

**Do Just World Beliefs Predict Academic Resilience and Optimism Through Locus of Control
in Australian Adolescents and Does Age Moderate the Mediation Effects?**

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Abstract

In 2019, secondary school populations are comprised of a generation growing up in a technology rich environment where participation is rewarded and protection from failure is prioritised. Accordingly, enhancing the resilience of students artificially without negatively effecting wellbeing is a challenge faced by educators the world over. Schools employ explicit programs teaching optimism and resilience obviously and with such repetition, they can become impertinent and disengaging for students. With perceived justice and a sense of control linked with optimism and academic resilience in the literature, this study builds on previous research by identifying age as a moderator of the indirect effects just world beliefs have on the dependent variables through locus of control. Analysis of the results from self-report questionnaires completed by over 1000 secondary school students from two Adelaide schools demonstrate that relationships between these variables are significant for all age levels, with the indirect effects of just world beliefs dampened as students enter senior school. This research indicates the potential for developing a more covert and interesting intervention for schools supporting optimism and academic resilience in the future by enhancing just world beliefs and locus of control targeting middle school students to have maximum effect.

Declaration

This thesis contains no material that has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide's digital thesis repository, the library search and through web search engines, unless permission has been granted by the school to restrict access for a period of time.

Signed

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CHAPTER 1: INTRODUCTION

1.1 Background

Due to the prevalence of mental health issues in society today, it is important that educators are alive to the potential issues that come with student failure in different settings. Negative affect can come from making your best effort and coming up short; it can lead to feelings of hopelessness, and isolation; and there is potential for further mental health issues if the student is not appropriately supported. Research in both the United Kingdom and the United States have identified a correlation between academic achievement and subjective wellbeing (Suldo, Riley, & Shaffer, 2016). As such, educators are expected to maintain or enhance student wellbeing, as a means to maximise the academic performance of students (Roffey, 2012). Keeping the mental health of their students front of mind, teachers often help students achieve academic success by providing multiple drafts, extensions and resubmissions (Fernandez, 2019; Maxwell, 2019). The significant level of support provided for students in today's secondary schools to encourage a higher Australian Tertiary Entrance Rank (ATAR), could potentially be doing them a disservice, with research suggesting these scores are not a strong predictor of course completion in tertiary settings (Edwards & McMillan, 2015). Rather, there is a strong correlation between student's self-regulation and academic success during the first year of tertiary study, it is possible that secondary education settings are not providing students with enough opportunities to develop these skills (McKenzie, Gow, & Schweitzer, 2004).

With fewer scenarios for students to develop strategies to deal with adversity in real time during secondary school, educational leaders have identified a need for students to have explicit instruction around how to develop and maintain their own wellbeing (Saab & Klinger, 2010). Pastoral and health programs help students explore how they could deal with hypothetical failures in a way that strengthens their wellbeing. The positive education

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movement based on Martin Seligman's work in the field of positive psychology has guided the development of several overt interventions to enhance student wellbeing. Both resilience and optimism have been associated with academic performance in previous research (Cassidy, 2016; Webber & Smokowski, 2018), and have been targeted by explicit programs in schools.

Finding time in an already crowded curriculum to address each of the potential wellbeing weaknesses secondary school students may have is challenging and the pressures on school pastoral leaders, counsellors and psychologists is forever increasing (Maxwell, 2019). Is it the role of the educator to enhance resilience and optimism anyway? The personality traits of conscientiousness, extraversion and openness have been shown to be strong predictors of both optimism and resilience (Lounsbury et al., 2016). While other research suggests optimism and resilience are shaped through relationships, interactions between people and challenges that are confronted during a lifetime (Masten & Barnes, 2018). Optimism can be influenced by parental relationships and parental style (Piko, Luszczynska, & Fitzpatrick, 2013), and resilience has been shown to similarly be influenced by parental rearing behaviour (Petrowski, Braehler, & Zenger, 2014). The current research will contribute to the discussion by considering how significantly the world views of adolescents influence academic resilience and optimism. With a focus on the well-established theory that people need to believe in a just world to overcome adversity and look positively to the future (Hafer, 2000; Lipkus, Dalbert, & Siegler, 1996), this research seeks to provide alternative explanations for the development of optimism and resilience in adolescents. It investigates the significance of the control a person feels they have in their life and the extent to which their just world beliefs predict academic resilience and optimism through this sense of control, with each of these variables explored in greater depth later.

1.2 Understanding the importance of Belief in a Just World (BJW)

Justice is fundamentally important to human beings, so much so, that theorists believe people have a preconscious need to believe the world is fair (Lerner, 1980). The importance of the belief in a just world concept is emphasised by how widely it has been researched since Lerner and Simmons introduced the concept more than half a century ago (Bartholomaeus & Strelan, 2019; Lerner & Simmons, 1966), and plays an important role in the development and maintenance of personal wellbeing (Bartholomaeus & Strelan, 2019). It is important for people to feel that the world is fair for them to assume order and therefore a sense of control over what happens to them (Lerner, 1980). It can also provide people with a framework with which to understand the world, where there is a sense that everyone gets what they deserve (Dalbert & Donat, 2015; Strelan & Van Prooijen, 2014).

These beliefs are developed from an early age, with children's stories most often depicting ultimate justice. Those acting with a strong character as per societal expectations tend to experience reward where characters portraying behaviours that are undesirable are punished (Tschida, Ryan, & Ticknor, 2014). In a similar way, religiosity can help to provide people with a way to appreciate their world, where justice will always prevail whether it is in this life or the next. Not surprisingly, there is a strong correlation between belief in a just world and religiosity (Rubin & Peplau, 1973). People who have a sense that justice will prevail in their life are more inclined to feel optimistic about their future and are also more likely to recover after a setback (Correia & Vala, 2004; Jiang, Yue, Lu, Yu, & Zhu, 2016). With the foundations of these beliefs developed early in life, this study explores the notion that adjustments to just world schemas can occur during adolescence with changes having an effect on the level of control people feel they have in their life. The degree to which these schematic adjustments affect their relationship with academic resilience and the subjective

wellbeing construct of optimism in secondary school aged children is a further consideration of the research.

1.3 Understanding the Separate Domains of Belief in a Just World for Self (BJW-s) and for Others (BJW-o)

Justice can never be objective; any phenomenon whether experienced or observed will be perceived as just or unjust based on one's own reasoning, which in turn is heavily influenced by personal experience, societal attitudes and individual disposition (Dalbert & Stoeber, 2006). When injustice is observed for others or for the self, a person with high just world beliefs will strive to maintain their belief in a world that is fair. They postulate that the victim will either be compensated at some time in the future or that the injustice can be attributed to some behaviour or characteristic of the victim that has them deserving the ill fate (Dalbert & Donat, 2015). Preserving the stable framework to engage with the individual's physical and social environments is of paramount importance (Dalbert, 1999), and ensures the ability to make systematic, rational decisions based on one's own perception of justice.

With similarities between the effects of believing the world is fair for others as well as for the self it is tempting to measure a person's belief in a just world generally. However, research suggests that there are striking differences with how the two domains interact with other variables and consequently, they should be separated (Furnham & Procter, 1989; Hafer & Olson, 1993; Lerner, 1980; Lipkus et al., 1996). People who report a high degree of BJW-o tend to be extremely harsh with social responding, blaming victims for any injustice that might become them, while a strong BJW-s is associated with more positive responding and has a clear social value (Alves, Gangloff, & Umlauf, 2018). With the participants of this study being adolescents, their well-documented egocentricism (Elkind, 1967; O'Connor, 1994) may accentuate the differences between the participant's belief in a just world for themselves (BJW-s) and their belief in a just world for others (BJW-o).

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The importance of maintaining a view that the world is just cannot be underestimated; it provides a stable and orderly paradigm for people to operate in (Lerner & Miller, 1978). Injustices that occur to the self are more strenuously denied or downplayed as they are seen as being more threatening to that person's perception of a just world. As such, high levels of BJW-s has been shown to have a strong correlation with high levels of subjective mental health and resilience (Dalbert, 1999; Strelan, 2007). Alternatively an injustice occurring to a person in an out-group will threaten one's just world framework and will most often be rationalised with the expression of unsympathetic social attitudes, where victims are blamed unremorsefully in the absence of mitigating information (Strelan & Van Prooijen, 2014). That is, if I can rationalise the injustice as it being the victim's fault, then there is no innocent suffering and the world remains fair. The different methods of conceptualising a person's belief in a just world for themselves or for others manifests in different ways. BJW-s tends to be associated with individual wellbeing and BJW-o tends to be associated with harsh responding (Alves et al., 2018; Bartholomaeus & Strelan, 2019; Dalbert, 1999; Dalbert & Stoeber, 2006; McKenzie et al., 2004). The following sections explicate how a person's belief in a just world may be associated with the key outcomes of this study.

