

Digging deeper using 'habitus' – a fresh approach to understanding student behaviour

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BACKGROUND

Government policies in Australia aim to increase participation in higher education (Australian Government, 2008), so it is becoming more important to understand the factors affecting the progression and retention of an increasingly diverse student cohort. A great deal of work has already been done in the area of progression and retention in Australia and internationally, much of this has been based around identifying factors that indicate a student's probability of success. These factors include demographic, psychosocial and academic indicators.

French sociologist Pierre Bourdieu developed his theory of habitus in the late 20th century as a means of exploring the role of social class on individual aspirations and behaviour. Bourdieu's concept of habitus and its relationship to his concepts of Field, cultural Capital and Dispositions form a theoretical framework and the basis of a methodology which enable the rigorous investigation of human actions and interactions (Reay, 2004). As yet, Bourdieu's concepts have not been widely used as a framework within engineering education research; his theories are complex, fluid and relatively inaccessible to the novice sociologist (DiMaggio, 1979).

PURPOSE

This discussion paper explores the potential for the work and theories of Pierre Bourdieu to provide an alternative approach to engineering education research on student diversity issues, including progression, retention and student success. Student actions, attitudes and beliefs that are known to contribute to success can be traced back to a student's habitus, a concept developed by Bourdieu.

DESIGN/METHOD

Issues of academic performance, retention and progression in an engineering program can be better understood against the background of individual student choice and behaviour. Bourdieu's theory of habitus presents a lens through which to view the motivations behind individual student decisions to study engineering. This paper will discuss his theories and argue that his work can be directly applied to investigations into student choices (of engineering as a career, institution of study, and mode of study); academic performance; retention and progression. An example of a possible study will be outlined to demonstrate the possible applications.

RESULTS

Bourdieu's theories are shown to have direct application to the investigating the underlying sociological reasons for student performance in engineering. Their application can lead to a deeper understanding of why factors that have already been identified as significant to student success are less often found in students from 'non-traditional' backgrounds.

CONCLUSIONS

Bourdieu's work presents an opportunity for engineering education researchers to further understand why demographic, psychosocial and academic factors, which are known to play a role in the success or otherwise of students are exhibited in particular educational settings. Furthermore, it provides a fresh theoretical framework for investigations in to engineering education phenomena.

KEYWORDS

Diversity; progression; retention; student success; Bourdieu

Introduction

This paper explores the potential for the work and theories of Pierre Bourdieu to provide an alternative approach to engineering education research on student diversity. Bourdieu's theories were developed as a means of exploring the role of social class on individual aspirations and behaviour. International governmental and institutional aims to diversify the intake of engineering students (OECD, 2012) renders it appropriate for researchers to explore the motivations behind student decisions to study engineering. Issues of academic performance, retention and progression in an engineering program can be better understood against the background of individual student choice and behaviour.

Bourdieu, an eminent French sociologist of the late 20th century, was most concerned with identifying and articulating the societal factors that perpetuate the 'status-quo' of a hierarchical social structure (Reay, Arnot, David, Evans, & James, 2004). He saw educational systems as a key factor in the perpetuation and reproduction of social structures and so focused much of his work on educational settings (Swartz, 1997). Bourdieu's concept of habitus and its relationship to his concepts of Field, cultural Capital and Dispositions form a theoretical framework and the basis of a methodology which enable the rigorous investigation of human actions and interactions (Reay, 2004). His theories can be directly applied to answer the question of why students choose a particular career path and to explain their subsequent behaviour and academic performance once within an educational institution (Swartz, 1997). He proposes that whether students stay within a program of study or drop out is largely determined by their perceptions of the probability of success for students of their background (DiMaggio, 1979).

As yet, Bourdieu's concepts have not been widely used as a framework within engineering education research; his theories are complex, fluid and relatively inaccessible to the novice sociologist (DiMaggio, 1979), which may explain their relative novelty to engineering education researchers. This paper will discuss his theories as a possible framework for future investigations into student choices (of engineering as a career, institution of study and mode of study); academic performance; retention and progression; institutional strategy and subsequent career trajectories.

