University students' motivation: The association of parental and teachers' autonomy support.

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ABSTRACT

The aim of this study was to investigate the association of parental and teachers' autonomous support upon university students relative autonomy. The study also investigated the extent to which there are any differences in relative autonomy across the three different university year groups controlling for age.

This study applied a cross-sectional correlation design. Using an online self-report questionnaire, data was collected from 82 participants via convenience sampling. The questionnaire consisted of three measurements; Perceived parental autonomous support scale (P-PASS), Learning Climate Questionnaire (LCQ) and Self-regulation Questionnaire (SRQ-L). The SRQ-L is used to find the students' autonomous and controlled regulation from which the relative autonomy index (RAI) was calculated.

The Analysis of Covariance, used to analyse the extent to which year group predicts relative autonomy whilst controlling for age, was non-significant. Pearson's correlational analysis reported a non-significant association between parental autonomy support and student autonomy, however a moderate significate interaction ($r_{(80)} = .332$, $p < .01$) was found between teacher autonomy support and student autonomy. This was further supported in the multiple regression analysis that determined a significant result ($F_{(2, 79)} = 4.82$, $p = .01$) suggesting parental and teacher autonomy support predicted 11% of student relative autonomy.

Introduction

According to Ryan and Deci (2000), self-determination theory is 'the investigation of people's inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration' (Ryan and Deci, 2000: 68). It was proposed that there were three key areas to achieving self-determination, these are: relatedness; the need to form secure attachments and feel a sense of belonging, competence; the need to master tasks and learn different skills and autonomy; an individuals need to control their goals and behaviour (Ryan and Deci, 1985).

The aspect of self-determination this study will focus on is autonomous motivation, which refers to the ability to act through choice based on your internalised interests and needs (Deci, 1971; APA, 2004). This study will also be taking into account controlled motivation, meaning behaviour such as attending lectures or going to university, which are being carried out due to external reasons which have not been internalised by the individual e.g. rewards or punishment. (Chirkov and Ryan, 2001; Jungert, 2015). Moreover, this study will increasingly refer to the students' Relative Autonomy Index (RAI). This is calculated using the scores of the self-regulation questionnaire, in which they are given statements regarding motivation towards their classes. The self-regulation questionnaire will provide scores for two scales, the participants' autonomous regulation and the controlled regulation. The RAI is the result of the deduction of the controlled regulation from the autonomous regulation (Black and Deci, 2000).

Motivation is a subject that is of profound interest to psychologists across various aspects of our day-to-day lives, and researchers are also interested in the changes across our life span (Sheldon et al., 2006). For example, occupational psychology is an area that is increasingly interested in the association of autonomous motivation with employee's satisfaction in the workplace (Gagne and Deci, 2005), thus leading to optimum achievement at work. This is shown by recent studies such as that of Baard et al. (2004) who investigated the relationship between employee's levels of autonomy, their employer's autonomous support and the extent to which their intrinsic needs are being satisfied (Baard et al, 2004).

Another area of psychology that is focusing on motivation is educational psychology. An important debate revolving around a student achievement is who is more responsible for supporting the student's motivation and achievement - the parents or the teachers? (Moswela, 2014). Various studies have investigated the degree to which parents and teachers' autonomous support - meaning allowing freedom of choice and focusing on the students' interest – relates to students' autonomous motivation (Chirkov and Ryan, 2001; Kusukar, 2011;).

Parental involvement in education is evidently important and research is increasing in this area (Gonzalez-DeHass et al., 2005). However, it is also important to consider whether the focus of importance is merely on the parents to be involved in the child's education, or is it also dependent on the way in which they are involved? According to Katz et al. (2011), in a study they conducted to investigate parents' support of children with doing their homework, not only does the support that a child receives affect their autonomous motivation but also the parent's own motivation to help. They found that parents, who were autonomously motivated to support their children with

their homework due to enjoying the homework itself, or placing value on helping their children, were more likely to show characteristics of autonomous support to their child such as encouragement and empathy. They found these children were more likely to be autonomously motivated towards completing their homework (Katz et al. 2011). However, this study does not explain whether the children's autonomous motivation could stem from the child's own interest in the homework subject, it also does not investigate external factors that may also enable the child to be autonomously motivated such as the teaching styles adopted by their school. Ryan and Deci (2000) have previously found that students who are more involved in setting their academic goals are more likely to achieve higher results, as this encourages them to be more intrinsically motivated (Ryan and Deci, 2000).