1.4 Academic Resilience

Belief in a just world encourages resilience and supports investment in long term goals (Hafer, 2000). Academic resilience refers to a person's ability to continue to strive for success despite academic setbacks akin to failing an assessment task or receiving negative feedback (Perez, Espinoza, Ramos, Coronado, & Cortes, 2009). Generation Z makes up the entire cohort of secondary school students in 2019 and describes people born between 1995 and 2015 (Seemiller & Grace, 2017). This is a generation that has grown up receiving rewards and recognition every time they participate (Dickhaus, Brown, Ferrucci, & Anderson, 2019). For example, there is a line of thinking that sport should be played without

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keeping score for fear that the losing team's wellbeing might be disturbed if they have tried their best, but failed (Torres & Hager, 2007). Educators need to be mindful that students from the current generation have not had a great deal of experience dealing with failure (Malone, 2007).

This study surveyed two schools. They each have pressures to maximise student outcomes. Nazareth College are following a direction from Catholic Education South Australia, which requires all students pass their SACE (Fernandez, 2019). Similarly, Scotch College competes with other academic schools to increase the number of students achieving high Australian Tertiary Admissions Ranking in order to encourage future enrolments (Maxwell, 2019). Teachers are obliged to provide a support structure for their students to ensure they achieve the desired results. Consequently, students rarely have the opportunity to develop resilience in an authentic, real world setting as they tend to be protected from failure. To combat the lack of adversity experienced by adolescents, schools have committed resource to programs such as the PENN Resiliency Program (Gillham et al., 2007). During the past decade, Scotch has attempted to improve student resilience through this program, explicitly teaching strategies and methods to deal with failure in an attempt to prepare students for such a possibility (Maxwell, 2019). Nazareth College is considering using more positive education interventions in the future to build on a less systematic program in place at the moment which is directed by individual teachers supporting the development of the academic resilience of their students in a range of different ways (Fernandez, 2019). However, believing the world is just can help people view stressful situations as challenges capable of encouraging personal growth (challenge stressor), rather than as a burden that reduces performance (hindrance stressor) (Alves et al., 2018; Dalbert, 2001). It may be that schools would be better served applying their resources to maintain or enhance the level of perceived justice in the learning environment as a means to develop student resilience.

1.5 Optimism

Optimists are people who expect good things to happen in the future. It is an important subjective wellbeing measure and has been associated with resilience, perseverance and academic achievement (Seligman, 1998). Amongst a range of other wellbeing measures, optimism has also been correlated with academic performance in secondary schools (Hoy, Tarter, & Woolfolk Hoy, 2006).

Interventions aimed at helping students feel more optimistic about their future have been used in schools around Australia and the world. Beyond Blue have thrown their support behind the Aussie Optimism Program, which has been used in Australian schools and has been based on significant research identifying optimism as a key driver for adolescent wellbeing and academic success. In recent times, Scotch College has used an alternative program which comprises part of the government funded MindMatters program called Optimistic Kids for upper primary students and other positive education interventions in the secondary school (Maxwell, 2019). It may be possible again, that schools underestimate the importance of the justice perception of their students, with those believing the world is a fair place likely to have a more positive sense of self and the expectation of more good experiences as they move through life (Jiang et al., 2016).

1.6 The Mediating Effect of Locus of Control

Locus of Control was developed as a construct in 1966 by Julian Rotter and refers to the control a person feels they have over events in their life (April, Dharani, & Peters, 2012). How people react to adversity is linked to the level of control they feel they have over their lives (Margolis & Stoltz, 2010). A person with high internal control will use introspection to work through challenging situations and self-reflection to search for a way forward (Carrim, Basson, & Coetzee, 2006; Chubb, Fertman, & Ross, 1997). Conversely, people with high external control will be resigned to the fact that there is nothing they can do to rectify the

situation, it is nothing to do with them, instead in a school setting, it is the teacher, or other members of the class that are responsible for the current difficult condition.

At a unique and sometimes difficult stage of life, adolescents are often grappling for a sense of control as they explore parental and societal boundaries in the move towards adulthood (Chubb et al., 1997). High internal control for adolescents has previously been linked to academic resilience (Cappella & Weinstein, 2001) and other subjective wellbeing measures including optimism (Peacock, 1996), as the student believes that work output is significantly connected to academic results and therefore to their positive future. There is an overlap between the BJW constructs and locus of control where control may be influenced by a person's just world beliefs (Dalbert & Donat, 2015; Furnham & Procter, 1989). That is, the more fair a person believes the world is, the more control they feel they have over events in their lives. In turn, control may have an influence on both academic resilience and optimism (Creed, Patton, & Bartrum, 2002). Consequently, this study investigates the relationships between these variables at different age levels to ascertain the level of stability each of the relationships has in adolescence.

1.7 Just World Reasoning in Schools

Several studies have shown that there is a link between subjective wellbeing and BJW for adolescents and young adults (Correia & Vala, 2004). While research concerning just world beliefs in school settings in Australia are non-existent, Dalbert and colleagues have focused on the relationship between BJW and subjective wellbeing measures along with academic performance and bullying in Portugal, India and Germany (Correia & Dalbert, 2007; Dalbert & Stoeber, 2005, 2006; Kamble & Dalbert, 2012; Peter, Kloeckner, Dalbert, & Radant, 2012). Rather than looking at academic performance and its interaction with BJW, this study will explore the link with student mindset, where high levels of optimism and

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academic resilience have been shown to be two factors that can have a positive effect on academic performance (Cassidy, 2016; Webber & Smokowski, 2018).

In a school setting, students with a strong belief in a just world may be more inclined to attribute good results to spending long hours studying, being open to feedback and developing strong, respectful relationships with teachers. Conversely, any individual poor results that may have been allocated through poor assessment practices of the staff member may be justified by the student attributing a lack of prioritisation of the work or failure to commit to a conscientious study plan. They may also choose to downplay the importance of the assessment and emphasise how minimally the result will affect their overall achievement or their career aspirations. Either way, results will be justified to ensure the concept of a fair world will be maintained for the individual.

Educators and educational leaders within the school setting play a major role in creating an environment that either confirms or challenges the just world beliefs of students. An environment that consistently treats people unjustly will take a toll on the belief individuals have in a just world and how much control they have over their lives. Conversely, an environment that is fair and equitable will help to consolidate or enhance the BJW of students. The school environment is quite an open one, consequences for actions of students transgressing rules or regulations are in the public eye and with academic performance and feedback often shared and compared between students, assessment along with student management both play major roles in enhancing or diminishing a student's BJW (Dalbert & Stoeber, 2006).

1.8 The moderating effect of age on the relationship between just world beliefs and control

The strength of internal locus of control an adolescent has over their life tends to increase as they get older. They generally begin to find more freedom as they get their

driving licence, have more choice over where their life is headed from a vocational and educational perspective. Towards the end of adolescence more opportunities to engage with activities and make decisions of their own volition results in a stronger sense of control over their lives (Chubb et al., 1997).

Because a person's belief in a just world disposition is essentially a trait-level phenomenon (Dalbert & Donat, 2015), it is unlikely to be affected by individual experiences of injustice. However, due to the developmental nature of adolescence (Branje, van Lieshout, & Gerris, 2007), it is possible that a person's just world belief disposition may differ between age levels, particularly as young people are, by definition, still developing. The more injustices the developing adolescent is exposed to through their education, the more likely their sense of the world being fair may be negatively affected. In fact, studies have shown the strength of both variations of adolescent's BJW tends to decrease slightly with age (Dalbert, 2001). With these considerations in mind, it might be expected that the relationships between the just world variables and locus of control may weaken with age through adolescence.

