A matter of time: Temporal influences on engagement of first year university students

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Abstract

This paper confirms the influence of temporal orientation on student engagement as investigated in a survey of first year university students at a multi-campus institution in Australia. The study considered inter-relationships between five temporal orientations (Future, Past Positive, Past Negative, Present Hedonistic and Present Fatalistic) and three measures of student engagement (Academic Orientation, Academic Application and use of Deep Approaches to study). Hierarchical multiple regression analyses showed that the five temporal factors were able to explain between 13% and 34% of the variance of the student engagement measures. Future was an important predictor of engagement for traditional and mature age students, though the influence was tempered by different variables in the case of traditional and mature age students. We propose that developing students’ temporal orientations is a new dimension to approaches in enhancing student engagement.

Despite three decades of research, access and continued participation in higher education remain the focus of ongoing research. Much emphasis has been placed on the first year at university as an important point for study since most student departures occur during the first year (Tinto, 1993). Moreover, experiences in the first year tend to lay the foundations for experiences in subsequent years (Zimitat, 2006) such that many of the students who withdraw in later years attribute their withdrawal to events that occurred in first year (Tinto, 1993). Considerable research in the USA (Pascarella & Terenzini, 2005) has examined relationships between student experiences at university and their long term participation in higher education. Research in Australia has primarily been descriptive, profiling the experience of first year students at university (Krause, Hartley, James, & McInnis, 2005; McInnis & James, 1995; McInnis, James, & Hartley, 2000). From these studies, engagement has emerged as a key issue in student retention and continued participation in higher education. This study focuses on factors influencing engagement of first-time students, and examines the influence of temporal orientation on engagement for first year university entrants at an Australian institution.

The Australian first year experience

A key feature of higher education in Australia is the diversity of the student population. Despite the growth in student numbers over the last decade, the proportions of mature age students (i.e., those 25 years and older) has remained relatively constant over the last 20 years at 40-42% (DEST, 2005; Krause et al., 2005). Since 1985, the numbers of women commencing higher education have exceeded those of male students and the participation of students with disabilities and international students has grown (DEST, 2005). In general, Australian university students are commuter students and attend local institutions (McInnis & James, 2004) unlike their counterparts in the USA. The national, longitudinal study by McInnis, James and Hartley (2000) highlighted a broad range of student motivations for
attending university. Complex lifestyles and the rapidly changing teaching and learning environment were identified as factors contributing to apparent student indifference to university. As in the US (Choy, 2002) and the UK (Broadbridge & Swanson, 2005), the increase in the array of activities and responsibilities competing with university study means that students have less time to spend on campus and are at risk of disengagement. Students are increasingly working, either part-time or full-time, to the detriment of the quality of their academic work and engagement with their university (Broadbridge & Swanson, 2005; McInnis & James, 2004). On the surface, it would seem that older students face different lifestyle demands and challenges than younger students, and this may contribute to their higher rate of discontinuation of study. Based upon such differences, school leavers and mature age students may also have different motivations for study that influence their patterns of engagement and long term persistence in higher education.

**Student engagement**

Understanding student engagement has become the focus of much research into the first year experience because it lies at the heart of student retention and persistence. Tinto (1993) described student engagement as the result of successful academic and social integration within the university environment. In similar vein, McInnis, James and Hartley (2000) viewed engagement as a combination of intellectual application, diligence and participation in the learning community. On an individual level, engagement can be seen as a measure of student involvement with their university studies, that is, “the amount of physical and psychological energy that the student devotes to the academic experience” (Astin, 1984, p. 297).

In light of these views, this study considered student engagement as having both psychological and behavioural dimensions. The psychological dimension considered the degree to which students value academic endeavour and learning and is measured by Academic Orientation (McInnis, 2001). The behavioural dimension is considered in two ways, first by a measure of conscientiousness with which students apply themselves to their studies, Academic Application (McInnis, 2001) and second by the approach they take to study (deep or surface) (Ramsden, 1992).