Further evidence to support the suggestion, that parental autonomous support is associated to the student's autonomous motivation comes from a study conducted by Chirkov and Ryan (2001). The study explored the parental and teacher support received by students in Russia and USA. Results showed that students in Russia perceived both their parental and teacher support to be controlling, whereas student in USA perceived them to be more autonomously supportive. The results showed perceived autonomous support to be a significant predictor of students' academic achievement (Chirkov and Ryan, 2001).

A benefit of the studies of Chirkov and Ryan (2001) which was conducted in Russia, and Katz et al. (2001) which was conducted in Israel, is that they support the idea that autonomous support is advantageous to student learning is not a concept only for western countries such as the UK and the USA.

Research undertaken by Rattelle et al. (2005) investigated the association of parental autonomous support on persistence in science subjects. The findings showed that students who perceived their parents to be autonomously supportive persisted in their education and showed higher levels of competence and autonomy (Rattelle et al., 2005). Although this study was conducted specifically between parents and students of the science curriculum it further supports previous studies (Chirkov and Ryan, 2001; Gonzalez-DeHass et al., 2005; Katz et al., 2011), which emphasise the need for parental autonomous support on student achievement.

As shown by Chirkov and Ryan (2001) teacher's support is also imperative in aiding students to be autonomously motivated. Many studies have investigated the role of teacher's on student motivation (Assor et al., 2002; Taylor and Ntoumanis, 2007). As previously discussed, Black and Deci (2000) conducted some of the main research surrounding self-determination theory. A significant study by Black and Deci (2000) investigated student motivation as they transitioned into university. Results suggested those who perceived their university lecturers to be autonomously supportive were more likely to experience less anxiety, stress, gain better academic results and overall enjoy their subject better than those who were externally motivated and perceived their teacher to be controlling (Black and Deci, 2000). Additional research has also supported that teacher control leads to enhanced extrinsic motivation (Assor et al., 2005).

Deci (1971) has focused largely on maintaining that extrinsic rewards, for example: stickers and reward points in schools and monetary rewards in the workplace, diminishes an individuals motivation towards a task whereas intrinsic motivation such

as positive feedback increases intrinsic motivation. This however has been criticised by Risher (2013) who suggested that in the example of workplaces, many jobs require an extrinsic reward due to their 'monotonous' nature. He suggested that in some jobs, if employers were to rely merely on intrinsic motivation employees' efforts would not increase (Risher, 2013).

Additionally, Reeve et al. (2004) investigated the effect autonomous teacher support and controlled teacher support had on student engagement. A number of teachers received training to inform them on how to become autonomously supportive. The teachers who were autonomously supportive engaged the children through understanding their interests and giving the children choices in the tasks, whereas the controlled teachers focused on extrinsic motivation by offering incentives as well as informing students of consequences. The results showed that students showed more engagement in lessons when the teachers were autonomously supportive (Reeve et al., 2004).

As stated above it is important to note the results on student engagement support. However, Deci (1971) noted that intrinsic rewards correlate to intrinsic motivation leading to increased academic achievement. This suggests students who were studying for their own satisfaction and intrinsic rewards were likely to succeed academically. Moreover, findings of the study also suggest that it is possible to train teachers in autonomous supportive teaching. (Reeve et al., 2004) This is important as many studies correlate autonomous supportive teaching to enhanced learning (Shen et al., 2013)

In addition to the above research, there have been a number of studies investigating the link between age and motivation in various aspects of life. Rautopuro and Vaisanen (2001) investigated differences in experience of university between mature and non-mature students. One of the areas investigated was motivation; results showed that mature students were more likely to be academically motivated to study, meaning they main priority was the intrinsic rewards such as knowledge. In contrast extrinsic rewards, such as future jobs, were more motivating to younger students (Rautopuro and Vaisanen, 2001). Support for this theory is found in a study carried out by Rothes et al. (2017), with 188 mature students in Portugal, who found mature students to have higher level of autonomous regulation. The persistence and autonomy exhibited by mature students could be seen as a result of returning to university most likely being their choice (Rothes et al., 2017).

Likewise, Scott et al. (2014) conducted a case study in which they investigated suggestions made by teachers which proposed students' were more autonomous with each year that passes by at university, additionally they expressed that mature students were more autonomous than younger students. The results of an autonomy learning scale supported the suggestion that students' autonomy increases with year group, however they found there was no significant difference between younger and mature students (Scott et al., 2014).

There is much research to support the association of autonomous support of parents and teachers in relation to students' academic achievement. However, it is also important to take into consideration when analysing such research that one of the limitations is the majority of the research uses self-reported measures thus relying on the personal perception of the students. This means there is a possibility of bias

affecting the results, as students may not feel comfortable disclosing the extent of their parents' support or control (Rattelle et al., 2005).