1.9 The Present Study

The extant literature suggests that BJW-s and to a lesser extent BJW-o will have positive relationships with the dependent variables of academic resilience and optimism. However, there is no research that has inspected locus of control as a mediating variable nor the relationships between any of these variables in Australian schools. This research will add to the literature to inform educational leaders in Australia and beyond of how just world beliefs may predict academic resilience and optimism across different secondary school ages. The extent locus of control indirectly affects these relationships is also considered to assess its significance and whether it should be considered with similar importance to the belief in a just world dispositions of adolescents.

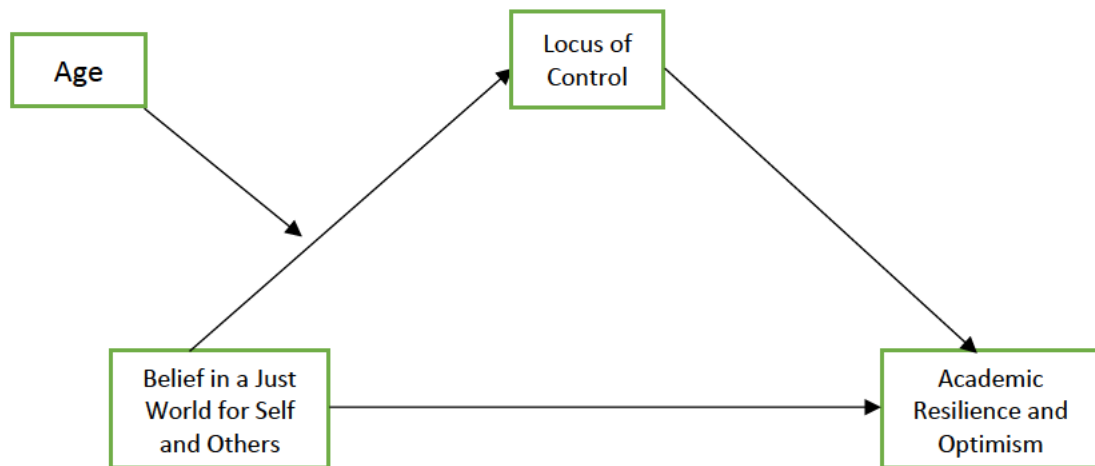


Figure 1. The proposed moderated mediation model.

1.10 Aims and Hypotheses of the Current Study

As can be seen in Figure 1, the current study will test a moderated mediation model. It will explore the indirect effects of each of the two BJW variables on each of the dependent variables of academic resilience and optimism through locus of control as well as any direct effects. It will also assess the moderating effect age has on the relationships between each of the just world variables and locus of control.

Aim 1: To investigate the moderating effect of age on the relationships between the just world variables and locus of control.

Hypothesis 1: Just world beliefs for self will have a significant positive direct effect on locus of control. That is, higher BJW-s scores will predict higher locus of control scores (H1a), but this relationship will be moderated by age. That is, there will be stronger direct effects of BJW-s on control at the younger age levels (H1b).

Hypothesis 2: The same will be expected for just world beliefs for others. That is, the significant positive direct effects of BJW-o on control (H2a), will be stronger at the younger age levels (H2b).

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Aim 2: To test the moderated mediation model for indirect effects of the just world variables on the dependent variables through locus of control, while investigating the moderating effect of age on the relationships between the just world variables and locus of control.

Hypothesis 3: There will be significant positive direct effects of locus of control on the dependent variables of academic resilience (H3a) and optimism (H3b). That is, higher scores for internal locus of control will predict higher scores for academic resilience and optimism.

Hypothesis 4: There will also be significant direct effects of BJW-s on academic resilience (H4a) and optimism (H4b). That is, higher just world belief scores will predict higher scores for each of the dependent variables. These relationships will be explained by a significant indirect effect of BJW-s on the dependent variables of academic resilience (H4c) and optimism (H4d) through locus of control. That is, higher just world belief scores will predict higher locus of control scores, which will in turn, predict higher scores on the dependent variables. The index of moderated mediation will be significant (H4e) indicating the indirect effects of BJW-s on the dependent variables through locus of control are lower as the participants increase in age.

Hypothesis 5: This will be a replication of hypothesis 4 for just world beliefs for others with significant direct effects on the dependent variables (H5a and H5b). There will also be indirect effects on the dependent variables through locus of control (H5c and H5d). Finally, the index of moderated mediation will be significant (H5e), with indirect effects of BJW-o on the dependent variables through locus of control decreasing in strength as the participants increase in age.

CHAPTER 2: METHOD

2.1 Setting

The current study was undertaken at two separate co-educational Adelaide schools. Scotch College is an independent, Uniting Church school located in the south-eastern suburbs of Adelaide. The Australian Curriculum Assessment and Reporting Authority assessed the school's Index of Community Socio-Educational Advantage (ICSEA), as 1167 where the average value for Australian schools is 1000. Nazareth college is a Catholic school in the western suburbs of Adelaide with an ICSEA of 1038. Between them, the schools provided a diverse sample of participants with different religious orientations, cultural backgrounds and socio-economic statuses.

2.2 Participants

The participants for this study comprised different sub-samples. Age ranged from 12 to 18 years ($M=14.36$, $SD=1.71$). Gender (males 45%, females 52%, other 3%) and school (Nazareth 70%, Scotch 30%) were the other selectors of sub-samples. To be eligible, each student of Scotch College needed to co-sign a consent form with their parents and have proficiency in English. The students at Nazareth also required proficiency in English, but were able to consent to the study themselves, with the school choosing not to require parental consent after reviewing the survey questions. A total of 1128 students fully completed the survey, with 788 students participating from Nazareth and 340 from Scotch. A post hoc power analysis using G*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007), for a regression analysis of up to four predictor variables including moderator and mediator variables was conducted. It was determined that at each level of age except for 18 year olds, power levels were extremely high, ranging between .96 and .99.

2.3 Response Rate

With enrolments from years 7-12 for Nazareth College and Scotch College of approximately 1,100 and 600 respectively, the response rates were around 75% at Nazareth and 60% at Scotch. With a stringent “opt in” policy and two-level consent requirements at Scotch, the response rate was consistent with expectations at both schools.

2.4 Materials

Participants completed a survey battery of 67 questions derived from five standard measures via the online survey software *SurveyMonkey*. Each measure represented the two predictor variables of BJW for self and BJW for others, the mediator variable of locus of control and the two outcome variables of academic resilience and optimism. They will all be described in further detail below. The survey was viewed by two teachers, a year 7 student and a year 11 student not involved in the study to assess the readability and any technical issues. Feedback from the preview resulted in the wording of some questions being altered to maximise the understanding for students in the targeted age range. Following the adjustments, the same group agreed that it was unlikely students would need any clarification and that the survey should take a maximum of 15 minutes.

2.4.1 Belief in a Just World

The predictor variable of BJW was measured by Dalbert’s BJW scale for self (7 items) and her BJW scale for others (6 items) (Dalbert, 1999). Two separate measures were used for evaluating BJW with researchers believing that BJW for self needs to be assessed independently from BJW for others (Lipkus et al., 1996). Both measures use a Thurstone six-point scale with responses ranging from strongly agree to strongly disagree. All items are equally weighted and with no middle ground, the participant is unable to answer in a neutral manner. The questions within the scale are all general in nature to ensure unidimensionality and are written in the just world direction to avoid ambiguity. To provide greater clarity for

school students, the word “just” was replaced by the word “fair” in all but one question, with the terms “justice” and “injustice” retained for all questions. “I believe that usually, I deserve what happens to me” is an example of a BJW-s question, while “I think basically the world is a fair place” is an example of replacing the word “just” with “fair” to enhance participant understanding in the BJW-o scale. Higher scores indicate higher just world beliefs, with each participant’s average score for BJW-s and BJW-o used for analysis.

Dalbert has used these scales repeatedly in schools mostly in Europe over the past two decades. In the present research, Cronbach’s alpha levels for BJW-s was calculated at $\alpha = .85$ while BJW-o was calculated at $\alpha = .83$ indicating good levels of internal reliability for both measures.

