What Motivates A-level Students to Achieve? Exploring the Role of Expectations and Task Values

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Abstract

Based on Eccles' expectancy-value model of achievement motivation this study used questionnaires to explore the relationships between expectations, task values and A-level achievement in 930 students from 12 Oxfordshire schools. Understanding the relationship between these variables is important given the significance of these qualifications for future life pathways. Students expected to do well in their A-levels and attached value to them. Findings showed that high expectations for A-level achievement correlated positively with students' outcomes. Expectations were related to the value placed on A-levels and students achieveved more highly when they valued their A-levels. Achievement was related more closely to attainment value than utility value or intrinsic value; so they attached more value to doing well than the usefulness or enjoyment of A-levels.

Introduction

GCE Advanced Levels (A-levels) are important as they are the main form of 'high stakes' examinations taken for university entrance in England, with approximately 50% of 16-18 year olds study for A-level qualifications (Department for Education, 2013). In the year this research was conducted students would have ordinarily studied four AS level subjects in year 12 and then gone on to study three of these further at A-level in year 13 (Russell Group, 2014), although there was no limit on the number of subjects taken. Educational reforms (stemming from the Education and Skills Act, 2008) mean that students in the UK are now

required to remain in education or training until they are 18 years old and the number of students studying A-levels may consequently increase. The grades achieved at A-level influence individuals' life chances, by increasing their chances of entry into higher education and determining the options that are subsequently available to them. It is therefore critical to understand the motivational factors that contribute to A-level achievement. It is important to explore these relationships as previous research suggested that students' beliefs about their abilities and expectations for success are a strong predictor of grades (Eccles et al., 1983; Eccles & Wigfield, 1995; Guo, Parker, Marsh, & Morin, 2015; Trautwein et al., 2012) and adolescents value activities they are good at (Eccles & Wigfield, 1995). Differences in the values attached to specific tasks were argued to underlie differences in motivation and achievement (Eccles, 1987; Eccles et al., 1983; Eccles, Adler, & Meece, 1984). However, little research has been conducted on motivation in relation to A-level examinations.

Theoretical Framework

The psychological and social influences on A-level achievement are useful to understand because they help to identify the motivational factors that contribute to educational outcomes. Eccles' expectancy-value model of achievement motivation (1983, 2007) was adapted to provide the theoretical framework for this research (see Figure 1). Psychological factors affecting achievement motivation in the model include individuals' goals and personal beliefs about their abilities (G in Figure 1), the likelihood of success (I) and the subjective task value (STV) attached to achieving various outcomes (J). The social factors included cultural milieu (A) stable child characteristics (C) and the beliefs and behaviours of significant socialisers (E). In line with much of the empirical work in this area (see, for example, Eccles et al, 1984; Eccles et al, 2005; Eccles & Wigfield, 1995; Hood et al, 2012; Meece et al, 1990;

Nagengast et al, 2013; Phan, 2014; Trautwein & Ludkte, 2007; Wigfield, 1997; Wigfield & Cambria, 2010; Wigfield & Eccles, 2000; Guo et al, 2015) the psychological component (expectations and values) are the key focus of this current research. A subset of the data collected is presented in this paper.

