination is widespread and troubling, affecting up to 90% of the student population, which can adversely affect performance and well-being (Balkis & Duru, 2017; Steel, 2007). According to the Health Education Authority (HEA, 2017), six percent of the Irish population are participating in higher education, the majority of which are undergraduates. Overall student numbers increased by 10% over the past five years, with 80% in full-time education, 17% part-time and 3% remote (distance learning or online). The percentage of females in full-time undergraduate courses is greater than males at 51% to 49%, yet more males are enrolled part-time at 57% to 43% (HEA, 2017).

Stress among university students is prevalent for a myriad of reasons including the transitional nature of college life, the academic pressures, homesickness, peer pressure, social pressure, conflict among peers, high expectations, coping difficulties and financial worries (Hamaideh, 2011). Stress can negatively affect one's health and well-being but can also have a negative impact on academic achievement (Hamaideh, 2011). Given the prevalence and negative impact of stress in university students, research into the role of stress in this population is hugely important and much-needed. This importance is highlighted by the recent launch of a large study, with 15,000 12-25 year-old participants, into mental health in adolescent and college students, by Jigsaw and University College Dublin (UCD, 2018), which is the largest ever study on mental health (Dooley & Fitzgerald, 2012). Little is known about the specific associations of stress, self-efficacy and self-esteem with academic procrastination along with the effects of age and gender. This study aims to support previous findings in this highly relevant area, while also presenting new research to provide a greater understanding for future studies along with possible interventions to prevent or decrease academic procrastination.

Academic Procrastination

Procrastination, or putting things off, is such a regular occurrence that it may be viewed as a natural human phenomenon; however, everyone procrastinates but not everyone is a procrastinator (Ferrari, 2001). Procrastination can be problematic and complex, presenting itself in many ways, and because of cognitive, emotional and behavioural factors, procrastination comes in different forms; decisional, neurotic, compulsive, with the most common being academic (Ghadampour, Veiskarami & Vejdandarast, 2017). Academic procrastination is a common feature in college life and affects 80-90% of the student population, becoming a real concern for 50% (Balkis & Duru, 2017; Steel, 2007). Academic procrastination is the deliberate delay of tasks and assignments, which can cause a negative impact on performance and quality of life (Raben, Fogel & Nutter-Upham, 2010) even resulting in college drop-outs (Wesley, 1994). However, procrastination has also been reported as beneficial for some students working under pressure who consciously choose to procrastinate (Choo & Choi, 2005). Brinthaupt and Shin (2001) reported some procrastinators tend to cram before an exam and perform better than 'non-crammers'. Yet other research claims that procrastinators score lower than non-procrastinators, perhaps not fully considering the time involved in getting tasks done or using that time for something more pleasurable (Bender, Clifford & Tschlas, 2007).

Much literature has been written about students regarding employment outside college and its negative impact on college performance (Steinberg, Fegley, & Dornbusch, 1993; Salamonson and Andrew, 2006). The HEA (2017) reported that 54% of students in Ireland work outside of college and would prefer more time to devote to their studies. However, employment was deemed necessary, as 39% of part-time students felt that they didn't have enough income to cover their monthly expenses (HEA, 2017). §

While

there is substantial research on employment and academic performance, there is a dearth in literature regarding the effects of employment on academic procrastination, establishing the relevance of the current study.

Hussain and Sultan (2010), conducted an analysis of procrastination among 500 university students. The results indicate that many factors contribute to procrastination, such as illness, family problems, lack of guidance or negative attitudes from teachers, lack of coordination and academic stress, leading to negative effects on students (Hussain & Sultan, 2010). In turn, procrastination resulted in failure of exams, or fear of exams, lower morale and contributed to inferiority complexes as well as habits such as smoking, drinking and taking sleeping tablets, which have a detrimental effect on mental health and well-being (Hussain & Sultan, 2010). The authors suggested that academic procrastination could be reduced by providing guidance and counselling at universities, positive feedback on assignments and creating healthy relationships between students and lecturers (Hussain & Sultan, 2010). However, this study was more situational and did not examine the roles of personality traits such as self-esteem and self-efficacy, which, according to Steel (2007), are fundamental to comprehending why procrastination occurs and how to prevent it. Procrastination is negatively related to self-efficacy and self-esteem and positively related with stress (Ferrari, O'Callaghan, & Newbegin, 2005). While other research has separately examined and supported the hypothesis that stress, self-esteem and self-efficacy have been influencers of academic procrastination, no research has studied the correlation of these variables together in Irish undergraduate students or in any other population. Therefore, this study shall open up this area of research by examining academic procrastination and the role of stress, self-esteem and self-efficacy in addition to age and gender in an undergraduate student population.

Stress

Stress can be defined as *'experiencing events that are perceived as endangering one's physical or psychological well-being'* (Atkinson, Atkinson, Smith, Bem & Nolen-Hoeksema, 1996, p.503); and *'coping'* is the undertaking of dealing with stress through a person's cognitive and behavioural efforts (Atkinson et al., 1996, p.503). It is important to note that the level of stress depends on an individual's perception and evaluation of the stressor as people react differently to different situations (Deniz, 2006). While college can be new and exciting, several factors contribute to stress among students, which include creating a future career plan, financial worries, interpersonal relationships, intimate relationships, goal setting and personal achievement, along with personal appearance, changes in sleep and eating habits and increased workloads (Holinka, 2015).

Academic stress has been found to have a negative impact on undergraduate performance (Zajacova et al, 2005). Chronic stress can lead to detrimental health issues such as heart and gastrointestinal problems, fatigue, eating disorders and depression (Holinka, 2015). Tice and Baumeister (1997), argue that undergraduate procrastinators encounter less stress and illness than non-procrastinators early in the academic term and increased stress and anxiety later on, with the result that the amount of stress suffered by both groups is similar over the academic term. According to Tice and Baumeister (1997), procrastinators question what difference it makes if the work is done sooner or later, as the result will be the same. Moreover, Tice and Baumeister (1997) suggest that procrastinators may suffer less as their stress is condensed into a shorter time. The possible benefits of procrastination are that the pressure of an upcoming deadline can contribute to excitement and be a motivating factor in achieving results and improving overall performance; whereas the negative effects of procrastination can increase

stress and result in reduced effort being made on an assignment or task (Tice & Baumeister, 1997).

Eustress is the term given to stress when it acts as a motivating force and creates positive feelings, good health and performance (Selye, 1976); yet, it is argued that when stress increases above a certain threshold, performance declines. This is evident in the effects of cortisol, a stress hormone, over time, as it initially provides an energy boost but can weaken the immune system and negatively affect health and well-being when released over a sustained period (Spielman, 2014, p.491). However, learning appropriate coping strategies along with recognising stressors can benefit individuals with managing stress levels (Spielman, 2014, p.534). With stress affecting so many areas in students' lives including performance, the current study shall further examine the relationship between it and procrastination along with self-efficacy, which is another important variable that influences decision making.