Hypotheses

Previous studies have shown that student motivation is an increasingly important topic; understanding that autonomous motivation can be a predictor of student's education allows us to support students to achieve optimum success (Rothes et al, 2017).

The hypotheses selected for this study will contribute to better aiding educational establishments in supporting students to become autonomously motivated as it will aim to determine the variables which may develop autonomy and thus increase personal and academic success.

Research relating student autonomy to age and year group is sparse. For this reason, this study will also be aiming to determine the extent to which age and year group of the students can predict students' autonomous motivation.

Hypothesis 1 – There will be a positive correlation between parental autonomy support and students' relative autonomy.

Hypothesis 2 – There will be a positive correlation between teachers' autonomy support and students' relative autonomy.

Hypothesis 3 – A combination of parental autonomy support and teacher autonomy support will predict the student's relative autonomy index.

Hypothesis 4 – The variables of age and year of study will predict the student's relative autonomy index score.

Method

Design: A cross-sectional correlational design was used. The criterion variable in this study was the student's relative autonomy index score (RAI), which was calculated by subtracting the students' controlled regulation score from their autonomous regulation score. The study will investigate four predictor variables: Parental autonomy support, teacher autonomy support, participant's age and participant's year group.

Participants

A total of 82 participants were recruited: 29 first-year students, 26 second-year students and 27 third-year students. Initially 119 responses were recorded however 37 responses were removed due to incomplete questionnaires as full informed consent was not obtained. Prior to the start of the study an a-priori sample size calculator for multiple regressions had been used to calculate the minimum number of participants needed for a medium effect size ($f^2 = 0.15$), a desired statistical power level of 0.8, probability level of .05 and 4 predictors (Soper, 2016). Although

the results of the calculator had suggested a minimum of 84, this was not achieved due to time constraints.

It was decided that the target samples would be university students, rather than students of any age group such as high school or college, in order to ensure they were over 18 thus not vulnerable and could freely give fully informed consent to taking part.

Participants were recruited by convenience sampling as the questionnaire was firstly distributed through the Manchester Metropolitan University psychology participation pool. This was deemed an appropriate platform to use, as it would ensure all participants were over the age of 18 and psychology students. It would ensure access to the various year groups, as students are encouraged to use the participation pool from the first year in order to collect points to be able to use the participation pool for their third year dissertation. The questionnaire was later distributed through various social media sites, such as Facebook, in order to reach a larger number of students from different year groups.

Measures

This study used questionnaires that had been used and validated in previous studies. All the questionnaires used were found in previous studies to have a high alpha reliability for the variables they were measuring. Permission to use these questionnaires was not needed as they were available on the self-determination theory website that stated permission was not needed for academic purposes.

A demographic question was used at the start of the study to determine the participant's year of study and age group.

Perceived Parental Autonomous Support Scale (P-PASS).

The 24-item P-PASS questionnaire is based on the participant's perceived experiences of their parent's autonomous support as they were growing up. It included two scales, parental control and parental autonomy support. Each scale was measured by 12 questions, such as 'When I refused to do something, my parents threatened to take away certain privileges in order to make me do it.' For the parental control and 'My point of view was very important to my parents when they made important decisions concerning me' for parental autonomous support. The questionnaire has been amended slightly to have one response for 'parents' rather than a separate one for mother and father. This was done in order to first take into consideration the participants who may not have grown up with either respective parent and secondly to reduce the number of questions for the participants. Answers are recorded on a 7-point likert scale ranging from 'do not agree at all' to 'very strongly agree'. A validation of P-Pass found a Cronbach's alpha reliability of .92 for autonomous support and .89 for controlling parenting (Mageau et al., 2015).

Learning Climate Questionnaire (LCQ).

This 15-item questionnaire relates to the participants perceived autonomous support from their lecturers. The questionnaire includes questions such as 'I feel understood by my lecturer.' Participants must record on a 7-point likert scale to which degree they 'strongly disagree' or 'strongly agree'. In order to score the questionnaire a sum

of the 15-items must be calculated. Once calculated, a higher score suggests a higher perceived autonomous support. Previous studies have found the questionnaire has an alpha reliability of .94 (Black and Deci, 2000).

Learning Self-Regulation Questionnaire (SRQ-L) (Black and Deci, 2000).

Although initially this questionnaire was amended to refer to psychology lectures, during the course of the study it was decided to generalise the statement to all university courses in order to increase participants.