2.4.2 Locus of Control

The mediating variable was measured using an adapted version of Levenson’s Locus of Control Scales with the 20-item model being used, which performs as well or better than the 24 item version in multiple regression analyses and confirmatory factor analyses (Presson, Clark, & Benassi, 1997). Four questions referred to participant’s responses in relation to car accidents, eg. “Whether I get into a car accident depends mostly on how good a driver I am”. These were removed to minimise potential distress for participants leaving a total of 16 questions that were adapted to suit secondary school students. Terms like “powerful others” were changed to parents and teachers, for example “My life is chiefly controlled by teachers, popular kids and parents.” These scales were created in 1974 and have been used across the life span. They have been used with adolescents in a study exploring identity status, control and ego development (Adams & Shea, 1978). The measure uses a 6-point scale identical to those measuring BJW, with higher scores representing a higher level of internal locus of control for the participant. Total scores were averaged for analysis and internal reliability of the measure for this study was adequate with Cronbach’s $\alpha = .78$.

2.4.3 Academic Resilience

The first of two dependent variables, academic resilience was measured using Cassidy's Academic Resilience Scale, the ARS-30 (Cassidy, 2016). This scale was originally designed for use with university students as participants, but exchanging the word tutor for teacher where appropriate, the scale has been adapted for use with secondary school students. The scale comprises a mixture of positively and negatively worded questions asking about responses to academic adversity, that is, getting a poor grade. Following exposure to a scenario where they have failed an assessment task, responses to questions such as "I would use the feedback to improve my work", or "I would just give up" are made by participants along a five point Likert scale from likely to unlikely (Presson et al., 1997). Responses were scored and then averaged with negatively worded questions scored in reverse, higher scores indicate higher resilience. The scale had good internal consistency for this research with a Cronbach's α of .86.

2.4.4 Optimism

The second dependent variable of optimism was measured using the optimism items from the revised Life Orientation Test (LOT-R) (Creed et al., 2002). The complete test measures a combination of wellbeing, career maturity, decision making and goal setting. In their study Creed and colleagues used the LOT-R test with high school students from Queensland with the optimism aspect comprising six questions using a five-point Likert Scale with responses ranging from "I agree a lot" to "I disagree a lot". One of the items asks participants to consider "In uncertain times, I usually expect the best". Again, the responses were scored and then averaged for analysis, with higher scores indicating higher levels of optimism. Cronbach's alpha levels calculated for this sample suggest acceptable internal reliability with $\alpha = .70$.

2.4.5 Age

The moderating variable was age. Participants were asked their age rather than year level at the end of the survey along with other nesting questions of school and gender.

2.3 Procedure

At both schools the survey was approved by senior wellbeing staff (Heads of House and Director of Student Wellbeing), who are responsible for overseeing the pastoral and wellbeing programs in each school. The study was introduced to students as a part of their pastoral program by their mentor teacher who read from a prepared script to ensure consistency of instructions across all participants (Appendix 1). These staff members also supervised the completion of the survey and were advised of the importance of the responses being individual in nature and that student collaboration is not permissible. The mentor teacher is the first port of call for students with regard to their wellbeing and so was considered the best person to supervise the completion of the survey. All participants received a link to the survey monkey on the evening prior to completion with instructions to bring their computers to their mentor session the next day. At Scotch, non-participants were given an alternate email asking them to meet in the gym to engage with a separate session. At Nazareth, non-participants completed some silent work within their mentor groups as others completed the questionnaire.

2.4 Ethical Considerations

Ethics approval was obtained through the University of Adelaide's Human Research Ethics Subcommittee. Ethics approval was subsequently obtained through both schools with their Senior Leadership Team providing ultimate approval for each school to be involved in the study. Participants were reassured that their responses were confidential with no identification obtained ensuring anonymity. Participants and their parents were both required to provide consent in order for the participant to be able to complete the survey at Scotch

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College, while the pastoral leaders at Nazareth decided that student consent was solely required for them. My role as an employee at Scotch College required meticulous planning to ensure participants were not influenced by my involvement in the collection of data.

Consequently, I was not present during any of the data collection phase of the research and all correspondence referred to the research being for the University of Adelaide rather part of any Scotch program. Due to the nature of the questions asked in the study, participants were provided details of wellbeing support offered onsite at each school along with the details of Kids Helpline should any of the questions have caused them any distress.

CHAPTER 3: RESULTS

3.1 Power Analysis

A priori power analysis was conducted using G*Power for a linear multiple regression with four predictor variables. To detect a medium effect size with $\alpha = .05$ and power of 0.80 it was determined a sample of 77 would be required. Given that this research is concerned with the moderation of age, it would be important to have this number of participants at each age level. Post hoc tests revealed that power for each age level was between .96 and .99. The only exception to this was the 18-year-old demographic that had only 23 participants and consequently a much lower power of .25. Despite the low power, I decided that with no other mitigating factors this age level would still be included in the current study. Data was screened for incomplete responses with these participants deleted from the final sample.

3.2 Descriptive statistics

Demographic variables of age, gender and school were assessed at the end of the survey with a detailed breakdown described in Table 1. The study comprised an almost even split of gender with slightly more females than males. Similarly, there was a fairly even distribution of age across both colleges ($M = 14.36$, $SD = 1.71$). Nazareth College were more heavily represented with just over 70% of all participants.

Table 1

Descriptive statistics

Age	Nazareth College			Scotch College			N	N(%)
	Males	Females	Other	Males	Females	Other		
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>			
12	54	85	9	19	28	2	197	17.4
13	68	76	2	33	34	0	213	18.9
14	66	68	4	36	27	0	201	17.8
15	64	86	4	28	31	0	213	18.9
16	39	65	4	11	18	1	138	12.2
17	49	34	0	36	24	0	143	12.7
18	5	5	1	3	9	0	23	2.0
Total	345	419	24	166	171	3	1128	

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Means, standard deviations and ranges of the measured variables are reported in Table 2. Independent samples *t*-tests showed significantly higher levels of BJW-s, academic resilience and optimism for students from Scotch College compared to students from Nazareth College. Table 3 highlights these differences along with further differences between the means of the variables and gender.

Table 2
Means and Standard Deviations of main variables analysed

	<i>M</i>	<i>R</i>	<i>SD</i>
Belief in a Just World for Self	4.326	5.00	0.737
Belief in a Just World for Others	3.760	5.00	0.866
Optimism	3.285	4.00	0.640
Locus of Control	3.594	3.88	0.585
Academic Resilience	98.453	106.00	13.044

Note. *N*=1128; *M* = mean; *SD* = standard deviation; *R* = range

Table 3
Independent samples t tests for schools (Nazareth & Scotch) and gender

	School <i>t</i>	Gender <i>t</i>
BJW-s	-7.086**	-0.462
BJW-o	-1.159	-2.538*
Locus of control	-1.594	0.403
Academic resilience	-2.262*	0.898
Optimism	-5.264**	0.766

Note. *N* = 1128; ** *p* < .01; * *p* < .05

3.3 Bivariate Relations Between Variables

The bivariate correlations between predictor, mediator, outcome and demographic variables are summarised in table 4. Firstly, there were significant, positive correlations between academic resilience and locus of control, BJW-s, BJW-o, optimism and school. Secondly, there were significant positive correlations between optimism and locus of control, BJW-s, BJW-o, academic resilience and school. Thirdly, locus of control was positively correlated with BJW-s, optimism and academic resilience. Fourthly, BJW-s was significantly,

positively correlated with school and finally, BJW-o was significantly negatively correlated with age.

Table 4
Correlations between demographics, BJW-s, BJW-o, optimism, locus of control and academic resilience.

	1	2	3	4	5	6	7	8
1. BJW-s								
2. BJW-o	.48**							
3. Locus of Control	.17**	.03						
4. Age	-.03	-.16**	.01					
5. Optimism	.43**	.32**	.43**	-.01				
6. Academic Resilience	.40**	.32**	.35**	-.05	.54**			
7. Gender	-.03	-.03	-.03	.04	-.02	-.05		
8. School	.21**	.04	.05	.07*	.16**	.07*	.02	

Note. $N = 1128$; ** $p < .01$; * $p < .05$

3.4 Testing of the moderated mediation models

With some disparate significant associations between gender and school, I decided to control for these in the analyses. Both just world measures were also significantly correlated, so in line with previous research, the alternate just world measure was also controlled for to minimise its influence (Strelan & Sutton, 2011; Sutton & Winnard, 2007). I employed Hayes' (2018) PROCESS macro (version 3.0; model 7; 5000 iterations; bias corrected) to test for a moderated mediation of indirect effects between the predictor variables (BJW-s and BJW-o), and outcome variables (academic resilience and optimism) through locus of control at different ages. In all, four different models were used to account for the different predictor and outcome variables. All variables were mean centred.