Stress among full- and part-time students

Regarding higher education, expectations vary between full- and part-time students, with part-time students' focus being on personal learning and career goals (Forbus, Newbold, Mehta, Sanjay, 2011). More mature students usually fall under the category of part-time students and exhibit a more serious attitude to college workload along with different levels of stress and different coping skills than full-time students (Forbus et al., 2011). While full-time students tend to participate more in college life and activities, part-time students have increased stress levels; they tend to be busier with family, increased working hours, yet

surprisingly achieve higher academic success (Forbus et al., 2011). Part-time students also showed better time management than full time students, who displayed passive coping strategies by skipping class more and leaving assignments undone (Nonis & Hudson, 2006).

Self-efficacy

According to Steel (2007), self-efficacy plays an important role in procrastination and is a vital part in the self-motivation of an individual (Bandura & Cervone, 1983). The self-efficacy theory (Bandura, 1977), maintains that our beliefs about ourselves strongly influence our choice of task, effort, persistence and performance. Self-efficacy is not only critical in determining choices people make but also in choosing the input of energy and effort needed to bring the task to fruition (Bandura & Cervone, 1983). Once sufficient levels of motivation and ability exist, it is self-efficacy that affects the beginning of, and following through on, a task (Bandura & Adams, 1977). Low self-efficacy can lead to avoidance of a behaviour or assignment and cause high anxiety during the task whereas high self-efficacy can be linked with activation and persistence of the behaviour (Bandura & Adams, 1977). When students believe they have more control over their learning and academic goals, they are more likely to succeed (Bandura, 1997). This perceived academic self-efficacy, which is grounded in the self-efficacy theory (Bandura, 1997), allows students to get through any academic challenges. Alternatively, students with low academic self-efficacy will not strive to achieve their goals if they feel they are not achievable and will have less incentive to do so (Bandura, 1997). Academic self-efficacy has been recognised as having a direct impact on students' performance and achievement, as it directly affects the choices they are making because of their beliefs about their abilities (Sharma & Nasa, 2014). Self-efficacy beliefs are very relevant for comprehending academic outcomes, as they have a strong influence on students' commitment, confidence in achieving, learning, persistence, analytical thinking, use of strategies and coping

skills needed to deal with negative emotions in their academic environment (Sharma & Nasa, 2014).

Those with high self-efficacy have a higher belief in mastering assignments and focus on more positive outcomes (Chu & Choi, 2005), yet it is a highly complex human conduct comprised of affective, cognitive and behavioural components that cannot be encapsulated easily. Wang, Kien, Wan and Chen (2011) found self-efficacy can be improved by taking certain steps that will increase performance, which will, in turn, reduce procrastination. The current study shall augment understanding of the correlation between self-efficacy and procrastination, along with examining another highly relevant variable: self-esteem.

Self-esteem

People with high self-esteem have greater belief in their capabilities and use effective strategies for completing tasks (Coffman & Gilligan, 2002). Self-esteem is an approving or non-approving attitude towards oneself, a globalised self-worth. Improving self-esteem in students has a positive effect on academic performance (Rosenberg et al, 1995). Much research has explained the essence of procrastination (Duru & Balkus, 2017; Steel, 2007); some researchers posit that procrastination is a strategy of self-protection in case of potential failure (Burka & Yuen, 2008; Duru & Balkus, 2017). Previous studies found that procrastination predicts self-esteem, i.e. as procrastination increases self-esteem levels decrease and this has a negative effect on well-being and mental health (Duru & Balkus, 2014). Burka and Yuen (2008, p.131) believe procrastinators assume that their accomplishment is an indication of their self-worth. According to Burka and Yuen (2008, p.131), procrastination can develop because of poor parenting during childhood. A distant family atmosphere or a suspicious, controlling or repressive family life can all contribute to procrastination and reinforce dependence (Burka

& Yuen, 2008, p.131). Children brought up in this kind of environment may seek approval from others, and they may try to get things right in order to feel appreciated. This striving for perfection may turn into a fear of failure (Burka & Yuen, 2008, p.135). Therefore, how one feels about oneself is evaluated by success or failure; when one is unhappy with his/her performance he/she may internalise the failure of the job or task as being a failure as a person (Duru & Balkis, 2017). Fear of failure has been associated with low self-efficacy in situations where people question their ability to perform or achieve because of irrational beliefs and low self-esteem, or where people believe they are inadequate unless they perform or achieve results (Steel, 2007). Research has indicated that self-esteem is negatively correlated to procrastination; and, consequently, increasing self-esteem significantly reduces procrastination and fear of failure (Duru & Balkis, 2017). A study (Hajoo, 2014) with 140 undergraduate students found that self-esteem influences procrastination, suggesting low self-esteem results in a tendency to put off or avoid tasks leading to poor performance and negative results. Therefore, raising self-esteem may lead to more positive outcomes. The study also highlighted that self-efficacy is a predictor of self-esteem (Hajoo, 2014). Those with high self-efficacy tend to have high-self-esteem and those with low self-efficacy usually have low self-esteem, rather than self-esteem predicting self-efficacy. The research by Hajloo (2014) is one of the first to investigate the intermediary effect of self-esteem in regard to the correlation between self-efficacy and procrastination. The current study can research this further, in order to increase the understanding of the relationship between these variables. Research evidence can be conflicting when it comes to age and gender in relation to procrastination.

Age and procrastination

According to Raben and colleagues (2010), increased age is a significant predictor of procrastination, which differs to other findings that reported individuals procrastinate less as

they get older (Steel, 2007; Eerde, 2003). However, Jurado and Rosselli (2007) believe procrastination is more prevalent in younger people because the prefrontal cortex, a brain region heavily implicated in self-control, is not yet fully developed (Jurado & Rosselli, 2007). Chu and Choi (2005) proposed that there are two types of procrastination: active procrastination, which may not have a negative effect on an individual's effectiveness and passive procrastination, where the individual experiences negative emotions while completing a task. Age differences in these two types of procrastination have been reported, with younger students tending to engage more in active procrastination, whereas older students were more involved in passive procrastination (Chu & Choi, 2005). Active procrastinators are more aware of time management and have increased coping skills, being able to work better under pressure, whereas passive procrastinators are lacking these tools (Chu & Choi, 2005). Overall, however, Chu and Choi (2005) reported that age was positively correlated with procrastination. This was supported by Raben and colleagues (2010), who found levels of procrastination increase with age. Nonetheless, as outlined, research regarding the relationship between age and procrastination is conflicting, and as such, the current study will explore this relationship further either to clarify past research or highlight new information. The current study will also examine whether levels of stress, self-efficacy and self-esteem are impacted by age.

Age and stress, self-efficacy and self-esteem

Research is mixed when it comes to age and stress (Diehl & Hay, 2010), with some literature suggesting older adults have more impulse control and therefore cope better with stressors than the younger population (Charles, 2010, Lawton, 1996), whereas other research posits a stronger relationship between stress and 'negative effect' among older people (Mroczek & Almeida, 2004). Regarding age and self-efficacy, Bandura (1997) insisted the more experience one has, the higher the belief becomes in their capabilities. However, mature

students are often going back to college after a gap in studies, which can bring up self-doubt, challenging their belief in their own ability, because they feel out of touch (Lee, 2017). There seems to be a gap in research regarding the influence of age on self-esteem, with recent research showing a moderate increase in self-esteem from adolescence to midlife and then a decline in older age (Orth, Trzesniewski & Robins, 2010), with young adults presenting lower self-esteem compared to middle-aged adults, although other variables such as relationships, life events and health all contribute to levels of self-esteem (Orth et al., 2010). Research is mixed regarding gender and procrastination.

