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What determines students' study practices in higher education? An instrumental variable approach


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ABSTRACT

University student populations in the developed world embody more personal, social, cultural, and intellectual diversity than their predecessors a quarter century ago. The existing literature is less clear about dimensions of students' study practices and how variables that underpin this diversity shape them. This study fills this gap in three ways. First, it develops study practices questionnaire (SPRQ) and gathers student survey data from a leading Australian university. Second, factor analysis explores dimensions within the domain. Third, an econometric model incorporating university entry score as an instrumental variable (IV) investigates key determinants of the dimensions.

Three dimensions (Engagement; Reflection; and Learning Impediments) underpinned study practices domain. University entry score positively affected Engagement. Students aged 20–25 years were more engaged relative to those ≤ 20 years. Economics students displayed stronger Engagement. English speaking background (ESB) economics students displayed lower Engagement. Students' effort positively influenced Engagement. Upper undergraduates demonstrated lower propensity toward Reflection than lower undergraduates. Male, and ESB students faced higher and lower Learning Impediments respectively.

The study has implications for university teaching and learning policies and practices. Instructors can maximize student engagement by demonstrating relevance of theories to real-world, encouraging class discussion, and establishing close links between lecture and tutorial/laboratory sessions and assessments. A school can ensure readier access to learning resources, provide discipline-specific English language support for NESB students, and conduct regular surveys of students' study practices, taking account of the diversity within the student population. This study provides an opening for continued research within Australia and overseas.

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1. Introduction

University student populations in the developed world embody much more personal, social, cultural, and intellectual diversity than their predecessors quarter century ago (see, e.g., [Denson and Zhang, 2010](#); [Vardi, 2011](#) and [Martin et al., 2013](#)). The number of international students attending universities in Western countries has increased dramatically. In

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several larger and more reputable Australian universities, overseas enrollments account for between 20% and 25% of the total number of students. In some Australian regional universities, international students constitute at least 50% of their student population. This period has also witnessed a significant commensurate increase in domestic participation due to massification of higher education leading to its expansion from under 15% of the relevant age group to almost 30% (Yang, 2011).¹ These changes have altered the nature of the student populations with varied academic abilities, learning needs, and aspirations as well as the ethno-linguistic mix. The flexibility of enrollment and entry (part-time vs. full-time, school leavers vs. matured age students) has also added a new dimension to this diversity.

The increase in students' diversity has significant implications for university teaching and learning practices and policies, and especially those that might affect students' study practices. The literature in this area has grown significantly over the past 30 years, primarily with instruments that focus on deep and surface learning (Biggs and Tang, 2011; Entwistle and McCune, 2004; Marton, 1981, 2007; Prosser and Trigwell, 1999). Inventories developed in the 1970s and 1980s concentrated on motivation, study methods, and learning processes. Those developed later focused on the mental models, metacognition, and self-regulation. Entwistle and McCune (2004) identified some common elements including those that targeted the types of learning processes (deep/reflective/elaborative vs. surface/serial-reiterative/rehearsal) and those that dealt with effort and achievement motivation. Other meta-analyses have focused on differences between males and females. For example, Severeins and Ten Dam (1994) included 19 studies and identified small but consistent differences in learning styles between males and females. Men displayed a stronger preference than women for abstract conceptualisation. Men showed interest in courses for gaining a certain qualification while women showed interest in learning for its sake. Severeins and Ten Dam (1994) also found that men preferred a deeper approach to learning while women preferred a surface approach.

Dieseth (2007) employed factor analytic and structural equation modeling to examine the relationship between approaches to learning, course experience and examination performance. Such techniques have identified learning approaches (deep, surface, and strategic) *a la* Biggs (1987) and Alauddin and Ashman (2014). Dieseth (2007) found that students' ability and approaches to learning had considerable independent effects on their individual academic achievements. Furthermore, students' views of their learning environment were important elements of their approaches to learning.

Students' study habits, the level of effort they put into their academic work, their propensity to reflect (self-critique), or the difficulties they face in their studies may underlie their study practices. This paper centers on the main research question:

Do students' study practices in higher education differ according to a set of characteristics that typify diversity in the student population?

Two additional questions underpin the above research question:

1. Can students' behaviour about their study practices be reduced to a small number of dimensions reflecting students' response patterns?
2. If so, do these dimensions vary according to a range of variables including students' sex, linguistic background, study discipline, age, study level within their degree program and the university entry score?

While numerous studies (see, e.g., Biggs and Tang, 2011; Denson and Zhang, 2010; Gordon et al., 2010; Marginson et al., 2010 and Vardi, 2011) document the contextual changes that have led to the diversity of student populations in higher education. However, it is less clear about dimensions of students' study practices and how variables that underpin this diversity shape them. This study seeks to fill this gap by addressing the diversity within the student population and undertaking a quantitative analysis of its impact on students' study practices in higher education. More specifically, it contributes to the existing literature in three important ways. First, it develops a 71-item study practices questionnaire (SPrQ). Second, factor analysis elaborates students' responses regarding their study practices to explore dimensions within the domain. Finally, an econometric model incorporating university entry score as an instrumental variable (IV) investigates key determinants of the dimensions.

Section 2 focuses on the survey instrument, participation and procedure as well as the analytical frameworks employed in this study. Section 3 presents and discusses the results stemming from factor analysis and the econometric model while Section 4 presents the conclusions. Section 5 explores the implications.

2. Materials and methods

2.1. Survey instrument, participants and procedure

Consistent with goals and objectives stated earlier, the study required a new survey instrument as the existing ones predated the massive changes that have taken place in the higher education sectors through the developed world. The purpose of this study warranted a new instrument to reflect these changes.

¹ Australian population data, 2014 (<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3235.02014?OpenDocument>) and the corresponding data on selected higher education statistics (<https://docs.education.gov.au/node/38117>) suggest that this proportion is close to 31%.

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