Diversity in engineering education

Many countries around the world have stated goals of increasing both access to and participation in higher education (OECD, 2012). The recent global financial crisis has highlighted the economic importance of these goals for both individuals and national economies (OECD, 2012). As national economies increasingly shift from mass production to a 'knowledge economy' employment in science and technology occupations is expected to further increase (OECD, 2012). This combination of factors could reasonably be expected to continue increasing the already strong demand for engineering education as well as the diversity of students undertaking engineering undergraduate degrees.

A 'traditional' higher education student can be considered to be a "19 year old, newly graduated from high school, mostly from families of medium-high socio-cultural status" (Gilardi & Guglielmetti, 2011) and in engineering this description could also include 'male'. Students who do not fit this profile, who have been broadly referred to as 'non-traditional', are increasingly taking up the opportunity to access higher education. Gilardi and Guglielmetti (2011) identify three broad means of identifying non-traditional students that have been used in the literature: age, demographic background and other risk factors; this last category being students who have delayed enrolment, part time attendance, part time work, financial independence, dependents other than a spouse or who lack a high school diploma. These students will clearly have different needs, motivations and expectations than the more homogeneous and 'elite' cohorts of students accessing higher education in previous generations.

The need to embrace diversity within engineering education research has been well recognised (Baillie, Ko, Newstetter, & Radcliffe, 2011) and reflects prominent themes in the wider area of higher education research. It is thus appropriate that we consider a wider range of frameworks with which to investigate engineering education. Bourdieu's theory of habitus may be one which is applicable.

Bourdieu's theory of habitus as an alternative framework

Pierre Bourdieu was a renowned French intellectual of the late 20th century. He had a passion for social justice and much of his work involved the study of social inequality and the ways in which it is perpetuated, mostly without conscious recognition (DiMaggio, 1979; Reay, et al., 2004). Bourdieu drew on the disciplines of philosophy, social anthropology and sociology (Reay, et al., 2004) to develop his own sociological theories dealing with the stratification of contemporary society and its implications for individuals. His writings were voluminous and not easily accessible to those who are new to his work (DiMaggio, 1979) which may explain why his concepts have been widely used in sociological explorations of higher education but not yet been widely adopted within the field of engineering education research.

Bourdieu's theory of habitus

Bourdieu is notorious for not succinctly defining the concepts on which his theory is based and for using them in a fluid manner throughout his writing. However a working description of habitus is that it is a collection of mostly subconscious dispositions, which an individual initially acquires in early childhood via familial interactions and which are then constantly modified by subsequent life experiences (DiMaggio, 1979). An individual's dispositions will be expressed as their thoughts, preferences, beliefs and aspirations, concerning themselves and the structure of the social world around them (Swartz, 1997). These dispositions then influence how a person will behave in a particular situation.

Individuals from a particular socio-economic group will usually have many aspects of their habitus in common. Habitus is both shaped by the social structures within which it is formed and regulates the actions of an individual within those social structures (Brubaker, 1985). A person's dispositions will include beliefs about their chances of success in a given endeavour; Bourdieu postulates that one's aspirations, and subsequent actions, are then adjusted to the perceived probability of success. He refers to this idea as the "causality of the probable" (Swartz, 1997).

Bourdieu uses his concept of 'Field' as a metaphor for all the organisations and individuals involved in a particular social or cultural arena and the interactions between them (Swartz, 1997). He sees every Field as a situation of struggle, competition or conflict, the objective for each individual being to optimise their accumulation or retention of 'Capital'. Bourdieu's concept of Capital extends beyond mere economic capital to also encompass symbolic, cultural, social and linguistic capital. Each of these types of capital has a social value and can be 'inherited', through the circumstances of one's early upbringing, or accumulated, exchanged and leveraged, much like economic capital (Swartz, 1997).

