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## The impact of education level and type on moral reasoning

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The importance of education in developing morally sensitive individuals who use principled moral reasoning when facing dilemmas has been widely acknowledged. In the context of the criticism levelled at the Irish higher education system for failing to fulfil the role of intellectual leader and moral critic within the public domain, this paper examines the impact of education level (both undergraduate and post-graduate) and type (arts or technical/profession-based) on moral reasoning using 311 Irish participants from a wide variety of educational backgrounds. An enhanced understanding of the impact of education on moral reasoning will facilitate the development of educational initiatives aimed at augmenting moral reasoning in higher-level students.

**Keywords:** moral reasoning; moral behaviour; education level; education type; university education

### Introduction

Moral reasoning is one of the components necessary for moral behaviour according to the four-component model outlined by Rest (1983). Interest in moral development was ignited in the mid-1960s at a time when major moral issues including the civil rights movement, the Vietnam War and the women’s movement were the focus of public attention (Rest 1979a). Topical contemporary issues including international terrorism, the exploitation of expense payments by politicians in the UK, the global banking crisis, insider trading fraud and product safety issues, to name just a few, highlight the urgent need for attention to be focused on ways in which moral reasoning and thus moral behaviour can be effectively enhanced. Professionals in particular are subject to increased levels of public accountability and scrutiny by public interest groups and the media. The cost of immoral professional behaviour can include the loss of public confidence and reputation, low employee morale, embarrassment, a disruption of normal business routine, difficulty in recruiting and heavy fines (Nash 1993).

Rest contends that moral reasoning increases with age and education (see, for example, Rest et al. 1999b), and it is the education variable on which attention is focused in this paper. Bebeau and Thoma (2003) report that the level of formal education accounts for 30 to 50% of the variance in moral reasoning, making it the most significant variable with respect to enhancing moral reasoning development. Given that moral reasoning ability enables individuals to determine how they will

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behave when faced with a moral dilemma, it is vitally important to policy-makers and educators that we learn all we can about the impact of education on moral reasoning. While professional organisations, institutes and companies have increasingly issued codes of conduct/ethical guidelines to provide assistance to their members in resolving moral dilemmas, we must strive to ensure that our current and future professionals are accountable for their actions on a personal level, rather than simply being answerable to an external regulatory body or the general public in the event of being caught behaving immorally.

It should be noted that Kohlberg's stage sequence model examines moral reasoning and not moral action or behaviour. Thoma (1994) argues that moral judgement and moral behaviour are linked in so far as the ability to more accurately define a moral situation leads to a more adequately constructed behavioural response. Prior research indicates that there is a relationship between moral reasoning and moral action while cautioning that moral reasoning alone does not guide moral behaviour (Blasi 1980; Higgins, Powers, and Kohlberg 1984; Rest 1986b; Ponemon 1992, Rest et al. 1999b; Cummings et al. 2001). The literature generally accepts that moral reasoning is a necessary element of moral behaviour even if it is not sufficient of itself to dictate action (see, for example, Kohlberg and Candee 1984; Fraedrich, Thorne, and Ferrell 1994; Rest et al. 1999b). The examination of moral reasoning as a component of moral action, therefore, remains a valid exercise and may serve to inform predictions of behaviour.

The literature suggests that the Irish higher-level education system has failed to appropriately embrace the challenge to enhance moral reasoning in students (Skilbeck 2001). Furthermore, prior research reports very low moral reasoning scores in Irish participants (Kahn 1982; O'Flaherty and Gleeson 2009). It is in this context that this paper aims to examine the impact of education on moral reasoning in Ireland. The moral reasoning scores of 311 participants from a wide variety of educational backgrounds are analysed in order to examine the impact of both education level and education type on moral reasoning in an Irish context. The sample facilitates testing whether participants with different levels (no degree, degree and post-graduate degree) and type of education (arts or technical/professional-based) differ significantly in their response to moral dilemmas. This represents a new approach to the examination of the education variable where the focus is usually confined to students at various stages in their undergraduate programme. As mentioned, this study is set in an Irish educational context which differs from the educational context in America, where much of the existing literature comes from. An enhanced understanding of the impact of education on moral reasoning will facilitate the development of educational initiatives aimed at augmenting moral reasoning in higher-level students.

The remainder of this paper is set out as follows: Section two summarily examines the concept of moral reasoning, outlines Kohlberg's stage sequence theory and introduces Rest's DIT. Section three examines the impact of higher-level education on moral reasoning development. Section four examines higher-level education in an Irish context with respect to the perceived role of the university. Section five outlines the research method adapted for this study, while Section six presents the results found. Section seven discusses the implications of the findings and concludes.