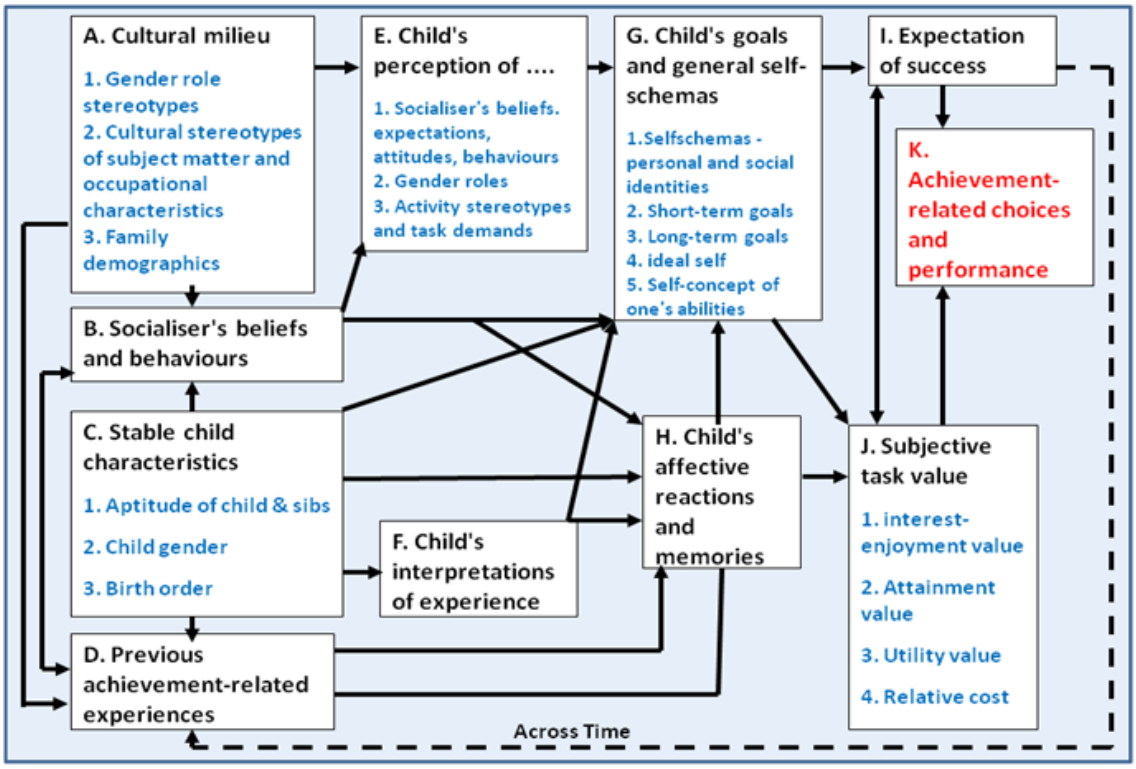

Figure 1 *Theoretical Framework: An Expectancy-Value Model of A-level Achievement (adapted from Eccles, 2007)*

Expectations (I) are composed of a single construct measuring both ability beliefs, defined as the perceptions of an individual's current competence at an activity, and expectations for success in the future, in line with previous empirical work (Eccles & Wigfield, 1995; Wigfield & Eccles, 2000). Although ability beliefs can be distinguished *conceptually* from expectations for success, *empirically* the constructs are highly related and have been found to load onto the same factor (see Eccles & Wigfield, 1995). Students were surveyed about their expectancy beliefs for their A-levels.

Subjective task value (J) is defined as a quality of the task that contributes to the increasing or decreasing probability that an individual would choose to engage in it (Eccles, 1987; Eccles et al., 1983; Wigfield & Eccles, 1992). The value of a specific task is the function of (1) *Intrinsic value* – the anticipated enjoyment of the engaging activity (2) *Attainment value* – the personal importance attached to doing well on a task (3) *Utility value* – the value a task had because it fulfils a current or future goal (4) *Perceived cost* - the cost of participating in an activity such as anticipated anxiety, fear of failure, fear of social consequences and loss of energy for other activities that were more central to one's personal or collective identities (Eccles, 2007; Eccles et al., 1983; Eccles, Adler, & Meece, 1984; Eccles & Wigfield, 1995). Students in this research were therefore asked about the personal importance they attached to doing well on A-levels (attainment value), their anticipated enjoyment/ interest in A-levels (intrinsic value) and the value A-levels had because they fulfilled a personally central or future goal and how useful A-levels are perceived to be (utility value). The cost subscale was not however included when the expectancy value scale was refined (Eccles & Wigfield, 1995). Subsequently most of the empirical work on the expectancy-value model has focused only on the first three components, rather than cost (Wigfield & Eccles, 2000), and as such this approach was adopted in this study.

The main aim of the research was to investigate what motivates A-level students to achieve with a focus on the role of expectations and values. In this paper the following research questions were therefore addressed:

RQ1. What is the relationship between expectations and A-level achievement?

RQ2. What are the relationships between expectations and STV for an A-level student sample?

RQ3. What is the relationship between STV and A-level achievement?