In the following sections, first the results of the moderation component of each analysis is reported, followed by the results of the moderated mediation component.

3.4.1 Belief in a Just World for Self (BJW-s)

Locus of control. The main effect of BJW-s ($B = 0.164, p < .001, CI_{95\%} = [0.111, 0.217]$) on locus of control was significant, however age ($B = 0.003, p = 0.773, CI_{95\%} = [-0.017, 0.023]$) was not significant. More importantly, the interaction effect of BJW-s \times age was significant ($B = -0.040, p = 0.003, CI_{95\%} = [-0.067, -0.014]$). A simple slope analysis (figure 2), confirmed that BJW-s had a significant effect on locus of control at younger year levels, that is, 1 *SD* from the mean age ($\beta = .259, p < .001$). Whilst the effect of BJW-s was still significant at the older age level, that is, 1 *SD* above the mean age, it was less strong ($\beta = .098, p = .004$).

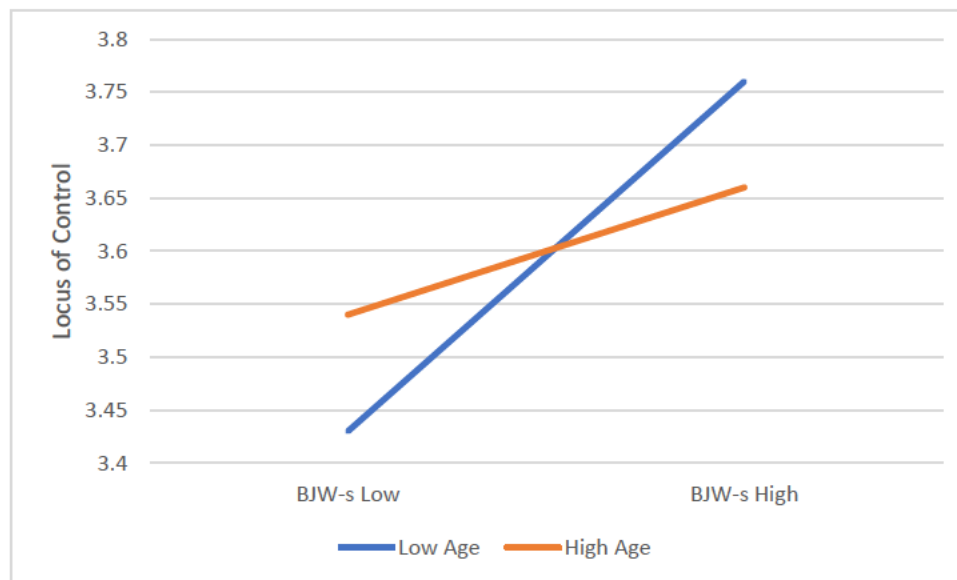


Figure 2. Interaction between just world beliefs for self and age on locus of control.

The results of the subsequent moderated mediation analyses are described below and are summarised in table 5.

Academic resilience. Table 5 shows positive indirect effects of BJW-s on academic resilience through locus of control are significant at each age level. In addition, there were positive, significant direct effects of BJW-s on academic resilience. It also shows a significant index of moderated mediation.

Optimism. Table 5 shows a comparable pattern for optimism, with positive indirect effects of BJW-s on optimism through locus of control significant at each age level. Additionally, there were positive significant direct effects of BJW-s on optimism at each age level. The index of moderated mediation is also significant.

Table 5
Summary of moderated mediation models for BJW-s

	Academic resilience	Optimism
	<i>B</i> CI _{95%} UL/LL	<i>B</i> CI _{95%} UL/LL
Direct effects of BJW-s on dependent variables		
BJW-s	4.595***[3.550, 5.641]	0.229***[0.181, 0.278]
Effect of locus of control on dependent variables		
Locus of control	6.742***[5.612, 7.872]	0.406***[0.353, 0.459]
Conditional indirect effects of BJW-s through locus of control by levels of age		
Low age (middle school)	1.747 [1.005, 2.486]	0.105 [0.060, 0.150]
High age (senior school)	0.658 [0.129, 1.355]	0.040 [0.007, 0.078]
Index of moderated mediation		
Locus of control	-0.272 [-0.499, -0.004]	-0.016 [-0.031, -0.001]

* $p < .05$; ** $p < .01$; *** $p < .001$

3.4.2 Belief in Just World for Others (BJW-o)

Locus of control. Different to the just world measure related to the self, the main effect of BJW-o ($B = -0.039$, $p = 0.095$ [CI_{95%} = [-0.084, 0.007]) on locus of control was not significant and neither was the effect of age ($B = 0.003$, $p = 0.805$, CI_{95%} = [-0.019, 0.204]). However, the overall interaction effect of BJW-o \times age ($B = -0.026$, $p = 0.026$, CI_{95%} = [-0.049, -0.003]) was significant. A simple slope analysis (figure 3), showed that there is a significant negative effect of BJW-o on locus of control ($\beta = -.081$, $p = .005$) at the older age

level. However, in the lower age group the effect of BJW-o on locus of control is also significant, but in the positive direction ($\beta = .098, p = .022$).

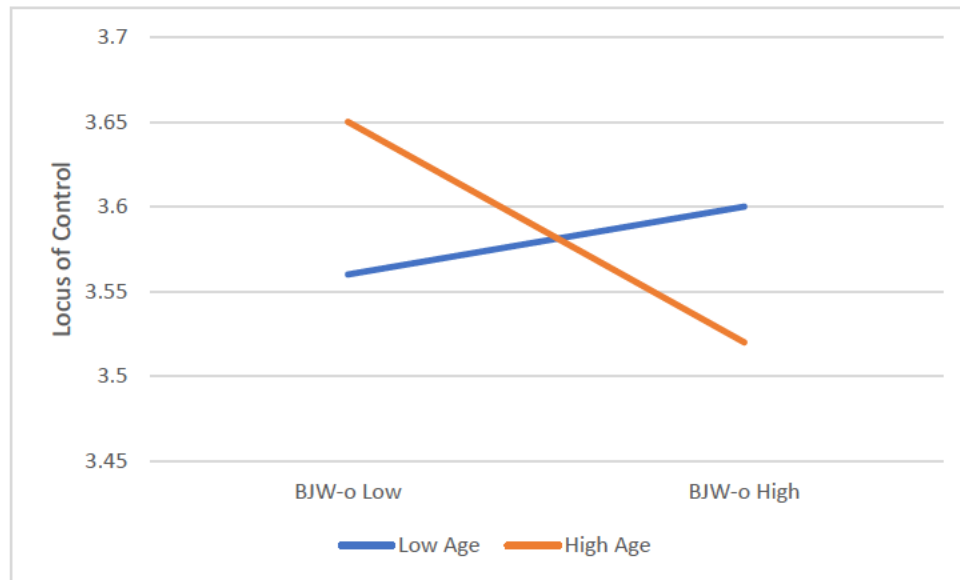


Figure 3. Interaction between just world beliefs for others and age on Locus of Control.

Despite there being no significant moderated mediation effect, unconditional indirect effects of BJW-o on academic resilience and optimism through locus of control are still tested for and summarised in table 6.

Academic resilience. Table 6 shows that the indirect effects of BJW-o on academic resilience through locus of control are not significant through the different age levels. However, there were significant direct effects of both BJW-o and locus of control on academic resilience.

Optimism. Table 6 shows that the indirect effects of BJW-o on optimism through locus of control are not significant through the different age levels. Similar to the effects on academic resilience, there were significant direct effects of BJW-o and locus of control on optimism.

Table 6
 Summary of moderated mediation models for BJW-o

	Academic resilience	Optimism
	<i>B</i> CI _{95%} UL/LL	<i>B</i> CI _{95%} UL/LL
Direct effects of BJW-o on dependent variables		
BJW-o	2.906***[2.046, 3.766]	0.1352***[0.095, 0.176]
Effect of locus of control on dependent variables		
Locus of control	6.742***[5.612, 7.872]	0.406***[0.353, 0.459]
Conditional indirect effects of BJW-o through locus of control by levels of age		
Low age (middle school)	0.151 [-0.522, 0.779]	0.009 [-0.030, 0.049]
High age (senior school)	-0.546 [-1.038, -0.043]	-0.033 [-0.062, 0.003]
Index of moderated mediation		
Locus of control	-0.174 [-0.387, 0.046]	-0.011 [-0.023, 0.003]

* $p < .05$; ** $p < .01$; *** $p < .001$

3.4.3 Summary of the Moderating Effect of Age

Further simple slope analyses of figure 4 shows the interaction between age and BJW-s from the other angle, revealing a significant positive effect of age on locus of control when BJW-s is low, ($\beta = 0.028, p = .034$ [CI_{95%} = [0.002, 0.053]). However, when BJW-s is high there is a non-significant negative effect of age on locus of control ($\beta = -0.024, p = .076$ [CI_{95%} = [-0.051, 0.003]).