Gender

Research has been inconsistent when it comes to the relationship between gender and procrastination (Pychyl, Coplan & Reid, 2002; Ferrari, 2001). Some studies did not find a significant relationship (Sirin, 2011), others argued that males are at a greater risk of procrastination (Steel, 2007, Steel & Ferrari, 2012) while different studies found females are more prone to procrastination (Washington, 2004). Balkis and Duru (2017) reported that in a cohort of 441 undergraduate students, males with lower academic performance suffered higher levels of procrastination and vice versa with the females. Not only did this research confirm that higher levels of procrastination have a negative effect on performance (Steel, 2007; Kim & Seo, 2015) but it also indicated that males are more vulnerable to academic procrastination. This research stated time management, prioritising and creating systematic study and work habits as basic requirements for academic achievement (Steel, 2007; Kim & Seo, 2015). Previous research has found that male students have weaker study habits, poorer time management, less motivation and self-discipline, which may lead to cramming and increase the putting off of assignments along with engaging in more self-sabotage behaviour (Cross, Copping, & Campbell, 2011). This information can be very relevant for future interventions

such as counselling or self-help programmes to specifically target males. The current study will aim to add further insight or support previous findings into the differences in gender and procrastination along with examining the impact of hours worked outside of college and academic procrastination.

Aim of Research

As academic procrastination has been shown to negatively impact performance and life quality, the extent of academic procrastination is worrying (Raben et al, 2011). Furthermore, research is conflicting as some authors have reported positive effects of procrastination (Tice and Baumeister, 1997; Brinthaupt & Shin, 2001). As such, there is a need to clarify the relationship between academic procrastination and mental health, along with the increasing student population. Potential factors have been identified but they have yet to be explored in combination and especially within an undergraduate population. The purpose of this study is to further examine the relationship between academic procrastination and stress, self-efficacy, self-esteem, age, gender, along with the number of hours worked outside college in a cohort of DBS undergraduate students. A greater understanding of the factors influencing procrastination can clarify the need for, and targets of, possible interventions aimed at reducing academic procrastination. The study will be guided by the following research question: Is there a relationship between stress, self-esteem and self-efficacy and levels of academic procrastination and is there a difference in levels of procrastination across age, gender and number of hours worked? With the above variables in mind, this study aims to hypothesise the following:

Hypotheses:

H1: Stress, self-efficacy and self-esteem will significantly predict procrastination among undergraduate students.

H2: There will be a significant difference on levels of procrastination across different age groups (18-25, 26-33, 34-41, 42+)

H3: There will be a significant difference between males and females regarding academic procrastination.

H4: There will be a significant difference in stress across full-time and part-time students.

H5: There will be a significant difference in stress, self-efficacy and self-esteem across the different age groups.

H6: There will be a significant difference in levels of procrastination across the number of hours worked outside college.

METHODOLOGY

Participants

Participants were accessed through convenience sampling. 141 full- and part-time undergraduate students were selected from Business, Finance, Law, Film and Psychology at Dublin Business School (DBS), with 12 participants excluded from statistical analysis due to missing data. An email requiring permission to approach students with a paper and pen questionnaire was sought from the students' lecturers in advance, stating details of the study and the completion time. The 'paper and pen' approach was chosen instead of an online survey in order to maximise the response rate to the survey. Past research was reviewed as well as the Cohen Table (Cohen, 1988) for medium effect and medium sample size, with the margin of error being .05% and confidence level at 95%. The sample consisted of 46% males (n=59) and 54% females (n=70), 58% part-time (n=75) and 42% (n=54) full-time students, with ages ranging from 18 to over 40. 43% were aged 18-24, 36% aged 25-32, 17% aged 33-41 and 4% over the age of 42. 86% of participants were working outside college (n=111) and 14 % (n=18) were not working. Participation was voluntary with no incentive to take part in the study.

Design

This questionnaire-based study used a quantitative mixed design consisting of a correlational and cross-sectional survey. Convenience sampling was used to measure the relationship of the predictor variables - stress, self-efficacy and self-esteem, with the criterion variable of academic procrastination (Hypothesis 1). The cross-sectional piece examined age, gender, full/part-time students and number of hours worked outside of college, as the independent variables and academic procrastination and stress as the dependant variables (Hypothesis 2-6).

Materials / Apparatus

All participants received a booklet containing an informed consent and information sheet (see appendix A); a brief demographic questionnaire, which was comprised of questions on participants' age, gender, student status (i.e. full- or part-time), course of study, work status (working outside of college or not working) and hours of work (see appendix B); four self-report questionnaires: The General Procrastination Scale – For Student Populations (GPS; Lay, C, 1986, see appendix C); The Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983, see appendix D); General Self-Efficacy Scale (GSE; Schwarzer & Jerusalem, 1995, see appendix E); Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965, see appendix F); as well as a separate debrief page (See appendix G).

General Procrastination Scale – For Student Populations

The GPS measures procrastination as a personality trait. It is a 20-item scale scored on a 5-point Likert scale, ranging from 1 = 'extremely uncharacteristic' to 5 = 'extremely characteristic'. The GPS is designed to measure academic and general procrastination, with academic statements such as 'I usually start an assignment shortly after it is assigned' and general statements such as 'I usually make decisions as soon as possible'. Participants were requested to consider how each statement best describes themselves, whether it is uncharacteristic or characteristic. There are 10 reverse scores in the GPS: 3, 4, 6, 8, 11, 13, 14, 15, 18 and 20, which are recoded 1 = 5, 2 = 4, 3 = 3. The total scores are calculated with the highest scores demonstrating the highest level of procrastination. This scale shows good internal consistency reporting Cronbach's Alpha of 0.82 (Lay, 1986; Shouwenberg, 1995) and good stability with test-retest reliability of 0.8 (Lay, 1986). This measure can be viewed in appendix C. The Cronbach's Alpha for the present study was .85.

Perceived Stress Scale

The PSS was used to measure levels of psychological stress that the students experienced over the past month. The items were designed to determine how overloaded, unpredictable or uncontrollable students find themselves to be (Cohen et al, 1983). A 10-item scale (PSS-10) scored on a 5-point Likert scale ranging from 0 = 'Never' to 4 = 'Very Often'. Items included questions such as 'In the last month, how often have you felt nervous and stressed?'. Participants were asked to answer each question according to which scale was most applicable. PSS scores are calculated by reversing the scores for questions 4, 5, 7 and 8, then changing the scores as 0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0, then the scale items are added up. Scores ranged from 0-40, with scores ranging from 27-40 being the greatest level of perceived stress and 0-13 would be considered low stress. The PSS-10 revealed good reliability with Cronbach's alpha value ranging from 0.84 - 0.88 (Cohen et al, 1983). Compared to other scales, the PSS demonstrated a better predictor of health and health-related outcomes; however, the predictor validity reduces 4-6 weeks later, as it was only designed to measure stress occurring in the last month (Cohen et al, 1983). This measure is presented in appendix D. Cronbach's alpha in the present study was 0.86.