### Moral reasoning and the defining issues test (DIT)

Before an individual reaches a decision about how and whether to behave morally in a specific situation, moral reasoning takes place. The psychology of moral reasoning aims to understand how people think about moral dilemmas and the processes they use in approaching them. It is concerned with the state of mind of the decision-maker, how he or she defines the moral dilemma being faced and the concepts of fairness that the decision-maker applies to the decision (Kohlberg 1973; Rest 1979b). The processes used by individuals to reason morally alter over time, and there is empirical evidence to support the contention that moral reasoning ability develops sequentially (Kohlberg 1973; Rest 1979b).

Kohlberg (1969) developed a model of moral reasoning based on interview studies in which participants responded in an open-ended way to moral dilemmas. His stage sequence theory is based on concepts of social cooperation and justice. It sets out three developmental levels. Individuals move upward through these three levels, beginning at the 'pre-conventional morality' level, onwards to the 'conventional morality' level, sometimes reaching the final and highest level known as 'post-conventional morality'. Within each of the three levels, there are two developmental steps, resulting in a total of six stages. The second stage in each level is a more advanced and organised form of the first. Each stage in Kohlberg's model is considered as qualitatively higher both cognitively and morally. These six stages of moral development determine the level of moral reasoning used by individuals in distinguishing right from wrong actions. The moral reasoning level of individuals, therefore, helps to determine how they will behave when faced with a moral dilemma.

Rest developed the defining issues test (DIT), an instrument designed to measure moral reasoning in 1979 (Rest 1979b). It is a self-administered, multiple-choice questionnaire which measures the comprehension and preference for the highest (or post-conventional) levels of reasoning (Rest et al. 1999b), using an index called the *P* score. Rest (1979a) developed the items for the questionnaire, based on an interpretation of the stages in Kohlberg's stage sequence theory (see Table 1 below). Based on hundreds of studies carried out in the USA, Rest and Narvaez (1998) report that junior high students generally average *P* scores in the 20s, senior high students in the 30s, college students in the 40s, graduate students in the 50s and moral philosophers in the 60s. More specifically, Rest (1986a, iii) reports the following group averages, as shown in Table 2.

Although Kohlberg contended that at any point in time, an individual would be at one of the six stages of moral development. Rest posits that while one stage might dominate an individual's reasoning, he or she is never simply at one stage. Rest, therefore, views moral development as a shifting distribution of responses from lower levels on the stage sequence to higher levels. The DIT assumes that a person can operate at many stages at once, and rather than attempting to assess the stage to which a person 'belongs', it instead measures the comprehension and preference for the principled level of reasoning (i.e. reasoning at stages five and six) (Rest et al. 1999b). Rest et al. (1999b) reformulated Kohlberg's six stages into three schemata. Individuals are posited to make sense of moral situations in terms of three schemata: The Personal Interests schema, the Maintaining Norms schema and the Post-conventional schema. The Personal Interest schema is derived from Kohlberg's stage two and stage three reasoning. The Maintaining Norms schema is a reformulation of

Table 1. Six stages of moral reasoning.

Pre-conventional: focuses on the individual	Stage one	The morality of obedience: do what you are told
	Stage two	The morality of instrumental egoism and simple exchange: let's make a deal
Conventional: focuses on the group and relationships	Stage three	The morality of interpersonal concordance: be considerate, nice and kind: you'll make friends
	Stage four	The morality of law and duty to the social order: everyone in society is obligated to and protected by the law
Post-conventional: focuses on the inner self and personally held principles	Stage five	The morality of consensus-building procedures: you are obligated by the arrangements that are agreed to by due process procedures
	Stage six	The morality of non-arbitrary social cooperation: morality is defined by how rational and impartial people would ideally organise cooperation

Note: Adapted from Rest (1994).

Kohlberg's stage four reasoning, and the Post-conventional schema is a reclassification of Kohlberg's stage five and six reasoning. The reformulation of Kohlberg's stages into Rest et al.'s schemata does not impact on how the DIT is used and merely alters the terminology employed.

Kohlberg's theory of moral development is based on concepts of social cooperation and justice. Critics of the theory argue that cooperation and justice reasoning is only one sub-set of the moral spectrum and that individuals may also define morality in other ways. The main alternative paradigm offered is the ethics of compassion and care (Gilligan 1982). It is argued that the focus on justice and cooperation may result in Kohlberg's theory being gender biased, given that a woman's sense of morality is centred on interpersonal relationships and caring, resulting in reasoning at stage three (Gilligan 1982; Lyons 1983; Walker 1984). Gilligan (1982) draws particular attention to the fact that Kohlberg's research involved interviewing male subjects only. She contends that for males, advanced

Table 2. Mean *P* scores Rest (1986a, iii).