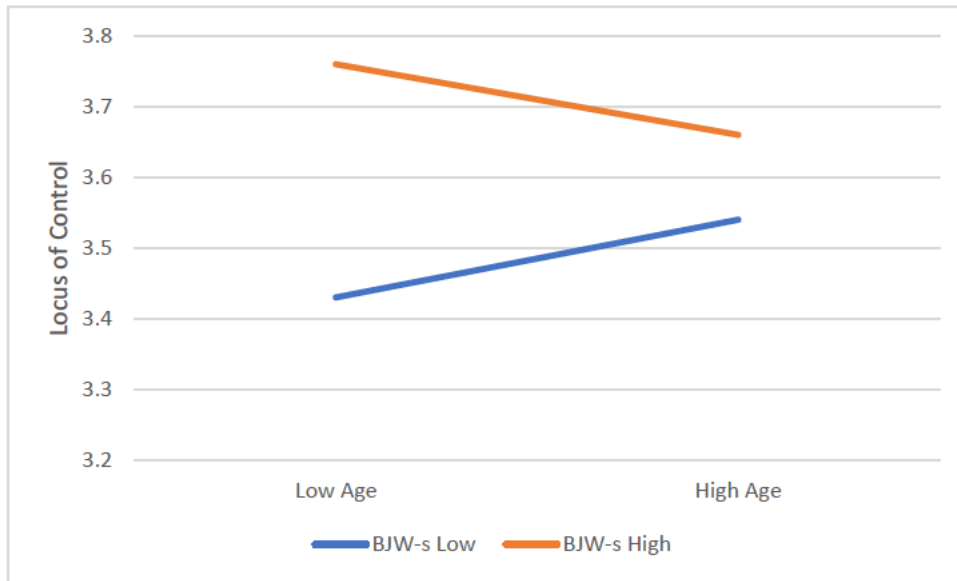


Figure 4. Interaction between age and just world beliefs for self on Locus of Control.

Similarly, figure 5 shows that age has a positive relationship with locus of control when B JW-o is low ($\beta = 0.023, p = .089$ [$CI_{95\%} = [-0.004, 0.050]$]), but a negative relationship when it is high ($\beta = -0.020, p = .170$ [$CI_{95\%} = [-0.049, 0.009]$). Both of these relationships are non-significant.

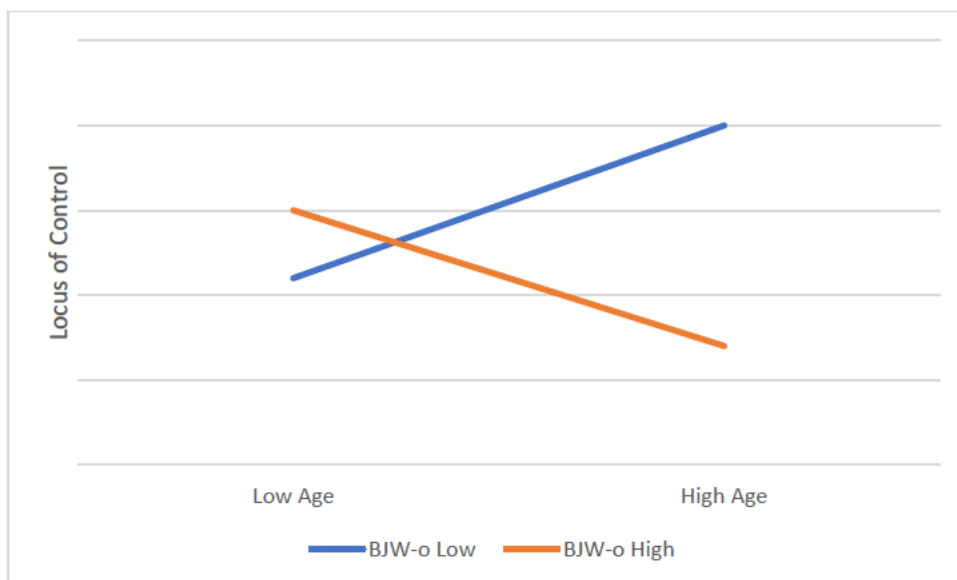


Figure 5. Interaction between age and just world beliefs for others on Locus of Control.

CHAPTER 4: DISCUSSION

Student wellbeing plays a pivotal role in education with schools across the world acknowledging the link between wellbeing and academic performance (Suldo et al., 2016). There is a strong interest to explore alternative methods of enhancing the wellbeing of secondary students in Australia (Roffey, 2012). Support for the ongoing research into the importance of just world beliefs in the South Australian educational sector is apparent, with two Adelaide schools committing to be involved in this research. The current study has helped to confirm the importance of just world beliefs in predicting locus of control, academic resilience and optimism in a South Australian secondary educational setting. The findings of this research provide a unique insight into how this combination of variables interact for Australian adolescents.

The vigour with which the schools supported this research provided a large sample size and therefore high power. Analysis of the data provided a range of confirmatory findings supporting previous literature from different contexts suggesting that just world beliefs, particularly for self, predict perceived internal control (Dalbert & Donat, 2015; Furnham & Procter, 1989), and the subjective wellbeing measures of optimism and resilience (Alves et al., 2018; Jiang et al., 2016). The difference between the two just world belief measures and their capacity to predict the other variables provided further support for their separation (Lipkus et al., 1996), with the measure for BJW-s producing significant direct and indirect effects through control on the other variables more often and with greater strength when compared to the measure for BJW-o.

Some interesting findings specific to the two educational settings involved in this research were also uncovered in the process. These results and their implications along with the limitations and strengths of this study will be discussed in greater detail below.

4.1 Direct Effects of Just World Beliefs on Locus of Control

4.1.1 BJW-s

There is a significant correlation between BJW-s and locus of control in this study, not surprisingly, there are also significant direct effects of BJW-s on locus of control in a positive direction. This finding is in line with the literature that suggests there is an overlap between both measures (Furnham & Procter, 1989), and perceived fairness of a student's learning environment will predict the sense of control a student feels they have over events in their life. Students who feel they are treated unfairly, tend to have less of a sense of control over their lives (April et al., 2012). Their actions are dependent on external influences, which tends to make them less likely to want to change anything about their lives as they see little value in challenging their pre-determined fate or destiny (Carrim et al., 2006).

4.1.2 BJW-o

Contrary to the effects found for belief in a just world for the self, no significant effects of BJW-o on locus of control were found, suggesting that regardless of how adolescents from these two schools feel the world treats other people, their sense of control over their own lives remains intact. However, if the results from students in the middle school were looked at in isolation and the same done for senior school students, both show significant direct effects with middle school students significant in the positive direction ($\beta = .098, p = .022$) and senior school in the negative direction ($\beta = -.081, p = .005$). The significant positive effect in the middle school is to be expected and supported by the literature (Dalbert & Donat, 2015; Furnham & Procter, 1989). However, the negative effect found in the senior school is unexpected. It may be explained by older adolescents afforded greater opportunities to be in control of their own life as they leave the protection of their parents, they have greater freedom to make their own decisions about their education, social life and extra-curricular activities. While they also develop a stronger understanding of how

unjust the world around them can be. Their education elucidates the plight of people the world over suffering starvation, civil wars, human rights atrocities and similar. Consequently, students who have progressed further in their education and are in their final years of secondary schooling will generally have a better understanding of world events and their perception of the world as just to other people or generally will more likely be negative, despite their internal locus of control increasing.