This questionnaire consisted of three statements; 'I will participate actively in my class' 'I am likely to follow my lecturer's suggestions for studying my subject' and 'The reason that I will work to expand my knowledge of my subject is..'. Followed by a mixture of intrinsic reasons such as, 'because its interesting to learn more about the nature of my subject' and extrinsic reasons 'because others might think badly of me if I didn't'. The participants are asked to indicate on a likert scale to what extent they identify with each reason with 1 being 'not true at all' and 7 'very true'. Previous studies showed 'subscale alpha reliabilities were .75 for autonomous and .67 for controlled' (Black and Deci, 2000:745). This was

Participants RAI will be calculated from this questionnaire as previously stated by subtracting the controlled regulation score from the autonomous regulation score. Procedure

The research was carried out in accordance to the British Psychological Societies code of ethics and conduct (2009). An Application for Ethics Approval Form (Appendix 1) was submitted and approved prior to data collection ensuring protection of the participants and researcher. Furthermore, the participant sheet at the start of the study included as much information as possible in order to allow to the participant to make an informed decision on whether to continue or not.

The questionnaire was placed on Qualtrics, an online survey software. Data was collected through online questionnaires rather than paper copies due to the many advantages such as it being cost effective; additionally, it is easier to reach a larger number of participants (Katsirkou et al, 2010). O'Neill (2004) also suggested that online questionnaires yielded more responses than paper questionnaires (O'Neill, 2004). This could be due to participants finding it quicker to fill in a questionnaire and submit in their own time.

Once ethical approval had been obtained, the link for the questionnaire was placed on the MMU participation pool. Students received a brief invitation on the participation pool (Appendix 2); from this participants are able to decide whether to take part or not. The survey link was also distributed through social media, such as Facebook; this allowed the researcher access to a broader demographic of students.

Once participants decide to take part they are directed to the Qualtrics website on which they are first shown the participant information sheet (Appendix 3) to ensure informed consent. The participants were next shown the consent form (Appendix 4) and could only continue once they had agreed they had read and understood the information above and agreed to continue.

Two demographic questions were then presented to the participants (Appendix 5), the first being their year group, 1st year, 2nd year or 3rd year. The second demographic was their age, the options being 18-22, 23-29 and 30+. Ethical considerations were taken into place with regards to the age groups with the third age group being 30+ in order to minimise the identification of older students due to their minority. These two demographics were chosen due to the research's interest in relative autonomy between the year groups whilst controlling for age.

The participants were then shown the three separate questionnaires. Firstly P-PASS (Mageau et al., 2015) (Appendix 6); instructions on how to complete it are given at the top of the page and participants are informed that although the question states 'parents' they are to answer this in relation to their main carer growing up, secondly LCQ (Black and Deci, 2000) (Appendix 7) and finally SRQ-L (Black and Deci, 2000) (Appendix 8). In order to retain reliability of the results, the methodology previously used by Black and Deci (2000) was followed. It was decided that participants would be forced to respond to questions before they carried on to the next page to ensure fewer omissions as O'Neill (2004) had previously suggested this to be an advantage of online questionnaires.

Participants were lastly shown the study de-brief (Appendix 9) in which it reiterated that once they had submitted the questionnaire they could no longer withdraw. Once participants had agreed to submit, their answers were recorded and 30 points rewarded to those who had taken part through the MMU participation pool. Data collection took two months, after which the link was deactivated the data was downloaded from Qualtrics onto SPSS.

Analysis

Firstly in order to determine reliability of each subscale the Cronbach's alpha scores were found by conducting a reliability analysis. Parametric assumptions were then tested and it was determined that the data met three of the four assumptions, those being scale data, no outliers and a normal distribution. It was found however that the data did not have homogeneity of variance. This meant that a multiple regression analysis could be used with this data.

Next instructions found on the questionnaires to find the score of each separate subscale were followed in order to allow us to carry out the statistical tests. Furthermore the RAI score was calculated by subtracting the controlled subscale score from the autonomous subscale score, this was needed to carry out the multiple regression analysis. A correlational analysis was carried out to investigate the relationship between autonomy sores and parental and teacher autonomous support. A multiple aggression analysis was then conducted to discover if relative autonomy could be predicted from parental autonomy support and teacher autonomy support. Finally, an Analysis of Co-variance was completed to measure differences in relative autonomy between the year groups whilst controlling for age.

Results

Reliability Analysis

An internal reliability score for all scales and subscales of all three questionnaires was carried out. All scales bar one (controlled regulation) showed α >.85 which has been previously reported to mean a good internal consistency, controlled regulation scored α >.7 meaning it was considered acceptable (Cortina, 1993; George and Mallery, 2003).

Table 1.

Descriptive statistics and reliability analysis for parental autonomy support and subscales, psychological control and subscales.