General Self-Efficacy Scale

The GSES measures self-efficacy, how individuals cope with day-to-day challenging situations and the inner belief that successful outcomes are a result of one's own actions (Del Las Cuevas & Penate, 2015). Each of the 10-item scales measure perceived self-efficacy by using positive coping statements of success and require the participant to answer which statement is most applicable to them on a 4-point Likert type Scale: 1 = 'not at all true', 2 = 'hardly true', 3 = 'moderately true', 4 = 'exactly true'. An example of one statement in the GSES is, 'It is easy for me to stick to my aims and accomplish my goals'. The total scores were

calculated and ranged from 10 to 40, with 40 being the highest level of perceived self-efficacy. The GSES has proven to be reliable and homogenous with a Cronbach's alpha between 0.76 and 0.90 (Scholz, Doña, Sud & Schwarzer, 2002). Criteria-related validity has been strongly supported and found to be correlated with emotion, work satisfaction, optimism with negative coefficients for stress, depression, health issues and anxiety (Schwarzer & Jerusalem, 1995, Del Las Cuevas & Penate, 2015). This measure is provided in appendix E. Cronbach's alpha in the current study was 0.82.

Rosenberg Self-Esteem Scale

The RSES is a 10-item scale that measures levels of self-esteem using a 4-point Likert scale system designed to measure self-esteem, originally designed for school students, but redeveloped to assess all ages of participants. The 10 items include positive statements such as, 'On the whole, I am satisfied with myself' and some negative statements: 'All in all, I am inclined to feel a failure'. Participants were required to answer these items on a scale from 1 = 'strongly agree' to 4 = 'strongly disagree'. The items were recoded (1, 3, 4, 7 and 10) and all the items were then calculated with the higher score meaning higher levels of self-esteem. Total scores range from 10-50, with 50 indicating highest possible levels of self-esteem. The RSES demonstrates good test-retest reliability with coefficients from 0.82 - 0.85 and good criterion validity of 0.55 (Rosenberg, M., 1965). Various independent studies were carried out using samples such as parents, males over 60, civil servants and high school students, showing alpha coefficients ranging from 0.72 to 0.87. Following a 2-week interval, the test-retest reliability scored 0.85 and the 7-month interval was calculated at 0.63 (Silber & Tippett, 1965, Shorkey & Whiteman, 1978). The RSES is closely related with the Coopersmith Self-Esteem Inventory (1967). This measure is displayed in appendix F. The Cronbach's alpha for the current study is 0.88.

Debriefing sheet

This sheet contained a short message to thank participants for taking part in the survey as well as contact details of support services, the researcher and supervisor's name and email. The debrief page was separate for participants to keep.

Apparatus

IBM SPSS Statistics version 25 was used for statistical analysis.

Procedure

Ethical approval from DBS ethical committee was required before research could commence (see below). A presentation, describing the study and purpose of the research was made to participants at the beginning of lectures. Students were told that participation was voluntary and approximately how long the survey would take to fill in. Participants who agreed to participate were then handed the survey booklet. The order of the survey remained the same for everyone taking part. Firstly, students were instructed to complete the consent form, followed by the demographics questionnaire and then the 4 scales. Upon completion of the survey, participants were instructed to raise their hand, so the researcher could collect their questionnaire. Participants were then handed the debriefing sheet, asked if they had any questions and thanked for their participation. The survey took between 8 and 15 minutes for participants to complete.

Ethics

Ethical approval was required by completing a DBS research application form. This study was conducted in line with the DBS ethical guidelines and the 4 principles of the PSI codes of conduct: 1) Respect for the rights and dignity of the person; 2) Competence; 3)

Responsibility; 4) Integrity. For approval, the research aims and objectives of this study were discussed on the application form along with the scientific rationale, methods of data collection and inclusion/exclusion. To be included, participants must have understood English instructions, be over 18 years of age and provided informed consent. Participants would have been excluded if they refused to give informed consent and did not complete the questionnaire. No incentives were offered, anonymity was assured, and participation was completely voluntary.

The following risks were considered: Any concerns regarding taking part in the study were addressed by clarifying that participation was purely on a voluntary basis. Informed consent ensured participants were made aware of what the study entailed, full disclosure of the research, risks, rights respected and the right to withdraw. Sensitivity to research content was addressed with contact details of appropriate support groups, the supervisor's and researcher's details on the informed consent sheet and debrief sheet. To avoid deception, a debrief sheet was left with the participants to ensure each participant had a clear understanding of what they were taking part in. Confidentiality concerns were addressed by not taking the participants' names or student numbers and ensuring participants that all of the information would be stored in a password-protected file. Findings were reported honestly, ensuring data was not exaggerated or misleading. To avoid researcher bias, the risk and outcome were clearly defined, and the methods validated. Participants were part of the same population to avoid selection bias. There was no personal or financial gain for the researcher. To avoid plagiarism, all work or research done by others was acknowledged by the researcher along with appropriate referencing. Approval was granted by the DBS ethical committee.

RESULTS

SPSS, version 25 was used to run statistical analyses. Research questions were assessed through a multiple regression, one-way ANOVAs, independent sample t-tests and a MANOVA. Parametric tests were used to test normal distribution on all variables.

Descriptive Statistics

The sample was made up of 46% Males (n=59) and 54% Females (n=70) and participants were ranked in age groups with 43% aged from 18-24 (n=55) and 36% aged 25-32 (n=47), while 17% were aged 33-41 (n=22) and 4% were 42+ (n=5).

Table 1 *Descriptive Statistics of Psychological Measures*

Variable	Mean	SD	Min	Max	Skewness	Kurtosis	Cronbach's alpha
Procrastination	58.05	12.75	25	87	-.14	-.05	.85
Stress	19.94	7.05	3	36	-.04	-.48	.86
Self-Efficacy	30.47	4.32	20	40	-.08	-.50	.82
Self-Esteem	19.25	5.56	2	30	-.15	-.11	.88

As seen in Table 1, the mean average of all the variables procrastination, stress, self-efficacy and self-esteem is presented along with the standard deviation and Cronbach's alpha. The mean score for procrastination was moderately favourable ($M = 58.05$, $SD = 12.75$), as well as the mean score for stress ($M = 19.94$, $SD = 7.05$), while the mean score for self-efficacy was high ($M = 30.47$, $SD = 4.32$), showing higher levels of self-efficacy than the other variables, while the mean score for self-esteem was moderate ($M = 19.25$, $SD = 5.56$) - see Table 1. The variables were examined for internal consistency using Cronbach's alpha, which

obtained strong results, all above 0.7 (see Table 1), found to be consistent with values reported in the original study from which the scales were taken (see Methods Section).