4.2 Direct Effects of Locus of Control on Academic Resilience and Optimism.

This study has also shown significant positive direct effects of locus of control on both dependent variables. With schools grappling to understand their role in preparing students for success post school in an everchanging industrial landscape (Fernandez, 2019), providing students with a sense that they have some control over their future is imperative. These findings support the literature that suggests students who feel a greater sense of control in their lives are more optimistic about their future and are able to use setbacks to enhance performance. (April et al., 2012; Rudski, 2004)

4.3 Moderating Effects of Age on the Relationships Between Just World Beliefs and Locus of Control.

4.3.1 BJW-s

There is a significant interaction effect between BJW-s and age when predicting locus of control. Students in both the senior and middle school show positive effects for BJW-s on locus of control. However the effects for students in the senior school are less strong. These findings suggest that as students reach the senior secondary school years, their belief in a just world for themselves is less important in predicting their feeling of control over their lives. This may be attributed to the increase in freedom adolescents are afforded as they reach the end of their schooling, the expectations they have to be with their parents are less, the curriculum at school and potentially further study also opens up for them. In contrast,

students in the middle school are not capable of driving, so are reliant on parental support for getting around. Similarly, their curriculum is very well set out for them, with less subject choice when compared to students in the senior school. These results show that for these students, the fairness of their world strongly predicts their sense of control.

With the index of moderated mediation significant, the difference of these indirect effects of BJW-s on academic resilience and optimism through locus of control are significantly different at the different age levels. Whilst both indirect effects are significant individually, the weaker effect size in the senior years compared to those seen in the middle years is also significant. These results are expected and consistent with the direct effects of BJW-s on locus of control, with the differences between ages most pronounced when just world beliefs are lower.

4.3.2 BJW-o

There was no moderated mediation effect found for BJW-o on the dependent variables through locus of control. With mostly non-significant individual indirect effects, and with a non-significant correlation between BJW-o and control, there was no significant mediation effect to be moderated by age.

4.4 Direct Effects of BJW-s on Academic Resilience and Optimism

Overwhelmingly, the literature suggests that individuals who have a stronger belief that their own world is just will have higher scores on resilience and optimism scales (e.g. Dalbert & Donat, 2015). Consistent with the literature, the present study supports these findings with statistically significant direct effects of BJW-s on both academic resilience and optimism in South Australian adolescents. Schools play a major role in the lives of adolescents, with around seven to nine hours a day dedicated to pursuits within them (Fernandez, 2019; Maxwell, 2019). It would be expected that the school environment plays a sizeable role in the development of each student's perception of justice. The results show that

students in these two schools who feel their learning environment is fair are more likely to view an academic setback as an opportunity for growth. The same students are also able to see a more positive future for themselves, they trust the learning process and expect good things to happen for them in both the short and long term. In the same breath, students that exist in an environment perceived as unfair for them, will tend to feel that every set back is a blight on them, it confirms the world isn't fair and accentuates the probability of them developing a form of learned helplessness rendering them susceptible to a pessimistic mindset (Rudski, 2004). This negative view of the world makes recovery from adverse events more challenging (Creed et al., 2002).

4.5 Direct Effects of BJW-o on Academic Resilience and Optimism

The well documented inward focus often present in adolescents (Hanna, 2016) might suggest that the findings for direct effects of just world beliefs in adolescents for others might be different than for self. In fact, the direct effects of BJW-o on the dependent variables were line with the findings for the just world beliefs for self. However, whilst significant for both just world measures, the positive direct effects of just world beliefs for others on the dependent variables was not as strong as the effects of BJW-s.

4.6 Indirect Effects of Just World Beliefs on Academic Resilience and Optimism Through Locus of Control.

4.6.1 Indirect Effects of BJW-s.

There is no research on the mediating effect of locus of control on the relationships between BJW-s and this study's dependent variables found in the literature. However, this study shows significant positive indirect effects of BJW-s on both dependent variables through locus of control. These results are consistent with what would be expected given that just world beliefs have been strongly associated with internal locus of control (Dalbert & Donat, 2015; Furnham & Procter, 1989), which has in turn predicted resilience and optimism

in previous literature (e.g. Creed, Patton & Bartrum, 2002). The perceived fairness of assessment for individual students along with the mode and frequency of teachers acknowledging successes and reprimanding unwelcome student behaviour all play a part in either enhancing or challenging an individual's just world beliefs for themselves. When they feel in control, they tend to acknowledge that the diligence they give to their work will be the strongest determinant of their academic success (Chubb et al., 1997). They have the framework to be able to look objectively at setbacks as opportunities for growth and they will tend to display greater optimism about their future with the impact of periphery factors on their life events minimal (Peacock, 1996).

4.6.2 Indirect Effects of BJW-o.

None of the conditional indirect effects of BJW-o on the dependent variables through locus of control were significant. These results are consistent with this sample not producing a significant correlation between BJW-o and locus of control, suggesting a significant mediation would be unlikely. There was one exception however, with significant, but small negative indirect effects of BJW-o on optimism through control at the older age level ($\beta = -0.546$, [CI_{95%} = [-1.038, -0.043]]). These effects are in the opposite direction to what would be expected. That is, the more strongly a person believes the world is fair for others, the lower their levels of optimism through control and vice versa. Given the unusual effect discovered for BJW-o on locus of control directly, a similar argument may be postulated for this finding. As students increase in age, their belief that the world is fair to others diminishes, while as they get closer to leaving school, their level of control increases. Parents of students from Nazareth and Scotch tend to provide students with emotional and financial support (Fernandez, 2019; Maxwell, 2019), which helps to maintain their optimism about their future. That said, with such a small effect size, these results are similar to other research that have found no correlation between control and optimism (Carifio & Rhodes, 2002).

4.7 Other Interesting Findings.

Independent samples *t* tests showed no significant differences between gender for any of the variables measured in this study, the same tests measured the differences between schools for each variable. Three variables showed significant differences between schools with Scotch students having significantly higher levels of just world beliefs for themselves, optimism and academic resilience. It is possible that these results are due to the higher socioeconomic rating for Scotch compared to Nazareth, with the Australian Curriculum Assessment and Reporting Authority assessing Nazareth's the school's Index of Community Socio-Educational Advantage (ICSEA), as 1038, where the average value for Australian schools is 1000, while Scotch's ICSEA is 1167. These findings are in line with the literature that suggests that socioeconomic status is related to wellbeing (Pasco et al., 2018).

4.8 Strengths.

Dalbert and colleagues have explored just world beliefs of adolescents in schools (Correia & Dalbert, 2007, 2008; Dalbert & Stoeber, 2005, 2006), but this study is the first of its kind to use Australian adolescents as participants. Examining control as a mediating variable is also unique to this study. Despite Lerner postulating that there would be a relationship between just world beliefs and locus of control (Lerner, 1980), there has been no previous research examining its effect as a mediator of BJW effects.

This study had extremely high levels of power, with a large sample from the two Adelaide schools. The schools have different socioeconomic statuses and religious affiliations, which provide a somewhat diverse sample. The sample has gender equivalence and similarity between total participants in each age range with the exception of the underrepresented 18 year age level. With each school providing time in the school day for students to complete the surveys under supervision, it was less likely that the participants' responses would be influenced by others.

4.9 Limitations.

Large samples bring the possibility that there may have been some errors in the data, straight line responding, speeding or inconsistent responses were all possible. To counteract the risks of response errors, care was taken to brief individual teachers as to the importance of students responding individually to questions in the questionnaire. They were instructed to ensure the environment was silent and that no interaction between students took place. Further concerns with the large sample size could be the potential for type II errors, it is possible that small effect sizes for the relationships may still prove significant. However, the correlational data for the main variables are robust with $p < .01$ and most correlations between .30 and .60 suggesting that this concern is not necessary with this data set.

Whilst this study adds value to previous research comprising a unique sample of Australian secondary school students, both schools are from higher socioeconomic backgrounds than the average Australian school. Therefore, they cannot be considered representative of the population.

4.10 Practical Implications.

The importance of creating a fair and just learning environment is highlighted by this study. The results provide evidence of the link between perceived justice in an adolescent's life and their sense of control over their own destiny, their ability to bounce back from adversity and how positive they feel about their future. This evidence may be used by educational leaders to impress upon teachers the importance of fair and transparent assessment practices as well as managing their classroom in a manner that is equally clear and just. To further support their teachers, exploring the development of a student intervention to be delivered to students in the middle years is a possibility and would be supported by these results. The creation of a program with a goal to provide adolescents with a better understanding of their world while emphasizing their sense of justice will help build

their wellbeing based on the well-established theory confirmed by this research, that people need to believe in a just world to overcome adversity and look positively to the future (Hafer, 2000; Lipkus et al., 1996).