Methodology

Participants

Convenience sampling was used to recruit 930 sixth form students from 12 schools in Oxfordshire, England. Eight state co-educational, and four independent schools participated. Within the independent sector this included two mixed day schools, one boys' boarding school and one girls' day school. The sample included 733 pupils from state schools (78.8%) and 197 (21.2%) from independent schools. The sample was broadly in line with national figures, where 81.8% of school pupils achieving one or more A-levels came from the state sector and 18.2% of pupils achieving one or more A-levels came from independent schools (Department for Education, 2015). In this sample there were 445 boys (47.85%) and 482 girls (51.8%). AS level qualifications were being studied by 534 pupils (57.4%) in year 12 and A-levels quaifications were being studied by 396 pupils (41.9%) in year 13.

Instrument

The questionnaire used in this research was comprised of three parts, although only the items used in part two are the focus of this paper. Part one collected information on each student's background, based on the Programme for International Student Assessment (PISA) student and parental questonnaires 2009 & 2012 (see OECD, 2012; 2014). A premise underlying the

theoretical model is that social factors such as gender and social class relate directly to the expectations and values of students (Eccles, Vida, & Barbie, 2004) and may be influenced by their socialisation experiences (Davis-Kean, 2005; Eccles et al., 1983; Eccles, Wigfield, & Schiefele, 1998; Wigfield & Eccles, 1992). Factors such as gender, socio-economic status and school type are also well known to influence educational outcomes (e.g. Sirin, 2005; White, 1982). The data derived from part one of the questionnaire was therefore used to analyse these relationships and were important variables with the structural equation models employed, but are beyond the scope of this paper.

Part three of the questionnaire focused on students' general life expectations and values using items derived from the student questionnaire employed in wave 6 of the Michigan Study of Adult Life Transitions (1990). This was a longitudinal study investigating influences on 12th grade adolescents' achievement-related beliefs, motives, values, and behaviours. These variables are not, however, analysed in this current paper.

The self-and-task perception questionnaire (Eccles and Wigfield, 1995) formed the basis of part two of the questionnaire and it is these items that form the basis of the analyses in this paper. Using a 7-point Likert scale, the questions in part two examined students' perceived task values including: the attainment value attached to A-levels (e.g.'How important is it to you to get good grades in your A-levels?'), their perceived intrinsic value (e.g. 'I like doing A-levels') and utility value (e.g. 'How useful are A-levels for what you want to do after you finish school and go to University/ work?'). It also contained expectancy items concerning A-level performance and outcomes, including ability perceptions (e.g. 'If you were to order all students in your year group from best to worse academically, where would you put yourself?') and expectations for success (e.g. 'How well do you think you will do in your A-levels this year?'). The number of items in each of these subscales and their reliability are

shown in Table 1. Low reliability was found for items related to utility value, and replicated the low reported reliability in Eccles' original scales.

Table 1 *Cronbach Alphas of Expectancy-Value Questionnaire Items*

	Eccles, O'Neill & Wigfield (2005)	Main study	No. of items in scale
Self and Task Perception Questionnaire			
Ability/ expectancy	.92	.91	5
Intrinsic value	.76	.72	2
Attainment value	.70	.85	3
Utility value	.62	.41	2

Two items were excluded from the original scale as they assessed specific skills related to maths which could not be converted to items relevant to more general A-level studies. Additionally this section measured task perceptions including the perceived task difficulty and required effort but these are not considered in this paper.

Procedure

In the majority of the schools (n=10) the paper and pencil questionnaires were administered to students prior to the summer examination series in May 2014 (n=798). However due to logistic constraints students within two schools participated following the exam session (n=132).

Following the 2014 summer examination series schools provided the researcher with a spreadsheet of the grades each student achieved in that year, so, the grade achieved in each of their A-level subjects in year 13 and in each of their AS level subjects in year 12. The overall attainment of a student therefore accounted for the number of subjects/ qualifications a student studied in that year and the grades achieved in them. Achievement was measured by

calculating the total point score per student achieved in that academic year based on the points allocated in the calculations used by the DfE (Department for Education, 2014a) as shown in Table 2.