**Temporal Orientation**

Temporal orientation, or the way in which individuals behave as a reflection of their consideration of the past, the present and the future, is considered a basic dimension of human functioning. An individual’s relationship to time is important because it is also a mostly nonconscious process that gives order and coherence to events by consigning them to difference temporal categories or time frames. These cognitive frames are used to encode, store and recall past experiences and are also used in the formations of expectations and goals. Zimbardo and Boyd (1999) argue that one’s temporal orientation, or time perspective as they term this process, “exert[s] a dynamic influence on many important judgments, decisions, and actions’ (p.1272). Thus experiences from one’s past can influence actions in the present and also one’s expectations for the future, especially in relation to perceived costs in the present. The balance between the three temporal frames can be considered an “individual-difference variable” (Zimbardo & Boyd, 1999) affecting personal decision-making situations. The balance between these temporal frames exerts influence on individual behaviour (e.g., living for now, or planning for the future). Individuals can influence the balance among these temporal orientations, depending on “situational demands, resource
assessments or personal and social appraisals”, to reach compromises that satisfy new goals and avoid adverse consequences.

The Zimbardo Time Perspective Inventory (ZTPI) gains its stability from more than a decade of empirical testing and refinement and consists of five factors. (1) Past-Negative, items which reflect a negative view of the past; (2) Present-Hedonistic, items associated with pleasure-seeking and excitement, impulsiveness and a lack of consideration for future consequences; (3) Future, items related to planning for and achievement of future goals; (4) Past-Positive, items reflecting a nostalgic, sentimental view of the past; and (5) Present-Fatalistic, items reflecting an attitude of hopeless, helpless, or fatalism (Zimbardo & Boyd, 1999). The predictive validity of this instrument has been demonstrated across a wide range of behaviours, e.g., risky driving (Zimbardo, Keough, & Boyd, 1997).

Future Time Perspective and Higher Education

The importance of a future Time Perspective has been acknowledged in educational psychology in relation to desired educational outcomes, specifically among school-aged students (McInerney, 2004). Zimbardo and Boyd (1999) propose that an imbalance or discordance in an individual’s temporal orientation is more likely than deficits in intelligence or intellectual abilities to account for the high levels of dropout among low socioeconomic status students in all levels of schooling. Brown and Jones (2004) argue that temporal orientation deserved more attention because of its role as an important influence in “academic engagement and performance of both minority and non-minority students across the sociocultural landscape” of society (p. 266). Such a link between temporal orientation and academic activity is implied by Simons et al (2004) who reported that students who perceived that the course was valuable for their future work, rather than immediate skills training, showed greater motivation and had better examination results than those who perceived the focus on immediate training. It would appear that future oriented students are more intrinsically motivated and thus more likely to employ deep approaches to their studies.

As McInnis, James & Hartley (2000, p.4) noted, students are faced with an increasing “number of activities and priorities that compete with the demands of university” which puts them at risk of ‘disengagement’. Further, Horstmanhof and Zimitat (2003) proposed that students are continually evaluating the costs and benefits associated with the demands made on their time and energy by their competing roles, investing in those roles that are perceived to be more rewarding and disinvesting in those that appear relatively more costly. When the longer term goal of education is regarded as an important investment in terms of time and effort and when the task at hand is deemed to be relevant to achieving that goal, students are more likely to persist in higher education (Frymier & Shulman, 1995). Peterson and Delmas (2001) found that students who believed that higher education would provide employment opportunities and better careers were more likely to persist with their studies. Thus, younger students with less sense of direction and purpose for study than mature-aged students may be at greater risk of disengagement and discontinuation of their studies.

Goals of this study

This study examined the following principal hypotheses concerned with student engagement in higher education. First, we propose that there are significant inter-relationships between the various dimensions of student engagement. Second, we propose that temporal orientation influences both the behavioural and psychological dimensions of student engagement. Lastly,
as temporal orientation is regarded as an individual difference, it is likely that there are differences in temporal orientation among students that these differences will reveal differences in student engagement. We propose that there are differences in temporal orientation and student engagement between traditional students (the school leavers) and mature-aged students (those over the age of 25) such that traditional students are at greater risk of disengagement for the reasons outlined above.