4.11 Future Research Directions.

This study provides evidence that both just world beliefs for self and for others have direct effects on academic resilience and optimism, as well as indirect effects of BJW-s through locus of control, particularly in the middle school where the relationships are strongest. Future research should explore if the same design would produce similar results in government schools and schools from lower socioeconomic areas. Replicating the evidence found in this study would provide data that is more representative of the population. Similarly, research to determine the effects of just world beliefs on other subjective wellbeing variables would help to present a stronger case for developing a universal intervention for middle school students with a focus on just world beliefs to support student wellbeing and thus academic performance.

Implementation science helps inform educational leaders of the most up to date research that might support the development of an explicit program to support middle school students' just world beliefs that could have a wholistic positive effect on student wellbeing. Creating and then enhancing a BJW intervention would require researchers to work in conjunction with educational leaders to follow implementation with longitudinal or repeated measures research designs to assess the effects on student wellbeing and academic performance.

4.12 Conclusion

This research is the first of its kind in the world and makes a unique contribution to the just world literature. It is the first exploration of the effects of just world beliefs on Australian secondary school students, the first to explore locus of control as a mediator of

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these variables, and the first to look at age as a moderator of these effects in adolescence. The empirical evidence produced by this research supports the notion that just world beliefs can have both direct effects on academic resilience and optimism as well as indirect effects through locus of control. These results support theories developed over 50 years of studying the phenomena associated with the just world construct. Interestingly, the most powerful relationships were found in the middle school, and the importance of how fair the world is for others is a less important predictor of the dependent variables.

There is scope for these findings to emphasise the importance of creating a transparent and just learning environment for South Australian educators in the independent sector. While future research may be able to support a universality of the current findings and thus the potential to develop a program aimed at boosting the wellbeing and academic performance of students through encouraging a belief that their world is based on justice.

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Appendix A – Participant Information Sheet

PARTICIPANT INFORMATION SHEET

PROJECT TITLE: Exploring the relationships between fairness, resilience and optimism.

HUMAN RESEARCH ETHICS COMMITTEE APPROVAL NUMBER: [REDACTED]

PRINCIPAL INVESTIGATOR: Dr Peter Strelan

STUDENT RESEARCHER: Mr David Scholz

STUDENT'S DEGREE: Honours of Psychological Science

Dear Participant,

You are invited to participate in the research project described below.

What is the study about?

The study aims to assess the extent to which fairness is related to resilience and optimism at school. The results of the study may be able to help schools plan interventions that focus on developing resilience and optimism through enhancing the fairness of the school environment.

Who is undertaking the project?

This project is being conducted by Dr Peter Strelan and Mr David Scholz. This research will form the basis for the honours degree of Psychological Science at the University of Adelaide under the supervision of Dr Peter Strelan.

Why am I being invited to participate?

You are eligible to participate if you are:
a secondary school student who has a sound understanding of the English language.

What am I being invited to do?

Participation will require you to complete the following survey. The survey will ask you questions about fairness, how you would deal with a negative academic result and how optimistic you are.

How much time will my involvement take?

The survey will take no longer than 15 minutes to complete. It is very important that you complete the survey individually and DO NOT talk to anyone else about your answers until the survey is completed by everyone.

Are there any risks in participating in the study?

There are no foreseen risks to the participants in the study, survey questions are non-invasive and are designed as trait measures. However, there may still be questions that evoke an emotional response based on past experiences. Should you feel any discomfort as a result of participating in this research, please make contact either in person, via email or by phone with any of the following: your mentor, Head of House or one of the two school psychologists, there are also 24-hour free services such as Lifeline Crisis Hotline (phone: 13 11 14).

What are the potential benefits of the research project?

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The results of the project may help to inform educational leaders as to the importance of a fair environment for students.

Can I withdraw from the project?

Participation in this project is completely voluntary. If you agree to participate, you can withdraw from the study at any time. Due to the anonymous nature of the study, it will not be possible to withdraw individual data once it has been submitted as it will be unidentifiable.

For parents:

If you do not wish your child to participate in this research, you are advised to not provide consent by not completing the Caremonkey consent.

What happens with the information collected?

All collected data will be kept electronically on password protected computers. Access to the data will be reserved to the two researchers and pastoral care leaders of the school involved (Heads of School, Director of Student Wellbeing, Heads of House, Heads of Boarding and school Psychologists). The data will be kept for a minimum of five years. Due to the anonymous nature of the survey, individual responses will be unidentifiable. The results will be written up to be considered for publication in an academic journal, and submitted as part of a thesis component of Psychological Science Honours degree. Your information will only be used as described in this participant information sheet and it will only be disclosed according to the consent provided.

Who do I contact if I have questions about the project?

██

██

What if I have a complaint or any concerns?

The study has been approved by the Scotch College Ethics Committee and Paul Delfabbro on behalf of the Human Research Ethics Committee at the University of Adelaide (approval number 19/16). This research project will be conducted according to the NHMRC National Statement on Ethical Conduct in Human Research (2007). If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should consult the Principal Investigator. If you wish to speak with an independent person regarding concerns or a complaint, the University's policy on research involving human participants, or your rights as a participant, please contact the Human Research Ethics Committee's Secretariat on:

Phone: +61 8 8313 4936

Email: paul.delfabbro@adelaide.edu.au

Post: Level 4, Rundle Mall Plaza, 50 Rundle Mall, ADELAIDE SA 5000

Any complaint or concern will be treated in confidence and fully investigated. You will be informed of the outcome.

If I want to participate, what do I do? Return the consent form, you will then have access to the questionnaire!

Appendix B – Mentor Teacher Script

Message to be delivered to students by mentor teachers:

David Scholz who is the Head of Boys Boarding at Scotch is studying psychology at the University of Adelaide in 2019, part of his academic program requires him to complete a research project. He is inviting you to be a part of this research with the details of the project described below:

What is the study about?

The study aims to assess the extent to which perceived fairness is related to academic resilience and optimism at school.

Who can participate?

Only secondary school students with a sound understanding of the English language.

What am I being invited to do?

Participation will require completion of a survey during mentor time on **Tuesday 25th June**. The survey will ask questions about fairness, how you would deal with a negative academic result and how optimistic you are.

How much time will it take?

The survey will take no longer than 15 minutes to complete. It is very important that the survey is completed individually and students **DO NOT** talk to anyone else about their answers until the survey is completed by everyone.

Are there any risks in participating in the study?

There are no foreseen risks to the participants in the study, survey questions are non-invasive and are designed as trait measures. However, there may still be questions that evoke an emotional response based on past experiences. Should students feel any discomfort as a result of participating in this research, they should make contact either in person, via email or by phone with any of the following: their **Mentor, Head of House** or one of the **two school psychologists**, there are also 24-hour free services such as **Kids Helpline (1800 55 1800)**.

What are the potential benefits of the research project?

The results of this project may help inform school leaders about potential interventions to support the academic resilience and optimism of secondary school students.

Can I withdraw from the project?

JUST WORLD BELIEFS, ACADEMIC RESILIENCE AND OPTIMISM

Participation in this project is completely voluntary. If you agree to participate, you can withdraw from the study at any time. Due to the anonymous nature of the study, it will not be possible to withdraw individual data once it has been submitted as it will be unidentifiable.

For your parents:

If you and your parents do not wish you to participate in this research, you are advised to **decline** the Caremonkey consent. Otherwise, please **accept** the Caremonkey consent.

What happens if I don't consent?

You will not attend your mentor period on Tuesday the 25th of June, instead, you will go to the gym to be involved with a session run by Mr Scholz about academic resilience.

What happens with the information collected?

All collected data will be kept electronically on password protected computers. Access to the data will be reserved to the two researchers and pastoral care leaders of the school involved (Heads of School, Director of Student Wellbeing, Heads of House, Heads of Boarding and school Psychologists). The data will be kept for a minimum of five years. Due to the anonymous nature of the survey, **individual responses will be unidentifiable**. The results will be written up to be considered for publication in an academic journal, and submitted as part of a thesis component of Psychological Science Honours degree. Your information will only be used as described in this participant information sheet and it will only be disclosed according to the consent provided.

Who do I contact if I have questions about the project?

Mr David Scholz – [REDACTED]