Measures	M	(SD)	Number of items on scale	Cronbach's alpha [95% CI]
Parental autonomy support*	37.67	(15.67)	12	.94 [.92, .96]
Offering choice within limits	11.63	(5.45)	4	.85 [.79, .90]
Explaining the reasons behind, the demands, rules and limits.	12.22	(5.36)	4	.87 [.82, .91]
Being aware of, recognising and accepting the child's feelings.	13.82	(6.20)	4	.90 [.86, .93]
Psychological control*	52.41	(14.54)	12	.90 [.87, .93]
Threatening to punish the child	16.18	(5.92)	4	.87 [.82, .91]
Inducing guilt	19.15	(6.18)	4	.91 [.87, .94]
Encouraging performance goals	17.09	(5.62)	4	.81 [.73, .87]

Note. N = 82. CI = Confidence Interval. Above Means and standard deviations for each measure are calculated from the individual's mean response across the items on the scale.
Response format on the scale values range from 1 (strongly disagree) to 7 (strongly agree).
*Scales used for statistical tests.

Table 1 shows the Cronbach's alpha score for the two scales from the P-PASS questionnaire, parental autonomy support scale and psychological control. It also shows the scores below each scale for the subscales from which they are made. It found that the Cronbach's alpha scores for parental autonomy support was α = .94, 95% CI [.92, .96] and Cronbach's alpha for psychological control was α = .90, 95% CI [.87, .93].

Furthermore, Table 1 also shows the mean participants scores for the scales and subscales following a descriptive statistics test. Parental autonomy support (M=37.67, SD= 15.67) and psychological control (M= 52.41, SD= 14.54).

Table 2.
Descriptive statistics and reliability analysis for perceived teacher autonomy support

Measures	M	(SD)	Number of items on scale	Cronbach's alpha [95% CI]
Teacher autonomy support	50.57	(16.09)	15	.94 [.92, .96]

Note. N = 82. CI = Confidence Interval. Above mean and standard deviation are calculated from the individual's mean response across the items on the scale. Response format for each item on the values measures ranges from 1 (strongly disagree) to 7 (strongly agree).

Table 2 shows the Cronbach's alpha score for learning climate questions, it found that the Cronbach's alpha scores for perceived teacher autonomy support was α = .94, 95% CI [.92, .96]. Means and standard deviation scores for teacher autonomy support (M= 50.57, SD=16.09) are also shown in table 2.

Table 3
Descriptive statistics and reliability analysis for autonomous regulation and controlled regulation

Measures	M	(SD)	Number of items on scale	Cronbach's alpha [95% CI]
Autonomous regulation	26.35	(6.40)	5	.85 [.79, .90]
Controlled regulation	30.50	(7.36)	7	.71 [.61, .80]

Note. N = 82. CI = Confidence Interval. Above Means and standard deviations for each measure are calculated from the individual's mean response across the items on the scale.

Response format for each item on the values measures ranges from 1 (not at all true) to 7 (very true).

Table 3 shows the Cronbach's alpha score the self-regulation questionnaire, it found that the Cronbach's alpha scores for autonomous regulation was α = .85, 95% CI [.79, .90] and controlled regulation α = .71, 95% CI [.61, .80],

Means and standard deviation scores were also found for autonomous regulation (M= 26.35, SD= 6.40) and controlled regulation (M=30.5 SD=7.36).

Correlational analysis

Table 4
Pearson Correlation Matrix for variables RAI, teacher autonomy support and parental autonomy support.

	Teacher autonomy support	Parental autonomy support
RAI	.332*	-.01

Note. N = 82. One-tailed probability. *Correlation is significant at the .01 level.

Table 4 shows the results of the Pearson correlation carried out to test hypotheses 1 and 2. Hypothesis 1 stated that there would be a positive correlation between parental autonomy support and students' relative autonomy. The results show a non-significant relationship between students' relative autonomy and parental autonomy support (r (80) = -.01, p >.05) leading to a rejection of hypothesis 1.