Inferential Statistics

H1 *Predictors of Procrastination*

It was hypothesised that perceived stress, self-efficacy and self-esteem were predictors of academic procrastination. A multiple regression was carried out to test this hypothesis. The assumptions were checked and confirmed; the criterion variable was continuous and there were no outliers according to the Mahalanobis distance values. The results from a Pearson Correlation table for linearity shows multicollinearity between the predictors are ok because the correlations are all below $R = 0.9$. The multiple regression results indicated that the 3 predictors explained 21% of the variance ($R = .48$), ($F(3,125) = 12.44, p < .001$). It was found that perceived stress positively significantly predicted procrastination ($\beta = .26, p = .007, 95\% \text{ CI } (95\%) = .13, .82$) and self-efficacy was a negative significant predictor ($\beta = -.33, p < .001, \text{ CI } (95\%) = -1.5, -.44$). However, there was no significant prediction with self-esteem and procrastination ($\beta = .01, p = .91, \text{ CI } (95\%) = -.44, .50$). Therefore, the overall null must be rejected.

H2 *Levels of procrastination across age groups*

It was hypothesised that there would be a significant difference in levels of procrastination across age groups. A one-way analysis of variance showed that there was no significant difference on levels of procrastination across the different age groups ($F(3, 125) = .40, p = .753$). Therefore, the null hypothesis cannot be rejected. Although not significant, there was a difference, however, in scores across the age groups. See figure 1 below to see levels of procrastination across different age groups.

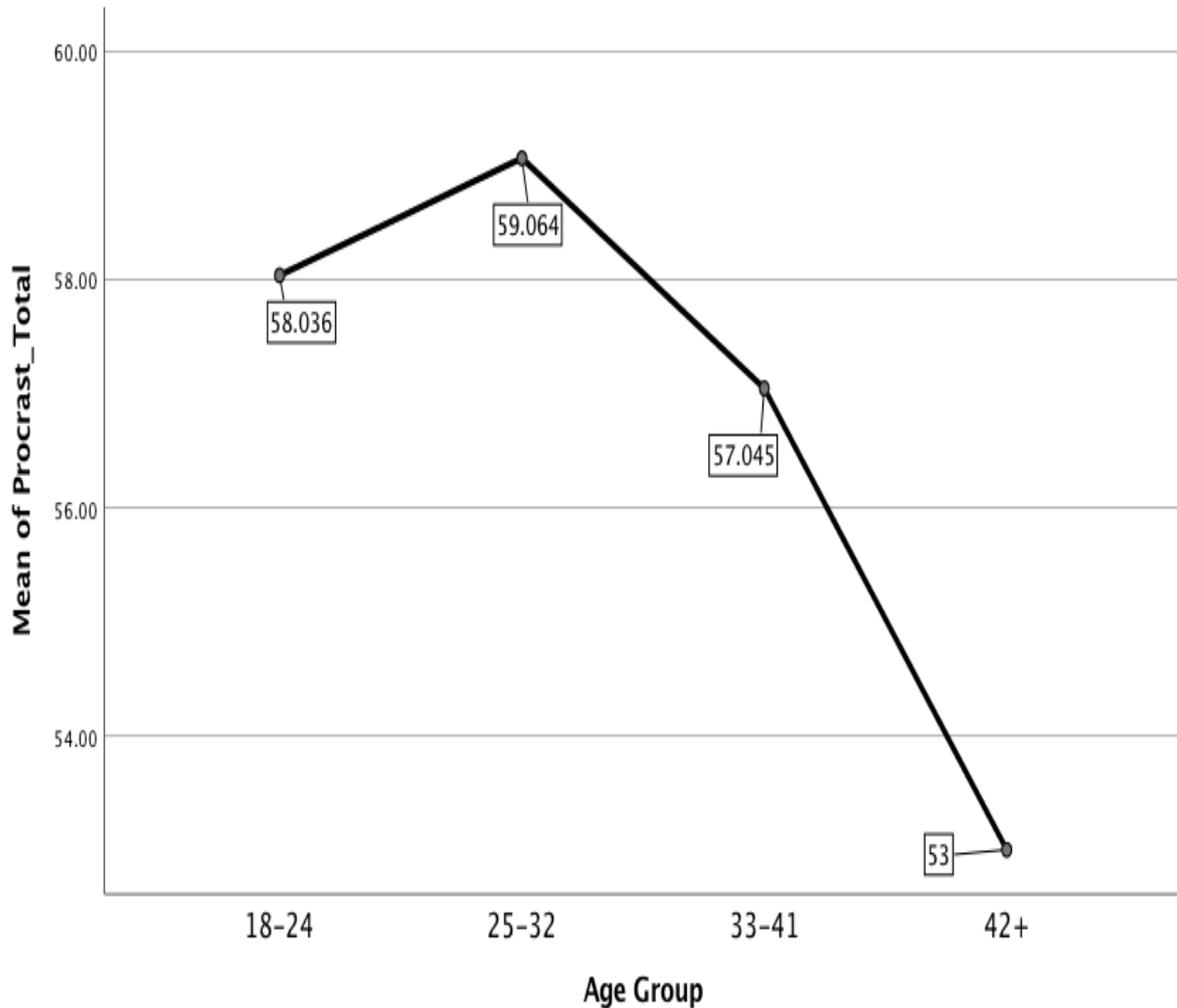


Figure 1. Means Plot showing the differences in procrastination (y axis) across age groups (x axis)

As seen in the graph above (Figure 1), the age group 25-32 scored highest in procrastination, with the age group 42+ scoring the lowest.

H3 Gender differences in procrastination

It was hypothesised that there would be a significant difference between males and females in relation to academic procrastination. Females ($M = 59.62$, $SD = 13.44$) were found to have higher levels of procrastination than males ($M = 56.16$, $SD = 11.70$). The 95% confidence interval showed the mean difference of the variables lay between -7.89 and 0.974.

However, an independent samples t-test found there was no significant difference in procrastination between males and females ($t(127) = 1.54, p = .125, CI (95\%) -7.89 \rightarrow .97$). Therefore, the null hypothesis cannot be rejected. Differences in procrastination between males and females can be seen below (see figure 2).