Group	Mean <i>P</i> score
Moral philosophy and political science doctoral students	65.2
Seminarians in a liberal protestant seminary	59.8
Advanced law students	52.2
Practising medical physicians	49.5
Average college student	42.3
Average of adults in general	40.0
Average senior high student	31.8
Average junior high student	21.9
Institutionalised delinquent boys, 16 years old	18.9

moral thought revolves around rules, rights and abstract principles and suggests that this strong justice approach overlooks other moral orientations such as those grounded in caring and concern for others. Fisher (1997), however, argues that research results do not support the gender bias and cites the following research in support of his contention: Pratt et al. (1988), Boldizar, Wilson, and Deemer (1989) and Cohn (1991). On the basis of 500 studies using the DIT, Rest (1986b) defends Kohlberg's theory against Gilligan's challenge, suggesting that she has exaggerated the extent of the gender differential and noting that the overwhelming majority of moral judgement research has found no statistical difference between men and women. Where differences have been found, it is equally likely that women achieve higher moral reasoning scores than men. These results have been supported in later studies (see, for example, Rest and Narvaez 1994; Rest et al. 1999b; Cummings et al. 2001). While Gilligan's (1982) claims of gender bias do not seem to be borne out in the empirical research findings, this paper will, nevertheless, test for significant differences between male and female participants in the study.

### **Moral development and education**

As mentioned above, Rest contends that moral reasoning develops with education (see, for example, Rest et al. 1999b), with Bebeau and Thoma (2003) reporting that education accounts for 30 to 50% of the variance in DIT scores. The general trend that emerges from the literature is that DIT *P* scores increase while an individual is in a formal education setting and then plateau as the individual exits formal education (Rest et al. 1999b, 73). It would seem that the college experience in particular fosters moral development. Rest et al. (1999b, 73) suggest that college seems to 'prod students to re-examine their thoughts about the moral basis of society and to value post-conventional reasoning more and more'. The positive effects of higher and continued education on the development of moral reasoning have been well documented (see, for example, Pascarella and Terenzini 1991; McNeel 1994; Rest and Narvaez 1994; Good and Cartwright 1998). King and Mayhew (2002) reviewed 172 DIT studies before concluding that, either intentionally or unintentionally, moral development is an outcome of higher education as measured by the DIT. Bebeau and Thoma (2003) outline the mean *P*-score norms by level of education, reporting that college freshmen achieve an average *P* score of 32.32, sophomores an average score of 32.62, senior college students an average of 37.84, while graduates with a professional degree exhibit an average *P* score of 44.87. McNeel (1994) reports higher averages of 35.7 for first-year college students and 46.4 for college seniors.

Much research has been conducted to determine how higher-level education attainment affects students (see, for example, Mentkowski and Strait 1983; Loxley and Whiteley 1986; Rest 1986b; Pascarella and Terenzini 1991; Garrod 1993; Tam 2002). The literature suggests that development in moral reasoning occurs as a result of the combination of several integral factors which promote both cognitive and affective development. Moral reasoning development, therefore, becomes part of 'an interconnected and often mutually reinforcing network of developmental trends that characterize changes that tend to occur in college students' (Pascarella and Terenzini 1991, 338). King and Mayhew (2002, 252) list some of the reasons why moral reasoning development is stimulated by higher-level education, including the general intellectual milieu of colleges and universities fostering the exchange of ideas,

exposure to multiple perspectives regarding social issues, academic values of truth-seeking and careful reasoning, and institutional values of academic integrity and personal responsibility. College provides a stimulating environment in which students are faced with new and unique circumstances, experiences and challenges (Good and Cartwright 1998). However, the literature does raise questions about the type of education that enhances moral reasoning development.