Hypothesis 2 stated a positive relationship between teachers' autonomy support and students' relative autonomy. The results show a moderate significant relationship between students' relative autonomy and teacher autonomy support (r (80) = .332, p < .01). Therefore, hypothesis 2 can be accepted, as there is a statistically significant relationship between the two variables with a medium effect size.
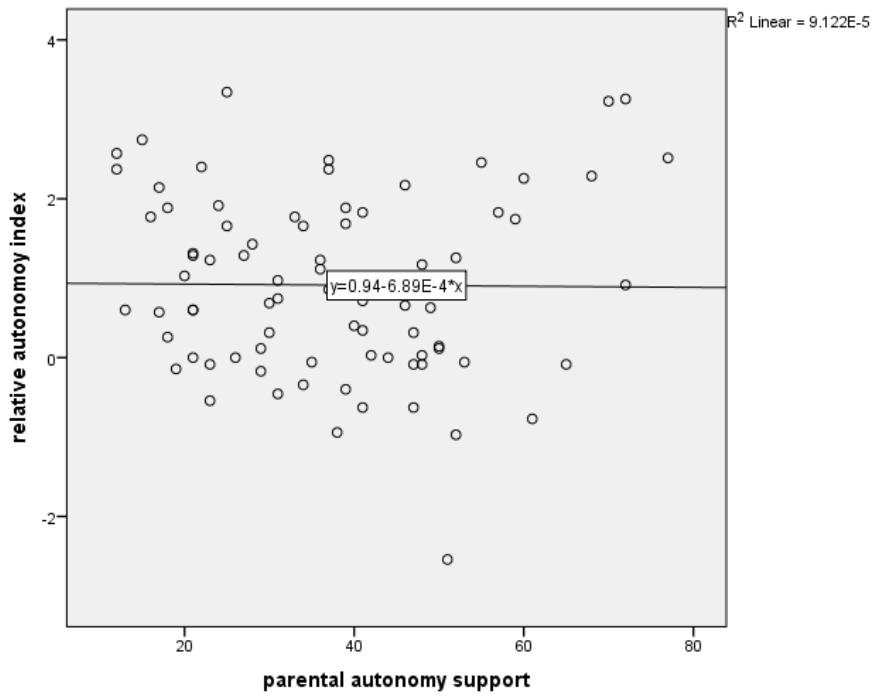
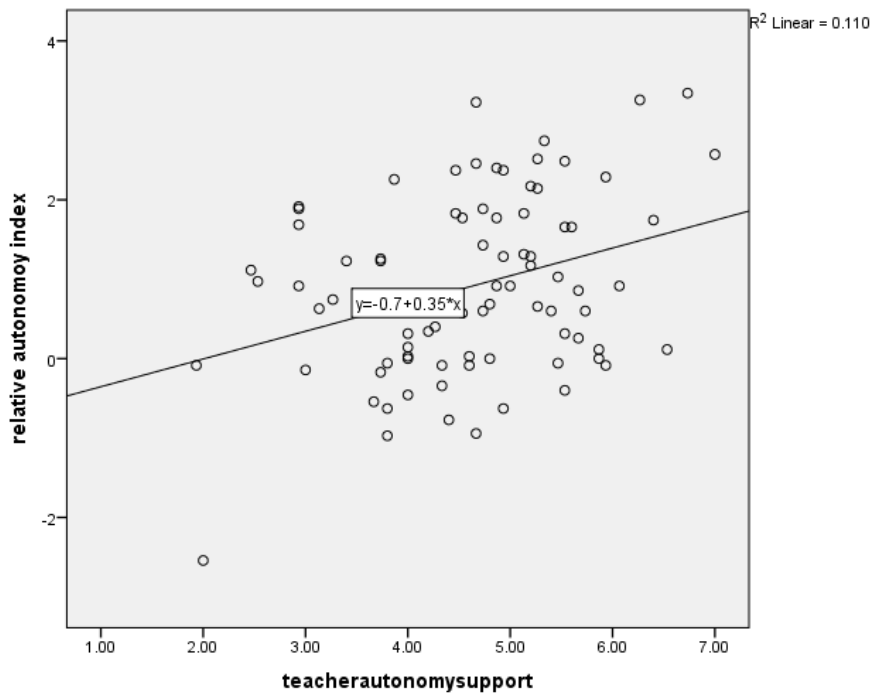Figure 1. Parental autonomy support and RAI scores.

Figure 2. Teachers' autonomy support and RAI scores.

Figure 1 and 2 show the scatter plots, which were produced for a visual representation of the relationship between the criterion variable and each predictor variables.

Multiple regression analysis

Prior to conducting the multiple regression analysis, parametric assumptions were tested. It was found that the data met three of the four parametric assumption; scale data, no outliers and a normal distribution. Although it did not meet the assumption of homogeneity of variance, the three that were met were sufficient to allow us to carry out a multiple regression analysis (see appendix 12).

Table 5 Summary of regression analysis for predicting students' relative autonomy.