Bourdieu's work is acclaimed by Rogers Brubaker (1985) as one of the most significant attempts to adapt sociological theory to the empirical study of contemporary society. Bourdieu made an epistemological break with the two contemporary competing sociological camps of 'ethnomethodology' (subjectivist) and 'structuralism'(objectivist) to produce what has become known as a 'reflexive, post-structuralist' theory. He articulated a reflexive position whereby individuals influence the Fields within which they operate while concurrently being influenced by their own habitus; a construct of societal structures (including various Fields) both past and present within which they have interacted (Brubaker, 1985; DiMaggio, 1979; Robbins, 2004). In this way he found a theoretical 'middle ground' on which to model human interactions in a society.

Bourdieu's writing on educational systems

Bourdieu sees the sociology of education as the foundation of sociology and as a key setting through which cultural stratification is perpetuated. Education is a form of cultural Capital, which can be acquired through time, effort and money and which can be exchanged for a prestigious and profitable career (Swartz, 1997). Thus, cultural Capital can be acquired through education, but more easily so by students already possessing large amounts of cultural Capital through inherited wealth and/or position (DiMaggio, 1979, 1982). Educational settings are also responsible for reinforcing the social class system or hierarchy through the classification systems (admission & assessment) that they adopt (Naidoo, 2004; Swartz, 1997).

Bourdieu proposes that the educational decisions made by students (where and what to study) are the result of their dispositions, which in turn have been developed as a result of their personal habitus (Swartz, 1997).

The topic of student achievement or success is also addressed by Bourdieu. He proposes that whether students stay in school or drop out is largely determined by their perceptions of the probability of success for students of their background (the causality of success) (DiMaggio, 1979). This is reflected in other studies showing the significant influence of student expectations on academic achievement (Jones, Paretti, Hein, & Knott, 2010; Matusovich, Streveler, Loshbaugh, Miller, & Olds, 2008). Bourdieu further argues that a child's expectations of education and career are largely determined by their parents and early educational influences during the formation of their habitus.

Bourdieu's theoretical framework and education research

Having been refined in the context of the French educational system the validity of Bourdieu's theories for applications in other cultures has been raised (Robbins, 2004). However Bourdieu was very interested in the applicability of the particular to explain the universal in society and his later writings address the adoption of his concepts by English readers (Robbins, 2004). Reay (2004) and Robbins (2004) both point to extensive use of Bourdieu's theories in British educational sociology research. Berger (2000) discusses the increasing popularity of Bourdieu's theory in the USA as a conceptual framework for exploring inequities in educational achievement, higher education organisational studies, student persistence and retention.

It has been argued that Bourdieu's theories have been widely misused (Reay, 2004; Robbins, 2004), particularly by English speaking sociologists, who tend to examine their data using Bourdieu's theories rather than underpinning their research methodology with the theoretical framework that Bourdieu can provide. Reay (2004) argues that Bourdieu's theory of habitus is meant as a research methodology, a means of informing the nature and form of investigations undertaken rather than simply as a lens through which to view the data collected in a study.

Bourdieu's own data collection methods combine statistical techniques with observations and interrogation of relevant interactions, discourses and documentation (Wacquant, 2008). He advocates the use of whatever methodological procedure is most appropriate to the question at hand, the close attention to the underlying theory of every aspect of the research design and implementation and a continual methodological review and refinement (Wacquant, 2008).

Progression, retention and student performance

With an increasingly diverse student profile there is a growing interest in the factors that predict student retention, progression and performance. There has been a great deal of work done on these areas both within higher education research and within engineering education research. It is not the purpose of this paper to give a comprehensive literature review of this

area but to give an overview of the type of work that has been done on these topics within engineering education research.