Good and Cartwright (1998) argue that in order to inspire moral development students should be brought into contact with literature, philosophy or other disciplines which speak to the complexities of society and present them with a diverse range of facts and perspectives of the world. It is these experiences in turn that provide the cognitive disequilibrium which results in moral reasoning development (McNeel 1991). Hartwell suggests that a crucial factor in encouraging moral development is the opportunity for students 'to cooperate to understand mutually what each is saying with the goal of revealing to themselves and others their moral position and moral reasoning' (Hartwell 1995, 530). The contexts in which the moral dimensions of community life are made explicit, where students are encouraged to grapple with moral dilemmas, and where they are exposed to and encouraged to practice post-conventional moral reasoning, are considered to be more effective in promoting moral reasoning development than those contexts without such opportunities (King and Mayhew 2002, 252). On the basis of the foregoing, it is no surprise that a liberal arts education (in the classical sense of questioning, inquiring and openness to evidence and argument) is widely acknowledged to provide the ideal educational experience from a moral reasoning development perspective (Ponemon and Glazer 1990; Pascarella and Terenzini 1991; McNeel 1994; Good and Cartwright 1998; King and Mayhew 2002).

Armstrong (1987) suggests, however, that a college education may not foster continued moral growth among Certified Public Accountants (CPAs), and a growing body of research supports her contention. Many studies have provided evidence of the lower level of moral reasoning of accounting students and graduates as compared with graduates from other disciplines (Armstrong 1987; Ponemon and Glazer 1990; St. Pierre, Nelson, and Gabbin 1990; Lampe and Finn 1992; Shaub 1994; Fisher and Ott 1996).

While we do not wish to single out accounting education in particular, it is an excellent example of a technical discipline which has generated a vast body of research work. Accounting education tends to be extremely focused on professional examinations rather than broadly based business knowledge. In other words, the emphasis is often on training rather than on education (Blundell and Booth 1988; McNeel 1994). Students are expected to develop technical competence, and there is often less concern with critical analysis and the broader questions of values, morals and integrity (Albrecht and Sack 2000). It is suggested that technically focused accounting education might actually inhibit a student's progression to higher levels of moral reasoning and awareness because of the emphasis on rule-based thinking (McPhail 1999, 2001). The technical approach to accounting education and practice might inadvertently instil a maintaining norms (conformance to laws) orientation in students' moral reasoning abilities (Dellaportas, Cooper, and Leung 2006). Ponemon and Glazer (1990) found that accounting students and alumni from a school offering a liberal arts curriculum, on average, were more highly developed in terms of DIT measures than students and alumni of a school with a more traditional accounting



programme. They suggest that differences in moral reasoning ‘may be caused, in part, by an educational process that inhibits students’ abilities to develop an increasing sense of ethics, integrity or moral beliefs during the college years’ (Ponemon and Glazer 1990, 204). Bernardi (1995) had similar findings. In a more general sense, McNeel (1994) argues that any college environment exhibiting dogmatism and indoctrination or college courses that are too careerist (defined as having too narrow a focus on the technicalities of initial job preparation) inhibit moral reasoning development. He found that the principled reasoning scores of college seniors majoring in business and education were significantly lower than those of seniors majoring in other disciplines (McNeel 1994). Pre-service teacher education programmes have also been found deficient in the context of moral reasoning development (Yeazell and Johnson 1988; Lampe 1994; McNeel 1994; Cummings et al. 2001). Cummings et al. (2001) suggest that curriculum-related factors may account for this; namely, a failure to integrate ethical issues into the relevant curriculum and a skill-orientated pedagogical approach devoted to technical competence rather than more an abstract, theoretical content. Cummings, Harlow, and Maddux (2007, 75) refer to ‘the possibility of an ideational poverty within the types of courses that education students experience, the emphasis of which is on the preparation of the teacher as a technician rather than as a critical thinker’. In this study, we explicitly examine the type of education undertaken by our participants in addition to the level of educational attainment in order to observe its impact on moral reasoning.

Having examined the literature on the impact of higher-level education on moral reasoning development, the next section focuses on the perceived role of the university in a general sense and, in particular, the role of the higher education sector in Ireland.

### **The role of the university and the Irish context**

Regardless of the career path that graduates embark upon once they finish full-time education, they will be faced with having to resolve moral dilemmas of some type. It follows, therefore, that facilitating the development of moral reasoning with the higher-level student population is a worthy goal of higher-level education institutes. Tam (2002, 212) argues that in the context of higher-level education and enhancing moral reasoning ‘true quality resides in the institution’s commitment to and interest in the educational and personal development of its students’.

Recent national reports on higher education in America have called for higher-level institutions to take a more central role in providing moral education to college students (Mayhew and King 2008). Indeed, for a number of years, education psychologists and educators in higher-level professional programmes have shown an increased interest in the study of moral reasoning development, ethical decision-making and moral reasoning capacity (Mustapha and Seybert 1990). Many American higher-level institutions now explicitly embrace philosophies that purport to include aspects of moral development, for example: preparation for citizenship; character development; moral leadership and service to society (Mayhew and King 2008). In this context, they are perhaps leading the field.