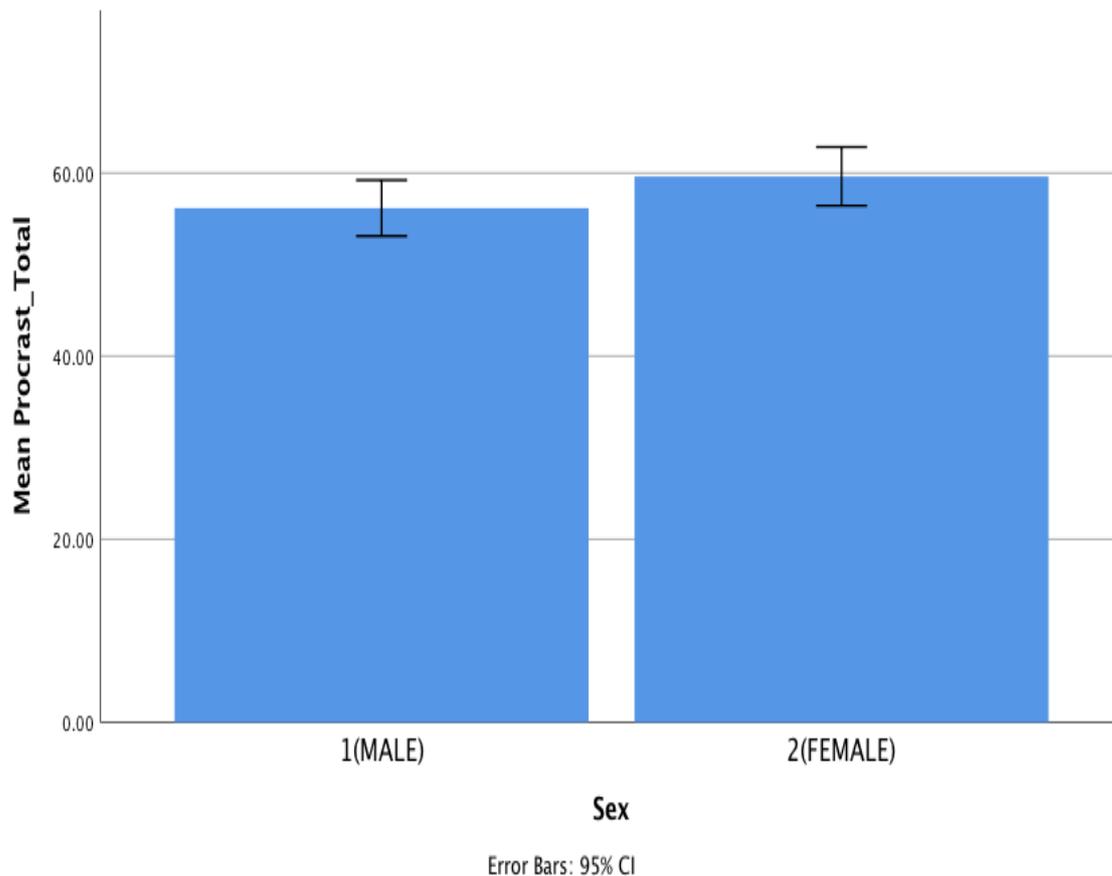


Figure 2 Bar chart highlighting differences between gender (x axis) and procrastination (y axis)

As seen in the graph above (figure 2), there is a slight difference in procrastination levels between males and females.

H4 Student type differences in stress

It was hypothesised that there would be a significant difference in stress among part-time and full-time students. Part-time students ($M = 20.21, SD = 7.17$) were found to have

slightly higher levels of stress than full-time students ($M = 19.55$, $SD = 6.93$). However, an independent samples t-test found no significant difference in stress between part-time and full-time students ($t(127) = .696$, $p = .603$, $CI (95\%) -1.84 \rightarrow 3.15$). Therefore, the null hypothesis cannot be rejected.

H5 *Perceived stress, self-efficacy and self-esteem across different age groups*

It was hypothesised that there would be a significant difference in perceived stress, self-efficacy and self-esteem across different age groups 18-24, 25-32, 33-41, 42+. A one-way multivariate ANOVA found that there was no significant difference between stress, self-efficacy and self-esteem across different age groups ($F(9, 299) = 1.75$, $p = .086$, effect size = .04). Therefore, the null cannot be rejected. Following a Bonferroni adjustment to 0.17, there was no significant difference in perceived stress ($F(3, 125) = 1.67$, $p = .178$) and self-efficacy ($F(3,125) = 2.08$, $p = .106$) across different age groups. However, there was a significant difference between self-esteem and age ($F(3, 125) = 4.9$, $p = .003$, effect size = .10). Further analysis was then carried out to explore the levels of self-esteem across the different age groups. A one-way analysis of variance showed that the levels of self-esteem differed significantly across the age groups ($F(3,125) = 4.90$, $p = .003$). More specifically, Tukey HSD post hoc analyses highlighted that the age group 33-41 (mean difference = 4.48, $p = .006$, $CI (95\%) .98, 7.98$) had significantly higher levels of self-esteem in comparison to the age group 18-24. Therefore, the null can be rejected.

H6 *Hours worked and procrastination*

It was hypothesised that there would be a significant difference in levels of procrastination across number of hours worked outside college. The hours worked were grouped as 8-20, 21-30, 31-40 and 40+. A one-way analysis of variance showed there was no

significant difference between levels of procrastination and number of hours worked outside college ($F(4,124) = .83, p = .506$). Therefore, the null hypothesis cannot be rejected. See figure 3 below for levels of procrastination across number of hours worked.

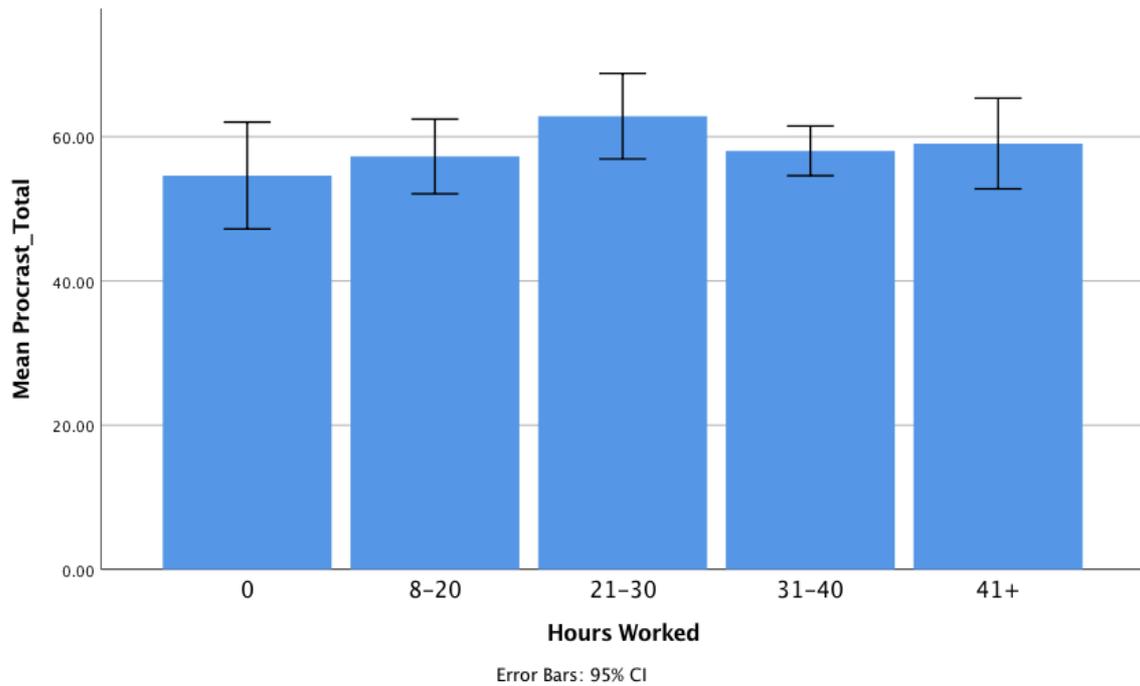


Figure 3 Bar chart showing differences in hours worked (x axis) and procrastination (y axis)

As seen in the graph above, the group who worked between 21-30 hours per week outside college showed slightly higher signs of procrastination.