Variable	B	β	t	Sig. (p)	R^2	Adj. R^2
Constant					.11	.08
Parental autonomy support	.001	.002	.08	.93		
Teacher autonomy support	.35	.33	3.12	.002*		

N = 82. * p < .01

A multiple regression analysis was used to test the extent to which the variables 'parental autonomy support' and 'teacher autonomy support' were predictive of the students' relative autonomy (see Table 5). Using the 'enter' method, a significant model emerged ($F_{(2, 79)} = 4.82$, p = .01). The relationship between the variables was (R = .33) and the two variables could predict approximately 11% (R^2 adj. = 8.7%) of students' relative autonomy scores, therefore showing the variables to have a small effect on the students' relative autonomy. When analysing the two variable it is found that teacher autonomy support significantly predicted students' relative autonomy, $\beta = .35$, $t(79) = 3.12$, p < .01. However, parental autonomy support did not significantly predict students' relative autonomy, $\beta = .001$, $t(79) = .08$, p > .05. The multiple regression analysis was used to test hypothesis 3, which states, a combination of parental autonomy support and teacher autonomy support will predict students' relative autonomy. The results indicate that this hypothesis can be partly accepted, as the two variables were found to predict approximately 11% of the relative autonomy scores. However due to the non-significant results of parental autonomy support predicting relative autonomy, we can assume that the result of 11% was mainly due to teacher autonomy support. Thus resulting in the hypothesis being partly accepted.
Analysis of Co-variance

Table 6

Analysis of Covariance Summary RAI in year group controlling for age

Source	Sum of Squares	df	Mean square	F	Sig. (p)
Age	.83	1	.83	.66	.42
Year group	4.59	2	2.29	1.83	.17
Error	97.92	78	1.26		

$R^2 = .054$ R^2adj. $= .017$

An analysis of covariance (ANCOVA) was carried out to measure any differences between students' relative autonomy scores across the three year groups; 1st year, 2nd year and 3rd year. Whilst controlling for age using the three age groups, 18-22, 23-29 and 30+. Table 6 shows the results which indicate a non-significant result, $F_{(2, 278)} = 1.68$, $p > .05$. Therefore hypothesis 4, which states the variables age and year group will predict RAI, is rejected due to non-significant results.

Discussion:

The aim of this study was to investigate the association of parental and teachers' autonomous support upon autonomous motivation in university students. Four hypotheses were derived from the previous literature.

Hypothesis 1 of the current study stated there would be a positive correlation between parental autonomy support and student's relative autonomy. Results of the correlational analysis reported a non-significant result. Thus, the hypothesis was rejected. This contradicted previous research by Katz et al. (2011), which related parental autonomy support to be an extremely important factor in students' autonomous motivation towards their work. Upon reflection it has been noted that (Katz et al.,2011; Rattelle et al., 2005) investigated the parents autonomous support in relation to the child's education specifically, thus linking the support with homework to the child's own motivation towards their work. However, the P-PASS scale, which was used to measure parental autonomous support, explored adults perceptions of the parental support in a general sense rather than their academic support.

Assor et al. (2002) had suggested that with regards autonomy support it was not merely sufficient to give a choice but that teacher autonomy enhancing behaviour was more significant. This can be applied to parents, as they may assume by providing choices they are encouraging their child to be autonomous. This may be used in part to explain the non-significant results. Furthermore this information could be used to inform parents that their autonomous enhancing behaviour is more significant in encouraging their child's relative autonomy.

Additionally, the study did not account for the possibility of social desirability bias, in the case of this study the participants' may be inclined to display their parents' characteristics and behaviour as positive (Randall and Fernandes, 1991). The present study accounted for the different family units by omitting separate mother

and father scales and informing participants to relate the questions to their main carer growing up. It would be advised that future research should consider asking participants to respond to questions with consideration to their parents' support or control in an academic aspect, supporting participants' memory recall.

Subsequently, hypothesis 2 was accepted due to a moderate significant correlation. This stated there would be a positive correlation between teacher autonomy support and students' relative autonomy. Results supported previous research by Black and Deci (2000), which stated students were more likely to be autonomously motivated if they perceived their lecturers to be autonomously supportive. In addition the research supported various studies, which emphasized the importance of teacher autonomy support on enhanced performance in students (Black and Deci, 2000; Assor et al., 2002; Taylor and Ntoumarnis, 2006). From these results we can conclude that in order to encourage teachers to increasingly use motivational strategies in the classroom it is important that the teacher themselves is autonomously supported. Roth et al. (2007) derived from their study that autonomous motivation for teaching leads to autonomous supportive teaching in turn leading to autonomous learners (Roth et al., 2007). In addition, a study conducted by Lam et al. (2010) has indicated that when a teacher feels the school supports their autonomy they are more likely to come up with new strategies to aid teaching (Lam et al., 2010). From this research it is encouraged that schools not only train and aid teachers in gaining knowledge on motivational aspects of the classroom, but do so in an autonomous supportive manner as it is clear teachers are an incredibly important factor related to students motivation and learning. It is proposed that further research investigated the degree of the teacher's motivation in relation to their pupil's relative autonomy.