Table 2 *Point Score Allocations for A-level and AS level qualifications (Department for Education, 2014a)*

Grade	Size	Points	Grade	Size	Points
GCE/Applied A level			**GCE/Applied AS level**		
A*	1	300	A	0.5	135
A	1	270	B	0.5	120
B	1	240	C	0.5	105
C	1	210	D	0.5	90
D	1	180	E	0.5	75
E	1	150			

In this study 50 A-level subjects were studied by 396 students resulting in 1,033 examination entries. In the year 12 sample 53 AS level subjects were studied by 534 students, totalling 1,867 entries. The average achievement of the students in this study was 760 points for A-level students in year 13 and 374 points for AS level students in year 12. The national average for year 13 students is reported as 775 points (Department for Education, 2014b) however this also includes any AS grades achieved by students in year 12 but not continued into full A-level qualifications in year 13. In contrast, the average total point score reported for the students in this study comprises only of the grades achieved in the full A-level qualifications at the end of year 13 (so excludes prior AS grades) as this was the only data made available by schools.

This study complied with the British Psychological Society's Ethical Principles for Conducting Research with Human Participants (1990), Code of Ethics and Conduct (2009) and the Code of Human Research Ethics (British Psychological Society, 2014). It also met

the ethical principles outlined by the British Educational Research Association (Hammersley & Traianou, 2012).

Results

RQ1. What is the relationship between expectations and A-level achievement?

As seen in Tables 3 & 4 most (approximately 60%) of the student responses on each item for the expectation scale were ratings of four or five. In terms of ability they saw themselves as being a little above average. They also expected to do slightly better than average in their A-levels. So, overall, they expected to do well. Such findings could be explained by the 'better-than-average' effect (BTA). This is a motivational bias that occurs to meet self-enhancement needs (Alicke, 1985; Brown, 1986, 2012) where people believe they are more capable, competent and talented than others (Brown, 2012) and has been found to occur in student samples (e,g. Kuyper, Dijkstra, Buunk, & van der Werf, 2011; Silvera & Seger, 2004).

Table 3 *Descriptive Statistics: Expectations for A-Levels*

	N	Minimum	Maximum	Mean	SD	Skew
Expectations	382	5	35	23.42	5.32	-.48
Q24: compared to other students, how well do you expect to do in your A-levels this year?	392	1 (much worse)	7 (much better)	4.67	1.34	-.30
Q26: How well do you think you will do in your A-levels this year?	391	1 (very poorly)	7 (very well)	4.95	1.18	-.55
Q28: How good are you at A-levels?	391	1 (not at all good)	7 (very good)	4.57	1.17	-.45
Q32: If you were to order all students in your year group from best to worse academically, where would you put yourself?	391	1 (the worst)	7 (the best)	4.62	1.33	-.24
Q36: How have you been doing in your A-levels this year?	391	1 (very poorly)	7 (very well)	4.66	1.22	-.64

Table 4 *Descriptive Statistics: Expectations for AS Levels*

	N	Minimum	Maximum	Mean	SD	Skew
Expectations	520	5	35	21.35	5.28	-.34
Q24: compared to other students, how well do you expect to do in your A-levels this year?	531	1 (much worse)	7 (much better)	4.14	1.33	-.22
Q26: How well do you think you will do in your A-levels this year?	529	1 (very poorly)	7 (very well)	4.35	1.26	-.47
Q28: How good are you at A-levels?	531	1 (not at all good)	7 (very good)	4.21	1.13	-.42
Q32: If you were to order all students in your year group from best to worse academically, where would you put yourself?	530	1 (the worst)	7 (the best)	4.29	1.25	-.15
Q36: How have you been doing in your A-levels this year?	529	1 (very poorly)	7 (very well)	4.37	1.23	-.33

As predicted, A-level students' expectations were moderately positively correlated with their achievement in this study for both year 13 (n=382, r =.44, p<0.001) and year 12 students (n=490, r =.44, p<0.001). This may support the hypothesis that students' beliefs about their ability and expectations for success are important predictors of their grades (Eccles & Wigfield, 1995). This association should, however, be treated with caution since beliefs about ability and expectations for success at A-level may be predicted by factors such as prior GCSE results. It is therefore difficult to conclude in which direction the relationships between

expectations and A-level achievement operate in this current study in the absence of GCSE results.