DISCUSSION

The purpose of this study was to examine academic procrastination and the role of stress, self-esteem, self-efficacy, age and gender among undergraduate students. Specifically, this research examined the relationship between stress, self-esteem and self-efficacy in levels of academic procrastination, as well as investigating the difference in levels of procrastination across age, gender, course taken and number of hours worked outside college. The difference in levels of stress, self-efficacy and self-esteem across the different age groups were examined also.

It was hypothesised that perceived stress, self-efficacy and self-esteem were predictors of academic procrastination. The results reported here indicate perceived stress and self-efficacy are associated with procrastination thereby partially supporting the hypothesis. In agreement with existing literature (Hamaideh, 2011; Zajacova et al., 2005), stress was found to have a positive correlation with procrastination. This is not surprising, as perceived stress levels increase, levels of procrastination increase also. The results showed moderate stress levels among students, which is not to say that some students have less stress than others, but they may deal with it differently as individuals vary in their responses to stress (Deniz, 2006). Self-efficacy was negatively related to procrastination: as self-efficacy decreases, procrastination increases, which is why self-efficacy is a crucial variable related to academic achievement. This also supports previous research (Bandura, 1997), which found that 'knowing what to do' it is not enough to guarantee success, belief and confidence are a necessary addition. As students have proved they have certain knowledge to get into college, it is important to have self-efficacy skills, including belief, to execute the strategies and coping skills needed to follow through on assignments (Sharma & Nasa, 2014). Surprisingly, there

was no correlation between self-esteem and procrastination. This is in contrast with research that found that self-esteem was negatively correlated to procrastination, meaning when self-esteem was low, procrastination was high (Duru & Balkis, 2017). One reason why there was no relationship between self-esteem and procrastination in the current study may be because the participants scored neither high nor low levels but an overall moderate level of self-esteem. This may be due to the larger number of part-time students with the majority aged over 25 years and research states self-esteem increases with age (Orth, 2010).

It was hypothesised that there would be a difference in procrastination levels across different age groups. The hypothesis was not supported as there was no difference in this regard. Although the current study results showed no difference in procrastination across the different age groups, slightly higher levels of procrastination were noted in the age group 25-31, which would be in line with research by Chu and Choi (2005), who proposed younger people engage in active procrastination without a negative effect on performance and older groups engage in passive procrastination, experiencing negative emotions completing tasks. However, contrary to research (Raben et al., 2010) the lowest levels of procrastination belonged to the age group 42+. However, this may be because of the small sample size of students over the age of 40. It was then hypothesised that there would be a difference in levels of procrastination across males and females. However, no differences were found between procrastination and gender, so this hypothesis could not be supported, which is consistent with some research (Sirin, 2011), while other research is mixed (Cross et al., 2011; Washington, 2004). Some studies posit that males have higher levels of procrastination with poorer study habits (Cross et al., 2011) while other literature cite that females have higher levels (Washington, 2004). The current study may be more accurate because of the even ratio of male to female participants. It was hypothesised that there would be a difference in levels of stress

between part-time and full-time students. Surprisingly, there was no difference reported between the two groups; therefore, the hypothesis was not supported. This is contrary to evidence that states part-time mature students have better stress coping skills than full-time students (Forbus, 2011).

It was hypothesised that there would be a difference between perceived stress, self-efficacy and self-esteem across different age groups. Results revealed no difference in this regard; therefore, the hypothesis could not be supported. However, further analyses showed a difference between self-esteem and age, with the age group 33-41 showing the highest levels of self-esteem, which is in line with the general trend (Orth et al., 2010) stating a moderate increase in self-esteem as people reach middle age. It was hypothesised that there would be a difference in procrastination across the number of hours worked. Surprisingly, this hypothesis was not supported, as no significant difference was found in this regard. Considering over 54% of Irish students are currently working (HEA, 2016) as well as studying, research reveals employment has a negative impact on performance (Steinberg et al., 1993). There is little or no research regarding students' employment and procrastination; this would be beneficial to explore in the future, especially as the current research revealed 86% of participants had a job outside college.

Limitations, strengths and future research

It is important to note the limitations of this study. Firstly, all the participants were undergraduate students; therefore, future research including various levels of education would be more representative of the full student body. Secondly, all the participants were part of the same college, which could affect the generalisability. Future research could perhaps steer away from a homogenous group and study more diverse backgrounds. The third limitation was the

small sample size of the age group over 40 years, which could limit the findings, as age is an important predictor of procrastination (Raben, et al., 2010). Another limitation may be the time of year the data was collected, as results may vary due to timetables, exams and assignments due. Future research collecting data at different times of the term may increase reliability. Lastly, having slightly more part-time participants in the current study, may indicate the sample was not typical of age groups for traditional undergraduate students, with 80% of overall Irish students being full-time (HEA, 2017).

The current study also had its strengths. The sample size of 141 was substantial, representing good reliability according to Cohen's table, along with the fact there was an even ratio of males to females giving the study more generalisability. Participants were selected across different courses taken to avoid any bias regarding the survey. The questionnaire was clear and easy to replicate. Cronbach's alpha showed good internal validity and measured scale reliability.

Future research may benefit from a longitudinal study, as different times of the year may have an influence on procrastination levels. As much literature on this subject is based on college students, future research could look at the younger population of school children as studies indicate procrastination habits can develop during childhood along with looking at parenting styles, which is suggested to be another contributing factor in self-efficacy and self-esteem (Burka & Yuen, 2008, p.131). Using different variables may be useful for future research to highlight more predictors of procrastination, such as academic performance or motivation along with examining personality traits such as perfectionism or motives such as anxiety. Qualitative research involving interviewing participants could gain a greater

understanding of the cognitive factors behind procrastination as well as gaining information on students' work/life balance as well as how they apply themselves.

Implications and applications

While some data conflicted with past research, the implications of the current study support some key findings and highlight other areas where future research would benefit. The current study maintains that increased stress and lower levels of self-efficacy contribute to higher levels of procrastination, supporting previous research (Holinka, 2015; Sharma & Nasa, 2014). Stress can negatively affect health, well-being and academic success (Hamaideh, 2011) while self-efficacy beliefs impact students' commitment, critical thinking, coping and achievement (Sharma & Nasa, 2014; Steel, 2007). The current findings contradicted research (Raben et al., 2010) showing no difference in stress across different age groups or regarding full and part-time students, implying everyone is susceptible to stress, the levels of which vary between individuals. The current findings highlighted a lack of research between employment and procrastination among students which is very relevant, as much research claims that employment has a negative impact on academic performance, which is worrying considering the large number of participants in this study (84%) were employed outside of college (Steinberg et al., 1993). The current findings also revealed a difference in levels of self-esteem and age, which would benefit further investigation as research is inconsistent in this area (Orth & Robins, 2010) .

Studies have reported that academic procrastination is troubling, negatively affecting 50% of the student population (Balkis & Duru, 2017). The results of the current study along with previous research (Hussain & Sultan, 2010) supports the need for more guidance and counselling in universities, along with creating positive relationships between students and

lecturers, through support and encouraging feedback on assignments. The current study found stress and self-efficacy are predictors of academic procrastination. These findings can be applied in real life settings by focussing on stress management skills, which would be beneficial in colleges and perhaps in schools also. Early recognition and awareness of stressors can increase coping skills to deal with the challenges of college life. Schools and colleges could provide classes or guidance for improving self-efficacy, recognising limiting self-belief, improve persistence and increase coping strategies for the future.