Further to the above, hypothesis 3 proposed a combination of both teacher autonomy support and parental autonomy support to be a predictor of students' relative autonomy index. Results supported this hypothesis and it was determined that approximately 11% of students' relative autonomy could be predicted by teacher and parental autonomy support. This hypothesis addressed an area neglected to be discussed by some psychologists (Rattelle et al., 2005; Katz et al., 2011). This research aimed to explore the combination of parental autonomy support and teacher autonomy support rather than focusing solely on one area as Katz et al. (2011). These results support the findings of Chirkov and Ryan. (2001) who investigated this in relation to parents in both USA and Russia. Their results indicated that students, with parents who were autonomously supportive were more motivated than those who perceived their parents to be controlling (Chirkov and Ryan, 2001). However, due to the previous findings, which only show a significant correlation between teacher autonomy support and relative autonomy, it is likely that the results of this study are significant due to teacher autonomy support rather than a combination of both. As stated previously, this result can be applied to educational settings by encouraging schools to support teachers in applying motivational strategies in the classroom, additionally aid teachers knowledge in increasing their own self-determination (Roth, 2007). Moreover this result also indicates that schools could support parents by sharing knowledge about self –determination and motivational strategies which could be used outside of school settings. Good communication between parents and teachers in this aspect will benefit the child, as an increase in autonomous support has been shown to enhance learning (Shen et

al., 2013). Subsequently, the benefits will not only aid the child in educational settings as research has shown that an increase in autonomy support can encourage engagement in prosocial behaviours (Gagne, 2003) and support healthy well-being (Kocayoruk et al., 2015). This suggests these results have wider implications than just educational settings.

Finally, hypothesis four aimed to investigate the extent to which year group predicted students relative autonomy while controlling for age. Analysis determined non-significant results. This opposes previous research conducted by Scott el al. (2014) which suggested an increase of student autonomy across year groups. In addition to contradicting the findings of Rothes et al. (2017) who had found higher levels of autonomous regulation in mature students. Although Scott et al. (2014) had not found significant results in relation to age; this study had aimed to address this gap in research. However, upon analysing the data it was evident that a large majority of the participants (77%) were from the 18-22 age category, with only 7% in the 30+ category. It is suggested that further research attempts to ensure an even number of participants in each category to remove this limitation. Additionally whilst this study was quantitative, it would be interesting for further research to carry out a combination of both quantitative methods to investigate predictors of student motivation across the year groups combined with qualitative methods to understand the deeper reasoning behind their motivation.

Implications of findings

The results indicate the importance of teacher autonomy support to students' relative autonomy; this study can aid educational establishments in encouraging teachers and equipping them with the knowledge to adopt autonomous teaching styles. This can be carried out through teacher training days, teachers can also be given information on how to increase their self-determination researchers had indicated this to be a variable in the teachers' frequency in using motivational methods in the classroom (Taylor and Ntourmanis, 2006; Roth, 2007).

Moreover, the finding presented above can be used as a response to the question posed by Moswela (2014) which inquired as to whether teacher or parental autonomy support was more important. The finding of this study would support the notion that teacher autonomy support played a more prominent role in student relative autonomy.

Limitations

One of the main limitations of this study was the number of participants used. The results of the a-priori sample size calculator recommended a minimum of 84 participants for a medium effect size and 548 participants for a small effect size (Soper, 2016). In line with Clark-Carter (2004) who advised large samples could 'make researchers think twice about replicating a study' (Carter, 2004: 186), it was initially determined 150 participants would be recruited. However once incomplete questionnaires were removed the number of participants decreased from 119 to 82, which was less than the recommended minimum for a medium effect size (Soper, 2016).

A further limitation this study experienced was the initial decision to specify psychology lectures in the learning climate questionnaire. At the start of the study the researcher found it problematic to recruit participants due to being limited to only psychology students. The researcher took on the decision to overcome this limitation by amending the questionnaire to generalise to 'lectures' rather than a specific course. This amendment was not considered to affect the research results, as the hypotheses do not investigate psychology students in particular.

Conclusion

In conclusion, the current study rejected two hypotheses in relation to three of the predictor variables; parental autonomy support, age and year group. However, the hypotheses relating to the variable teacher autonomy support and the criterion variable students' relative autonomy was accepted.

Overall, the finding supported previous research in relation to teacher autonomy support and its importance. Additionally, the study can be applied to recent discussions surrounding the extent to which parental and teacher autonomy support affected student motivation. Although the finding found that teacher autonomy support was more significant in predicting student motivation, this study suggests that encouragement and aiding knowledge of both parents and teachers on autonomous support will only result in positively benefitting the students. This can be generalised with both academic motivation and general motivation for daily goals.

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