RQ2. What are the Relationships between Expectations and STV for an A-level Student Sample?

Overall students in both samples valued A-levels if they attached importance to doing well in them (year 13 n=382, r=.34, p<0.001, year 12 n=513, r=.38, p<0.001), were interested in them (year 13 n=380, r=.40, p<0.001, Year 12 n=519, r=.45, p<0.001) and perceived them to be useful (year 13 n=380, r=.26, p<0.001, year 12 n=516, r=.33, p<0.001). These findings support the premise that A-level students will value activities they think they are good at (Eccles & Wigfield, 1995).

RQ3. What is the Relationship between STV and A-level achievement?

The findings displayed in Tables 5 & 6 indictae that the component of STV that both year 13 and year 12 students rated most highly was attainment value (87% year 13, 85% year 12), followed by utility value (69% year 13, 70% year 12) and intrinsic value (63% year 13, 62% year 12). As such, the students in this study rated doing well in their A-levels more highly than the usefulness or enjoyment of them. The value placed on attainment and utility is not surprising given the importance of A-level grades for entry into higher education and their relevance for future life options.

Table 5 *Descriptive Statistics for Year 13 Sample: Subjective Task Value*

	N	Minimum	Maximum	Mean	Standardised Mean	SD	Skew
Attainment value	393	3	21	18.20	87%	3.23	-1.74
STV	389	7	49	36.72	75%	6.77	-1.39
Utility value	391	2	14	9.71	69%	2.37	-.81
Intrinsic Value	392	2	14	8.80	63%	2.58	-.46

(Key: 1= low intrinsic value, attainment value and utility value, 7= high intrinsic value, attainment value and utility value so high mean indicates high STV. Minimum indicates number of items in scale).

Table 6 *Descriptive Statistics for AS Sample: Subjective Task Value*

	N	Minimum	Maximum	Mean	Standardised Mean	SD	Skew
Attainment value	523	3	21	17.95	85%	3.26	-1.52
STV	519	7	49	36.45	74%	6.81	-1.04
Utility value	526	2	14	9.83	70%	2.32	-.70
Intrinsic Value	531	2	14	8.63	62%	2.59	-.35

(Key: 1= low intrinsic value, attainment value and utility value, 7= high intrinsic value, attainment value and utility value so high mean indicates high STV. Minimum indicates number of items in scale).

The results of the current research further supported the prediction that achievement is related to attainment value (n=330, r=.25, p<0.001), intrinsic value (n=329, *r* =.22, p<0.001) and utility value (n=328, *r*=.17, p=0.002) in the year 13 sample. However, these associations are weak. Interestingly although there was also a significant relationship between STV and achievement (n=490, *r*=.20, p<0.001), attainment value and achievement (n=494, *r*=.23, p<0.001), and intrinsic value and achievement (n=501, *r*=.16, p<0.001) in the year 12 sample

there was not a significant relationship between utility value and achievement (n=496, *r*=.08, p=0.095). This may be explained by the fact the year 12 students will not yet have made post-18 choices or university applications in contrast to those in year 13 and this may affect their perceived usefulness of these high stakes examinations.

Conclusion

The main question in this paper is whether expectations and values play a role in the motivation of A-level students. Overall the exploratory findings suggest that relationships between expectations, values and A-level achievement exist. Students expected to do well and their expectations were related to their achievement although is should again be highlighted that it is difficult to draw conclusions about the direction of these relationships in the absence of GCSE results. There were also positive associations between achievement and the attainment, intrinsic and utility value attributed to A-levels by the students, suggesting they engage and achieve in A-levels when they value them. Subjective task value was not, however, associated as strongly with achievement as students' expectations. This finding can be explained by the expectancy-value model and the assumption that the expectancy component is a better predictor of grades than STV (Eccles et al., 1984; Fredricks & Eccles, 2002; Guo, Parker, Marsh, & Morin, 2015; Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002; Marsh, Trautwein, Ludtke, Koller, & Baumert, 2005; Meece, Wigfield, & Eccles, 1990; Nagengast et al., 2011; Wigfield & Eccles, 1992).