Research on progression, retention and academic performance of students largely revolves around identifying characteristics or predictors of success or failure. These characteristics can be loosely grouped into demographic, psychological, academic and sociological categories. The following is a brief description of these areas of inquiry that have been explored under the banner of engineering education research. Within each of these categories echoes of Bourdieu's theory of habitus can be heard, suggesting that his theories can provide a useful framework for further exploring the underlying reason that these factors occur in various students and why they affect subsequent performance.

Demographics

A student's demographic background prior to commencing university has been shown to be a predictor of probable academic success. Those from rural and regional areas and low socioeconomic backgrounds tend to struggle, particularly at large, traditional urban universities. The effect of age on a student's performance tends to be variable with no consistent pattern being shown. Age as a factor could better be replaced with other considerations such as the effect of familial responsibilities, hours in paid employment and psychological considerations such as commitment to study and self-efficacy, all of which have been shown to affect study success (e.g. R. M. Felder, Forrest, Baker-Ward, Dietz, & Mohr, 1993; McKenzie & Schweitzer, 2001).

Students who study by distance, have full time work, have dependents other than a spouse, are the first in their family to attend university, have a disability or are part of a minority group have been shown in various studies to be 'at risk' in terms of academic performance and retention. All of these categories of student contribute to the growing diversity of engineering cohorts.

According to the theory of habitus, students who have grown up in rural or regional area or who come from socio-economic environment where study is not 'the norm', will have a habitus, and associated set of dispositions, which is at a wide variance to the habitus of more traditional university students. The way in which they engage and interact with the Field of higher education will thus be different. Even students who come from a more traditional background (in terms of university entrance) but who through circumstance begin their tertiary studies later in life will have a habitus that has been shaped by their life experience.

Psychological theories

Motivational theories such as self-efficacy and expectancy-value theory have become important tools for examining the achievement and persistence of engineering undergraduates (Jones, et al., 2010; Matusovich, et al., 2008). Self-efficacy is a measure of a person's belief in their own ability to perform a task in a specific domain (Jones, et al., 2010) and has been found to be linked to a student's academic performance and persistence (McKenzie & Schweitzer, 2001).

Expectancy value theory, which has only recently been used in engineering education research, predicts that student performance is linked to both their expectancies for success in a particular situation and the value they assign to success in that situation (Matusovich, et al., 2008). Recent work by Matusovich et al. (2008) found that this theory could shed light on student persistence and performance. Jones et al. (2010) concluded that although both expectancy constructs and value related constructs were relevant to studies of academic performance and persistency within engineering they predicted different outcomes.

Approaches to learning, learning styles and the intellectual development of engineering students have also been widely studied (see for example R. Felder & Brent, 2005) as a means of understanding student diversity.

Motivational theories, such as those listed above, discuss the psychological explanations for a person's behaviour, whereas Bourdieu's theory of habitus explains why these psychologies may differ in a particular educational setting for individuals from different backgrounds. Indeed Bourdieu's causality of success speaks directly to the underlying reasons why students' expectations of success and the value they place on that success will vary.

Academic factors

Cognitive abilities, in particular spatial abilities, have been shown to be clearly relevant to engineering student performance (Burton & Dowling, 2009). Other studies have found that previous academic performance is a good predictor of future academic performance (e.g. McKenzie & Schweitzer, 2001).

Bourdieu's theories speak directly to the concept of academic achievement being more easily attainable by students possessing an appropriate habitus and the mechanisms by which the primary and secondary schooling systems reinforce students' expectations of success in the academic environment.

Sociological theory

The most significant sociological theory associated with university persistence and performance used in engineering educational research is Vincent Tinto's 1975 theory of integration (McKenzie & Schweitzer, 2001). He suggests that the matching of student academic ability and motivation with institutional social and academic qualities affects the academic and social integration of the student into the university, which in turn affects their performance and persistence.

Once again Bourdieu's theories explain why some students feel comfortable in the higher education environment and integrate more easily into both the social and academic environment.