Conclusion

Academic procrastination is commonplace and worrying, affecting a large proportion of the student population, negatively affecting academic performance and achievement (Balkis & Duru, 2007). Overall, the current study partially supports existing literature relating to the different variables impacting academic procrastination, concluding that stress and self-efficacy are strong predictors of procrastination. Also, the current findings found differences in levels of self-esteem across the age spectrum, which would benefit from further investigation as findings are mixed in this area (Orth, 2010). With continuous academic pressures to achieve and life and college stressors, continuous research into clarifying factors contributing to academic procrastination is crucial. Providing adequate support and guidance for improving coping skills and strategies can help to remediate procrastination. More training and awareness on self-efficacy and stress in one's early life would increase confidence, persistence, critical thinking and coping strategies. As students have already displayed enough intelligence to get a place in college, mastering these skills would have a dramatic improvement on their performance and overall well-being.

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APPENDICES

Appendix A

INFORMED CONSENT SHEET

My name is Wendy Quinn and I am conducting research for my Final Year Psychology Project that examines Academic Procrastination and the role of stress, self-esteem and self-efficacy among Undergraduate Students. This research being carried out will be submitted as part of my studies and for examination.

You are invited to take part in this study which is completely voluntary with no obligation to participate. Participation requires completing and returning the questionnaire attached. If any of the questions raise any discomfort for you, contact information regarding support services are included on the final page. Confidentiality and anonymity is assured. Please do not include your name on the questionnaire so the answers cannot be assigned to any one participant. You have the right to withdraw yourself at any time during the questionnaire.

All data from the survey will be securely stored and the information from the questionnaires will be transferred to and stored on a password protected computer.

It is imperative to state that by completing and submitting this questionnaire you are agreeing to participate in this study.

Should you require any further information regarding the study, please contact my supervisor Dr Pauline Hyland at xxxxxxxx or myself, Wendy Quinn at xxxxxxxx

Thank you for your cooperation in taking time to complete this survey.

Appendix B**DEMOGRAPHIC QUESTIONS**

Please tick the box that applies to you.

What age are you?

18-24 25-32 33-41 42+

What sex are you?

Male Female

Are you a part-time or full time student?

Part-time full time

What course are you currently undertaking?

How many hours per week do you work?

Appendix C

Questionnaire 1

People may use the following statements to describe themselves. For each statement, decide whether the statement is uncharacteristic or characteristic of you using the following 5-point scale. Note that the 3 on the scale is Neutral – the statement is neither characteristic nor uncharacteristic of you. In the box to the right of each statement, fill in the number on the 5-point scale that best describes you.

Extremely Uncharacteristic	Moderately Uncharacteristic	Neutral	Moderately Characteristic	Extremely Characteristic
1	2	3	4	5

1.	I often find myself performing tasks that I had intended to do days before.	...
2.*	I do not do assignments until just before they are to be handed in.	
3.	When I am finished with a library book, I return it right away regardless of the date it is due.	...
4.	When it is time to get up in the morning, I most often get right out of bed.	
5.	A letter may sit for days after I write it before mailing it.	*
6.	I generally return phone calls promptly.	
7.	Even with jobs that require little else except sitting down and doing them, I find they seldom get done for days.	
8.	I usually make decisions as soon as possible.	
9.	I generally delay before starting on work I have to do.	
10.	I usually have to rush to complete a task on time.	
11.	When preparing to go out, I am seldom caught having to do something at the last minute.	
12.	In preparing for some deadline, I often waste time by doing other things.	*

13.	I prefer to leave early for an appointment.	"
14.	I usually start an assignment shortly after it is assigned.	""
15.	I often have a task finished sooner than necessary.	"
16.	I always seem to end up shopping for birthday or Christmas gifts at the last minute.	
17.	I usually buy even an essential item at the last minute.	"
18.	I usually accomplish all the things I plan to do in a day.	""
19.	I am continually saying 'I'll do it tomorrow.'	"
20.	I usually take care of all the tasks I have to do before I settle down and relax for the evening.	

Appendix D**Questionnaire 2**

The questions in this survey ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate how often you felt or thought a certain way.

Never **Almost Never** **Sometimes** **Fairly Often** **Very Often**
0 **1** **2** **3** **4**

1	In the last month, how often have you been upset because of something that happened unexpectedly?	
2	In the last month, how often have you felt that you were unable to control the important things in your life?	
3	In the last month, how often have you felt nervous and stressed?	
4	In the last month, how often have you felt confident about your ability to handle your personal problems?	
5	In the last month, how often have you felt that things were going your way?	
6	In the last month, how often have you found that you could not cope with all the things you had to do?	
7	In the last month, how often have you been able to control irritations in your life?	
8	In the last month, how often have you felt that you were on top of things?	
9	In the last month, how often have you been angered because of things that happened that were outside of your control?	
10	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	

Appendix E**Questionnaire 3**

Please read the sentences below and select an answer for each statement which indicates how much the statement applies to yourself.

Not at all true Hardly true Moderately true Exactly true

1**2****3****4**

1	I can always manage to solve difficult problems if I try hard enough.	
2	If someone opposes me, I can find the means and ways to get what I want.	
3	It is easy for me to stick to my aims and accomplish my goals.	
4	I am confident that I could deal efficiently with unexpected events.	
5	Thanks to my resourcefulness, I know how to handle unforeseen situations.	
6	I can solve most problems if I invest the necessary effort.	
7	I can remain calm when facing difficulties because I can rely on my coping abilities.	
8	When I am confronted with a problem, I can usually find several solutions.	
9	If I am in trouble, I can usually think of a solution.	
10	I can usually handle whatever comes my way.	

Appendix F**Questionnaire 4**

Below is a list of statements dealing with your general feelings about yourself.

Strongly Agree **Agree** **Disagree** **Strongly Disagree**

1 **2** **3** **4**

1.	On the whole, I am satisfied with myself.	SA	A	D	SD
2.	At times, I think I am no good at all.	SA	A	D	SD
3.	I feel that I have a number of good qualities.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.	I feel I do not have much to be proud of.	SA	A	D	SD
6.	I certainly feel useless at times.	SA	A	D	SD
7.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8.	I wish I could have more respect for myself.	SA	A	D	SD
9.	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10.	I take a positive attitude toward myself.	SA	A	D	SD

Appendix G

Debrief page

Thank you for your answers. Your response has been recorded.

If you feel that answering this survey has raised any discomfort or emotional issues for you, please consider contacting some of the support services listed below, or speak to a friend or family member.

- Aware: 1800 804848 or e-mail supportmail@aware.ie
Available Monday – Sunday from 10am to 10pm.
- Samaritans Ireland: free call 116123 or e-mail jo@samaritans.org
Available 24 hours a day, 365 days a year.
- DBS Student Services email: studentservices@dbs.ie

Should you require any further information regarding the study, please contact my supervisor Dr Pauline Hyland at xxxxxxxx or myself, Wendy Quinn at xxxxxxxx

Thank you for your cooperation.