Although convenience sampling is often used in social sciences (Bryman, 2012) it does raise issues of generalisability and this was a concern within the current research as there was restricted variation in parents' occupational status, with a high percentage in managerial or professional work, and therefore any associations must be treated with caution.

The results of this research have possible implications for ensuring students are well supported in their A-level subject choices, since their achievement motivation may be higher when they have chosen areas in which they expect to do well, are interested in, and perceive to be useful to them in the future. Differences in A-levels outcomes may be explained by these motivational factors. Understanding the motivational beliefs of (A-level) students has important implications. It can drive pathways for practitioners and parents to enhance student motivation (Hulleman, Barron, Kosovich, & Lazowski, 2016). It is also known that intervention programmes targeted at both students and parents - and which aim to increase expectations and values - do improve student achievement (e.g., Eccles, 2006; Harackiewicz, Rozek, Hulleman, & Hyde, 2012; Hulleman, Godes, Hendricks, & Harackiewicz, 2010; Patall, Cooper, & Wynn, 2010). Understanding such motivational factors is important for practitioners, researchers and policy makers who wish to understand and ensure successful educational outcomes for young people. Further investigation of these relationships are warranted using structural equation modelling. Subject-specific research on motivation for A-level study would also be an area for future research. Since it is known that academic self concept has consistent reciprocal effects with both achievement and educational attainment (Marsh & Craven, 2006; Marsh & O'Mara, 2008), the lack of data on prior attainment is acknowledged as a limitation of this study. This research, however, makes several potentially important contributions as it links Eccles' theory of achievement motivation with A-level outcomes, exploring the factors that underlie differential achievement in these students, and tests Eccles' model in a high-stakes, UK context where it has not been previously explored.

References

Alicke, M. D. (1985). Global self-evaluation as determined by the desirability and controllability of trait adjectives. *Journal of Personality and Social Psychology, 49*, 1621-1630.

British Psychological Society. (1990). Ethical pinciples for conducting research with human participants. *The Psychologist, 3*(6), 269-272.

British Psychological Society. (2009). Code of Ethics and Conduct. Retrieved 4th April 2013 from https://www.bps.org.uk/news-and-policy/bps-code-ethics-and-conduct

British Psychological Society. (2014). Code of Human Research Ethics. Retrieved 21st November 2015 from http://www.psy.ed.ac.uk/psy_research/documents/BPS%20Code%20of%20Human%20Research%20Ethics.pdf

Brown, J. D. (1986). Evaluations of self and others: Self-enhancement biases in social judgments. *Social Cognition, 4*, 353-376.

Brown, J. D. (2012). Understanding the better than average effect: Motives (still) matter. *Personality and Social Psychology Bulletin, 38*, 209-219.

Bryman, A. (2012). *Social research methods* (4th ed.): Oxford University Press.

Davis-Kean, P. E. (2005). The influence of parent education and family income on child achievement: the indirect role of parental expectations and the home environment. *Journal of Family Psychology, 19*(2), 294-304. doi: 10.1037/0893-3200.19.2.294

Department for Education. (2013). Participation in education, training and employment by 16- to 18-year-olds in England, 2011. Retrieved 28th September 2013 from https://www.gov.uk/government/statistics/participation-in-education-training-and-employment-by-16-to-18-year-olds-in-england-end-2011

Department for Education. (2014a). Examination point scores used in the 2014 school and college performance tables. Retrieved 28th November 2014 from http://www.education.gov.uk/schools/performance/secondary_14/Point_Score_Document.pdf

Department for Education. (2014b). A-level and other level 3 results: academic year 2012 to 2013 (revised). Retrieved 19th July 2014 from https://www.gov.uk/government/publications/a-level-and-other-level-3-results-england-2012-to-2013-revised

Department for Education. (2015). A level and other level 3 results: 2013 to 2014 (revised): National tables: SFR03/2015. Retrieved 17th November 2017 from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/406029/SFR03_2015_National_tables_1_to_11.xlsm

Eccles, J. S. (1987). Gender roles and women's achievement-related decisions. *Psychology of Women Quarterley, 135-172*. doi: 10.1111/j.1471-6402.1987.tb00781.x

Eccles, J. S. (2006). A motivational perspective on school achievement: Taking responsibility for learning, teaching, and supporting. In R. J. Sternberg & R. F. Subontnik (Eds.), *Optimizing student success in school with the other three Rs* (pp. 199-224). Grennwih, CT: Information Age Publishing.