In a review of higher-level educational institutions in Ireland, Skilbeck (2001) describes the ‘university’ as an institution seeking to advance knowledge through



enquiry and research. He suggests that it aims to prepare students for careers with a high knowledge base, requiring intellectually demanding competences and skills, and seeks to strengthen cultural values, foster responsible citizenship and provide service to the community. Clarke (1995 cited by Breathnach 2006, 12) proposed that

regardless of the civic, economic or nationalistic demands on universities, such institutions need to be continually informed by intellectual and moral standards.

However, Skilbeck (2001) questioned whether universities are actually performing the role of intellectual leader and moral critic within the public domain and framework of general culture. He questioned whether university specialisation and professionalisation limit the scope for critical debate and enquiry on the topical issues of the day.

There is a sense in the general community that too often they (the universities) remain preoccupied with their own needs, especially for public funds, and their special interests. Cultural criticism, intellectual and moral leadership tend to run counter to the predominance of economic concerns. (Skilbeck 2001, 37)

The objectives of the university contained in the Irish Universities Act (1997) include promoting the cultural and social life of society, fostering a capacity for independent critical thinking amongst its students and supporting and contributing to the realisation of national economic and social development. Nothing relating to moral or ethical behaviour or development is specifically outlined. The functions of the university set out in the Act include the following: a university shall have the right and responsibility to preserve and promote the traditional principles of academic freedom in the conduct of its internal and external affairs and be entitled to regulate its affairs in accordance with its independent ethos and traditions and the traditional principles of academic freedom. Once again, no mention is made regarding character development, active citizenship, student integration or contribution to society. The mission strategy of Ireland's Higher Education Authority (HEA) is 'To foster the development of a higher education sector which is accessible to all potential students and which is recognised internationally for the high quality of teaching, learning and research and which has the capacity to address the changing needs and challenges in our society'. The moral development of students remains an implicit rather than explicit goal.

Newman's definition of undergraduate education is captured thus:

Undergraduate education is the education which gives a man a clear conscious view of his own opinions and judgements, a truth in developing them, an eloquence in expressing them, and a force in urging them. The man who has learned to think and to reason, who has refined his taste, and formed his judgement, and sharpened his mental vision, will be placed in that state of intellect in which he can take up any one of the sciences or callings with an ease, a grace, a versatility, and a success, to which another is a stranger. (Newman 1852)

It is argued that the specialisation focus of the Irish undergraduate experience compares poorly with this ideal (Barry 2007). Furthermore, research conducted to date has shown that, in the main, Irish undergraduate students have significantly

lower DIT *P* scores than the norms outlined for their US and international peers (Breslin 1982; Kahn 1982; D'Arcy-Garvey 1988; Gleeson 1992; O'Flaherty and Gleeson 2009). For example, O'Flaherty and Gleeson (2009) report a mean *P* score of 28.89 for Irish students in the first year of their college degree ( $n=259$ ) compared with a mean of 42.3 scored by their US peers, while Kahn (1982) found a mean *P* score of just 20.25 for students aged between 18 and 19 years. Eynon et al. (1996) report a higher mean *P* score of 31.34 for first-year Irish accounting students.

It is in the context of the aforementioned specialisation focus of Irish universities, and the results from prior DIT studies involving Ireland, that the current study seeks to enhance our understanding of the impact of Irish higher-level education, both undergraduate and post-graduate, on moral reasoning. It is critical that we learn as much as possible about the moral reasoning levels of the students and alumni within the Irish jurisdiction in order to facilitate the development of educational initiatives that will stimulate moral reasoning development effectively across the education continuum from undergraduate level right through to continuing professional development. Furthermore, if patterns of variance between different academic disciplines are evident, this has implications for curriculum development in specific disciplines, the study of the moral development and behaviour of professional graduates from these disciplines, and the design of training programmes for professional graduates.

Two primary research questions arise from the literature reviewed above. First, does higher-level education increase moral reasoning levels in an Irish context? Second, do Arts degrees stimulate moral reasoning development more significantly than technical degrees or those with a professional focus? On the basis of these research questions, hypotheses were developed that could be tested using the data gathered as part of this research project. Hypothesis one states:

H1: As level of education increases, moral reasoning scores will increase.

While Hypothesis two proposes:

H2: The average *P* score of participants with an Arts degree will be higher than participants with a technical/professional degree.