Summary of factors

The factors identified by these types of study indicate that the broad category of non-traditional students tend to struggle in engineering courses. However, the identification of student characteristics influencing the success or otherwise of students does not explain the underlying question of why such students display these characteristics in an educational setting and their effect on subsequent performance. Bourdieu's theory of habitus has the potential to illuminate the attitudes values and behaviours of engineering students who come from diverse demographics and the impact on them of the institutional systems and environment in which they study.

Research design using habitus as a theoretical framework

Bourdieu's theories have been applied as an investigative framework to a variety of research contexts and questions within the area of educational sociology (Reay, et al., 2004). His theories can be applied outside the context of French education (Robbins, 2004) and are even appropriate within societies which increasingly regard themselves as 'classless' (Reay, 1997). There is no reason to preclude them from studies of Australian engineering education, although a possible reason for their lack of use to date is discussed below under challenges.

A possible application of Bourdieu's theoretical framework:

Bourdieu's work allows for the experience and understanding of an individual to underpin a wider explanation of a particular phenomenon, allowing the explanation of the particular to elucidate the general. Thus, results found using a relatively small sample of participants can be used to create a wider hypothesis about student behaviour.

If we consider, as an example, the phenomenon of high risk, non-traditional students who nevertheless achieve outstanding academic results and investigate the underlying reasons using Bourdieu's theories, a greater understanding of student success could be achieved. According to Bourdieu's theories a student would need to be confident that success was achievable for 'someone like them' and feel comfortable enough in the Field of engineering education to negotiate their way through the requirements of an engineering program. The elements of the Field of engineering education which must coalesce with a student's personal habitus to enable this success, once identified, might suggest ways of tailoring programs and institutional practices to enable success in a wider range of students.

Methodology

Using Bourdieu's theories as a framework allows, indeed encourages, the tailoring of research methodologies to the question at hand (Wacquant, 2008). Qualitative, quantitative and mixed methods studies can all be used as appropriate. Having said that, the nature of enquiries that look at human dispositions to explain why individuals not only act in a particular way but display certain psychological traits in a given situation lend themselves to the use of qualitative data. Understanding the (sub-conscious) dispositions of an individual requires subtle interpretations of their words and actions.

The study into the success of a particular group of students, as proposed above, could be conducted using a series of semi-structured interviews to draw out students' personal narratives. As sub-conscious beliefs and understandings are being investigated, they cannot be directly measured or spoken about. The naturalistic data resulting from an informal interview could be subjected to a thematic analysis in order to identify relevant aspects of student habitus.

Challenges for engineering education researchers:

As a technically trained engineer who has come recently to engineering education research the author has found that the sociological background, assumed by most researchers using this framework, to be challenging to master. In Australia Engineering Education Research is dominated by academics with a technical engineering background and an interest in education. The disciplines and theories associated with sociology and education research tend to be secondary to their core training, so the adoption of these theories presents a challenge to such researchers.

The language and deeper implications of work in these disciplines are, in most cases, 'foreign'; it can be all too easy to adopt them at a superficial level without a full appreciation of the limitations and opportunities they present. An engineer reading about Bourdieu's work needs to develop a new set of skills and an understanding of quite 'foreign' concepts. References within sociology literature to structures, vectors, matrices, transposing and functions, although seemingly familiar terms, hold a whole new meaning. For these reasons the adoption of Bourdieu's theories might be best approached initially through cross-disciplinary collaboration with sociologists. This in turn would tend to lend a richer insight into engineering student behaviour.

Conclusion

A deeper understanding of student habitus and the effect on students of institutional systems and environments can assist with the quest to support, accommodate and facilitate the engagement and learning of diverse cohorts. This paper presents only a preliminary introduction to Bourdieu's complex work and is intended as an initial investigation into the possibilities it presents for engineering education research.

Linkages between Bourdieu's theories and major, established areas of investigation relating to engineering student behaviour have been briefly described. Further work using the theory of habitus to underpin and tie together the findings of previous investigations has the

potential to provide a richer understanding of student behaviour in the Field of engineering education.

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