Eccles, J. S. (2007). Subjective task value and the Eccles et al. model of achievement-related choices. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 105-121): Guildford Press.

Eccles, J. S., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values and academic behaviours. In J. T. Spence

(Ed.), *Perspective on achievement and achievement motivation* (pp. 75-146). San Francisco: Freeman.
Eccles, J. S., Adler, T. F., & Meece, J. L. (1984). Sex differences in achievement: A test of alternative theories. *Journal of Personality and Social Psychology, 46*(1), 26-43. doi: 10.1037/0022-3514.46.1.26
Eccles, J. S., Vida, N., & Barbie, B. (2004). The relation of early adolescents' college plans and both academic ability and task-value beliefs to subsequent college enrollment. *The Journal of Early Adolescence, 24*(1), 63-77. doi: 10.1177/0272431603260919
Eccles, J. S., & Wigfield, A. (1995). In the mind of the actor: the structure of adolescents' achievement task values and expectancy-related beliefs. *Personality and Social Psychology Bulletin, 21*(3), 215-225. doi: 10.1177/0146167295213003
Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In N. Eisenberg (Ed.), *Handbook of child psychology* (5th ed., Vol. 3, pp. 1017-1095). New York: Wiley.
Fredricks, J. A., & Eccles, J. S. (2002). Children's competence and value beliefs from childhood through adolescence: Growth trajectories in two male-sex typed domains. *Developmental Psychology, 38*, 519-533. doi: 10.1037/0012-1649.38.4.519
Guo, J., Parker, P. D., Marsh, H. W., & Morin, A. J. S. (2015). Achievement, motivation, and educational choices: A longitudinal study of expectancy and value using a multiplicative perspective. *Developmental Psychology, 51*(8), 1163-1176. doi: 10.1037/a0039440
Hammersley, M., & Traianou, A. (2012). Ethics and Educational Research. Retrieved 21st November 2015 from https://www.bera.ac.uk/wp-content/uploads/2014/03/Ethics-and-Educational-Research.pdf?noredirect=1
Harackiewicz, J. M., Rozek, C. S., Hulleman, C. S., & Hyde, J. S. (2012). Helping parents to motivate adolescents in mathematics and science: An experimental test of utility-value intervention. *Psychological Science, 23*(8), 899-906. doi: 10.1177/0956797611435530
Hood, M., Creed, P. A., & Neuman, D. L. (2012). Using the expectancy value model of motivation to understand the relationship between student attitudes and achievement in statistics. *Statistics Education Research Journal, 11*(2), 72-85.
Hulleman, C. S., Barron, K. E., Kosovich, J. J., & Lazowski, R. A. (2016). Student motivation: Current theories, constructs, and interventions within an expectancy-value framework. In A. A. Lipnevich, F. Preckel & R. D. Roberts (Eds.), *Psychosocial skills and school systems in the 21st century* (pp. 241-278): Springer.
Hulleman, C. S., Godes, O., Hendricks, B. L., & Harackiewicz, J. M. (2010). Enhancing interest and performance with a utility value intervention. *Journal of Educational Psychology, 104*(4), 880-895. doi: 10.1037/a0019506
Jacobs, J., Lanza, S., Osgood, D. W., Eccles, J. S., & Wigfield, A. (2002). Changes in children's self-competence and values: Gender and domain differences across grades one through twelve. *Child Development, 73*, 509-527. doi: 10.1111/1467-8624.00421
Kuyper, H., Dijkstra, P., Buunk, A. P., & van der Werf, M. P. (2011). Social comparisons in the classroom: An investigation of the better than average effect among secondary school children. *Journal of School Psychology*(49), 25-53. doi: 10.1016/j.jsp.2010.10.002
Marsh, H. W., & Craven, R. G. (2006). Reciprocal effects of self-concept and performance from a multidimensional perspective: Beyond seductive pleasure and unidimensional perspectives. *Perspectives on Psychological Science, 1*, 133-163. doi: 10.1111/j.1745-6916.2006.00010.x