## **Method**

This study utilises the three-scenario version of the DIT to examine moral reasoning. Participants taking the DIT are presented with three moral dilemmas stated in third-person form. The dilemmas are presented as narratives describing the circumstances of the third party who is faced with making a decision on how to act in the scenario. After reviewing the dilemmas, participants choose what the actor should do in the circumstances from three options offered: 'take the action', 'do not take the action' or 'cannot decide'. They are then asked to rate the importance of 12 considerations relating to the particular dilemma, indicating how important each is (in their opinion) in making the decision described in the scenario, using a five-level scale (great importance, much importance, some, little or no importance). The 12 statements were constructed by Rest to include considerations that would be prevalent in each situation depending on an individual's dominant schema. Once

the 12 items have been rated, the participant is asked to select the four items that he/she considers to be of most importance to the decision and to rank these in order of importance.

In scoring the DIT, weighted points are allocated to the considerations chosen as the four most important in each scenario. The points corresponding to the highest modes of moral reasoning (Post-conventional schema) are used to construct a single measure known as the '*P*'-score (standing for 'principled moral thinking') for each participant (Rest 1994). Since the Rest (1979a) model is developmental and sequential, a higher *P* score implies a lower percentage of reasoning at lower levels. Thus the *P* score measures the percentage of a participant's thinking at a principled level.

The short form DIT was administered by hand or by post to 845 individuals in Ireland, using a combination of random, convenience and snowball sampling techniques.<sup>1</sup> There was an overall response rate of 48% (405 instruments). Six of the instruments had to be discarded as a result of being incorrectly completed. A further 28 instruments had to be eliminated owing to the scenario-based questions not being fully completed. The checks on subject reliability detailed in the DIT manual (Rest 1986a) resulted in 16% of the remaining instruments being eliminated from the sample. Rest (1990, 15) indicates that the invalidation of tests on the basis of consistency checks is in the 2–15% range. The number of instruments failing the consistency checks was not significantly different from this indicative range ( $p > 0.05$ ). Following checks, a useable sample of 311 instruments was available for analysis.

### *Demographic profile of participants*

The participants in this study are widely diverse in terms of age, educational background and employment type. Some are students, others work in the public or private sector in administration or professional roles, while others are retired or unemployed. The broad demographic information on participants is outlined in Table 3.

When educational level is condensed into three categories (no degree, degree or post-graduate degree), 49% of the participants have no degree ( $n = 149$ ), 29% have a graduate degree ( $n = 89$ ), while 22% ( $n = 69$ ) have a post-graduate qualification.

Table 3. Demographic profile of sample.

	Total
Mean age (SD)	31 (13.675)
Age range	17–71
Gender (male and female)	–52% and 48%
No degree level qualification	49%
Degree-level qualification	29%
Post-graduate-level qualification	22%

## Results

In order to check whether any of the demographic variables affected moral reasoning scores, a standard multiple regression was run to assess the ability of the following variables to predict *P* score: age, gender, and level of education (no degree, degree level or post-graduate level education). The beta values and significance levels of variables in the regression can be seen in Table 4.

As can be seen from Table 4, the only variable that has a significant effect on *P* score is level of education. It is positively correlated with *P* score, meaning that *P* score increases with the level of the participant's academic qualification. Age does not have a significant impact on *P* score, nor does gender. On the basis, however, that our sample consists of participants aged from 17 to 71 and that level of education and age are typically correlated, we control for the age variable in the data analysis set out below.

A one-way between-groups analysis of variance was conducted to explore the impact of education level on *P* score, controlling for age. There was a statistically significant difference at the  $p < 0.05$  level in *P* scores for the three education groups:  $F(2, 297) = 5.441, p = 0.005$ . The marginal means suggest that the real difference lies between participants with no degree and those with degree-level education (see both Table 5 and Figure 1).

Post-hoc comparisons using the Tukey HSD test indicate that the mean score for the no degree group ( $M = 27.81, SD = 12.14$ ) was significantly lower than the mean score for the degree group ( $M = 32.81, SD = 15.34$ ) at the  $p < 0.05$  level. The mean score for the post-graduate group ( $M = 33.53, SD = 16.29$ ) differed significantly from the mean *P* score of the no degree group ( $p = 0.016$ ) but not from the mean *P* score for the degree group ( $p = .946$ ) (see Table 6).

It appears from the results that while degree-level education impacts positively on moral reasoning scores, post-graduate education does not have a significant effect over and above that observed for degree level education. Hypotheses 1: as level of education increases moral reasoning scores will increase, is, therefore, supported with respect to degree-level education only.