Marsh, H. W., & O'Mara, A. (2008). Reciprocal effects between academic self-concept, self-esteem, achievement and attainment over seven adolescent years: Unidimensional and multidimensional perspectives of self-concept *Personality and Social Psychology Bulletin, 34*, 542-552. doi: 10.1177/0146167207312313

Marsh, H. W., Trautwein, U., Ludtke, O., Koller, O., & Baumert, J. (2005). Academic self-concept, interest, grades, and standardised test scores: Reciprocal effects models of causal ordering. *Child Development, 76*, 397-416. doi: 10.1111/j.1467-8624.2005.00853.x

Meece, J. L., Wigfield, A., & Eccles, J. S. (1990). Predictors of math anxiety and its influence on young adolescents' course enrolment intentions and performance in mathematics. *Journal of Educational Psychology, 82*, 60-70. doi: 10.1037//0022-0663.82.1.60

Michigan Study of Adolescent and Adult Life Transitions. (1990). Retrieved 7th November 2013 from http://garp.education.uci.edu/msalt.html

Nagengast, B., Marsh, H. W., Scalas, L. F., Xu, M. K., Hau, K. T., & Trautwein, U. (2011). Who took the "x" out of expectancy-value theory? A psychological mystery, a substantive-methodological synergy, and a cross-national generalisation. *Psychological Science, 22*, 1058-1066. doi: 10.1177/0956797611415540

OECD. (2012). PISA 2009 Technical Report. Retrieved 23rd February 2016 from http://www.oecd.org/pisa/pisaproducts/50036771.pdf

OECD. (2014). PISA 2012 Technical report. Retrieved 23rd February 2016 from http://www.oecd.org/pisa/pisaproducts/PISA-2012-technical-report-final.pdf

Patall, E. A., Cooper, H., & Wynn, S. R. (2010). The effectiveness and relative importance of choice in the classroom. *Journal of Educational Psychology, 102*(4), 896-915. doi: 10.1037/a0019545

Phan, H. P. (2014). Expectancy-value and cognitive process outcomes in mathematics learning: a structural equation analysis. *Higher Education Research & Development, 33*(2), 325-340. doi: 10.1080/07294360.2013.832161

Russell Group. (2014). A Russell Group guide to making decisions about post-16 education. Retrieved 14th November 2014 from http://www.russellgroup.org/informedchoices-latest.pdf

Silvera, D. H., & Seger, C. R. (2004). Feeling good about ourselves: Unrealistic self-evaluations and their relation to self-esteem in the United States and Norway. . *Journal of Cross-Cultural Psychology, 35*, 571-585.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75*(3), 417-453. doi: 10.3102/00346543075003417

Trautwein, U., & Lüdtke, O. (2007). Students' self-reported effort and time on homework in six school subjects: Between-student differences and within-student variation. *Journal of Educational Psychology, 99*, 432-444. doi: 10.1037/0022-0663.99.2.432

Trautwein, U., Marsh, H. W., Nagengast, B., Lüdtke, O., Nagy, G., & Jonkmann, K. (2012). Probing for the multiplicative term in modern expectancy-value theory: A latent interaction modeling study. *Journal of Educational Psychology, 104*(3), 763-777. doi: 10.1037/a0027470

White, K. R. (1982). The relation between socioeconomic status and academic achievement. *Psychological Bulletin, 91*(3), 461-481 doi: 10.1037/0033-2909.91.3.461

Wigfield, A. (1997). *Predicting children's grades from their ability beliefs and subjective task values: Developmental and domain differences.* Paper presented at the Biennial meeting of the Society for Research in Child Development.

Wigfield, A., & Cambria, J. (2010). Expectancy-value theory: Retrospective and prospective. In T. C. Yurdan & S. A. Karabenick (Eds.), *The decade ahead: Theoretical perspectives on motivation and achievement (Advances in motivation and achievement, Vol 16)* (pp. 35-70). Bingley, UK: Emerald Group Publishing Limited.

Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review, 12*, 265-310. doi: 10.1016/0273-2297(92)90011-P

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of achievement motivation. *Contemporary Educational Psychology, 25*, 68-81. doi: doi:10.1006/ceps.1999.1015