In order to test the second hypotheses, participants with degree-level education or higher were grouped into two separate categories: those who had completed an arts degree ( $n = 75$ ) and those who had completed a bachelor of science, business or commerce ( $n = 80$ ). A one-way, between-groups analysis of variance was conducted to explore the impact of education type on *P* score. While the marginal mean of the group having completed an arts degree was higher than the group who had

Table 4. Predictors of *P* score.

Model	Unstandardised coefficients		Standardised coefficients		Significance
	<i>B</i>	Standard error	Beta	<i>T</i>	
(Constant)	24.418	3.124		7.817	0.000
Age	-0.081	0.066	-0.075	-1.229	0.220
Gender	2.279	1.692	0.079	1.347	0.179
Level of education	3.155	1.118	0.176	2.822	0.005

Table 5. Estimated *P* score marginal means (controlling for age).

Level of education	Mean	Standard deviation	<i>N</i>
Under degree level	28.2173	12.24560	141
Degree level	32.8030	15.42821	88
Post-graduate level	33.7745	16.27810	68
Total	30.8484	14.39667	297 <sup>a</sup>

<sup>a</sup>Not all participants gave an age variable.

completed a bachelor of science, business or commerce (*P* score of 34.36 versus 31.42), there was no statistically significant difference in the *P* scores of the two groups ( $p = 0.24$ ). Hypotheses two must, therefore, be rejected.

The results did not reveal any significant differences in the moral reasoning scores of male and female participants. This finding is consistent with the earlier literature, most of which finds no statistically significant difference in moral reasoning between the sexes (Ponemon 1990; Ponemon 1992; Tsui 1996; Cummings et al. 2001; Abdolmohammadi et al. 2003). Furthermore, age does not appear to affect the moral reasoning scores of the participants. This finding is consistent with Shaub (1994) but not with many other studies that have examined age (e.g. Ponemon 1990; Jones and Hildebeitel 1995; Eynon, Hill, and Stevens 1997; Etherington and Hill 1998; Rest et al. 1999a).

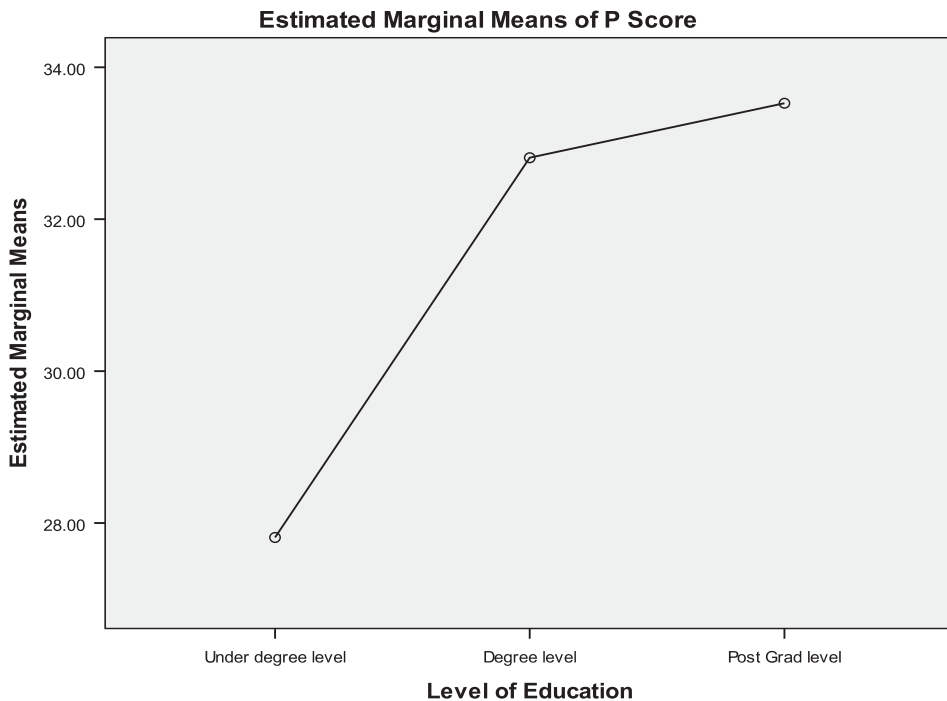


Figure 1. Covariates appearing in the model are evaluated at the following values: Age = 30.58.

Table 6. Multiple *P* score comparisons (Tukey HSD).

Level of education (I)	Level of education (J)	Mean difference (I–J)	Standard error	Significance	95% confidence interval	
					Lower bound	Upper bound
No degree	Degree	–4.9993 <sup>a</sup>	1.89082	0.023	–9.4526	–0.5459
	Post graduate	–5.7168 <sup>a</sup>	2.05523	0.016	–1.0557	–0.8763
Degree	No degree	4.9993 <sup>a</sup>	1.89082	0.023	0.5459	9.4526
	Post grad	–0.7176	2.26390	0.946	–6.0496	4.6145
Post-graduate	No degree	5.7168 <sup>a</sup>	2.05523	0.016	0.8763	1.0557
	Degree	0.7176	2.26390	0.946	–4.6145	6.0496

<sup>a</sup>The mean difference is significant at the 0.05 level.

### Discussion and conclusion

This study analysed data from 311 participants in Ireland coming from a broad range of backgrounds with the aim of examining the impact of education level and type on moral reasoning using the DIT. Taken as a whole, the analysis indicates that education does have a significant effect on moral reasoning. This is consistent with the DIT literature which suggests that levels of formal education account for 30% to 50% of the variance in DIT scores (Bebeau and Thoma 2003). However, it is undergraduate education that enhances moral reasoning, while post-graduate education appears to have little further impact.

On the basis that Irish-taught post-graduate education typically involves the delivery of specialised material over an intensive eight-month period, usually followed by a semester during which students undertake academic research culminating in the completion of a thesis under the supervision of an academic, it is perhaps unsurprising that the post-graduate educational environment lacks the space for moral development that undergraduate education – typically spread over three or four arguably less intense years, fosters. By the time, students' progress to post-graduate education, they are accustomed to the higher-level environment which no longer represents a new and exciting challenge to them. Perhaps this results in the post-graduate educational experience lacking the stimulation and novelty that enhances further moral development and is evident in the transition to higher-level education.

Indeed, the findings raise a broader issue concerning access to higher education. While most of the cost of undergraduate education in Ireland is, at the time of writing, covered by the state, students are still required to pay a hefty registration fee. This fee, when added to the cost of living and the opportunity cost of not working on a full-time basis, render undergraduate education difficult, perhaps impossible, to access for certain sectors of society. The findings suggest that this may stifle cognitive moral development in those with no access to higher-level education. This is an issue that merits further investigation.

When participants with higher-level education were split into two groups, representing those who had undertaken a technical or professionally oriented degree and those who had done an arts degree, there was no statistically significant difference in the mean *P* scores of the two groups, despite the fact that in absolute

terms, the mean *P* score of the arts educated group was higher. This finding is not consistent with other studies that have looked at the impact of different educational types on moral reasoning (see, for example, Ponemon and Glazer 1990; McNeel 1994; Cummings et al. 2001). It is acknowledged that categorising participants on the basis of whether they have completed an arts degree or a bachelor's degree in science, business or commerce as a proxy for a liberal arts or a more technical education is a rather blunt technique. In order to examine education type more thoroughly, a more refined categorisation technique needs to be developed. The results may indicate that technical or professionally oriented degrees do not stifle moral development; however, the more likely conclusion in an Irish context may be that even arts-based degrees in Ireland sacrifice breadth for depth as observed by Barry (2007).

The *P* scores that have emerged from this analysis are interesting in themselves (mean *P* score 30.84, SD 14.39). This compares poorly with the average scores reported by Rest (1986a, iii) on the basis of the norms compiled by the Centre for the Study of Ethical Development (CSED) in Alabama (formerly, Minnesota – see Table 2 above). According to Table 2, the scores from this study are most comparable with those of average senior high students and are well below the level of adults in general and college students. The low *P* scores found in this study are consistent with the findings of Breslin (1982), Kahn (1982), D'Arcy-Garvey (1988), Gleeson (1992), and O'Flaherty and Gleeson (2009) in the context of the Irish scores being lower than international norms as reported by the CSED. Further, work needs to be done to investigate why the scores achieved in this study are so low. Indeed, using scores compiled by the CSED, over hundreds of studies in different jurisdictions and spanning a long period in time, may not be appropriate as a comparison mechanism. Many DIT studies date from the 1970s and are based on research undertaken in the USA. It may be unwise to assume that average *P* scores calculated in the 1970s would be replicated today, as moral standards may have changed in the intervening years.

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### **Note**

1. The short form of the original DIT was utilised in this study in order to facilitate comparison with scores from past studies using the same instrument and also to minimise the time taken to complete the test. Furthermore, *P* scores rather than N2 scores were also used to facilitate comparison with prior studies.

### **Notes on contributors**

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