Method

The participants in this study were 3,020 of 7,550 first year students, new to university study, who responded to an on-line questionnaire administered in their first semester at university. The students were enrolled in a large, multi-campus, commuter institution that attracts a large non-traditional student population. Participation was open to all students in the target group, regardless of age, gender ethnicity, prior learning or enrolment status. Permission to conduct the survey was granted by the university’s Human Research Ethics Committee. The survey was created and supported by software (www.SurveyMaker.com.au) affiliated with the university. The survey scales (measures) used in this research are detailed in Table 1 below.

Table 1. Measures employed in study

<table>
<thead>
<tr>
<th>Concept Measured</th>
<th>Sample question</th>
<th>Items</th>
<th>Scale used</th>
<th>Internal Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep approach to learning (Study Process Questionnaire, SPQ) (Fox, McManus, &amp; Winder, 2001)</td>
<td>I see getting high marks as a kind of competitive game, and I play to win.</td>
<td>18</td>
<td>5 point Likert scale</td>
<td>0.625 for reproducing factor; 0.80 for meaning factor</td>
</tr>
<tr>
<td>Orientation to Time (ZTPI) (Zimbardo &amp; Boyd, 1999)</td>
<td>I often follow my heart more than my head. I take risks to put excitement in my life.</td>
<td>56</td>
<td>5 point Likert scale</td>
<td>Future – 0.77 Past Neg 0.80 Past Pos – 0.72 Present Hedonistic 0.79 Present Fatalistic 0.75</td>
</tr>
<tr>
<td>Academic Application (McInnis et al., 2000)</td>
<td>I worked consistently throughout first semester</td>
<td>4</td>
<td>5 point Likert scale</td>
<td>0.58</td>
</tr>
<tr>
<td>Academic Orientation (McInnis et al., 2000)</td>
<td>I enjoy the intellectual challenge of my subjects</td>
<td>6</td>
<td>5 point Likert scale</td>
<td>0.82</td>
</tr>
<tr>
<td>Hours per week preparing for class</td>
<td>Select from the following: 0; 1-5; 6-10; 11-15; 16-20; 21-25; 26-30; more than 30</td>
<td>N/A</td>
<td>Multiple Choice</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Statistical Analyses

Independent t-tests were performed to assess differences in mean scores between age groups on the temporal orientation variables and the student engagement variables. Inter-correlations
among variables were assessed with statistical significance indicated by \( p < .05 \). Only significant correlations greater than or equal to 0.30 were considered important for discussion (Cohen, 1977). Examining the inter-correlations or associations among variables is an important preliminary step to investigating predictor variables. Correlation analyses revealed that Future warranted further examination as a predictor of the engagement related variables.

Hierarchical regression analyses were conducted to test the predictors of student engagement. The dependent variables (DV) in these analyses were Academic Application, Academic Orientation, and Meaning. The independent variables (IV) in these analyses were Present-Hedonistic, Present Fatalistic, Future, Past-Negative, and Past-Positive. For each hierarchical regression, the temporal orientation variables or IVs were entered at Step 1, the other DVs were entered at Step 2. Beta weights were examined at each step to test for mediation, the mechanism through which an independent variable is able to influence a dependent variable (Baron & Kenny, 1986).

Results

A total of 3020 responses (40%) to this survey were received. The dataset was cleaned by excluding cases where there were responses to less than 90% of the questions, yielding a working dataset of 2289 (30%) cases. The majority of respondents were females (\( n = 1521, 66.45\% \)) and aged under 20 years (\( n = 1267, 55.35\% \)). The median age of the sample was 19 years of age, with the range of ages stretching from 18 to 69 year of age. Fifty five percent of the sample was aged under 19 years of age. Of the 2289 students who participated in this survey, 2111 (92.2%) persisted in their studies. This was demonstrated by the fact that they had re-enrolled in second semester 2005, the second semester of their first year in higher education. This survey reports on the results for persisting students only. The demographics of persisting students for this study are shown in Table 2.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 19</td>
<td>388</td>
<td>772</td>
<td>1160 (55%)</td>
</tr>
<tr>
<td>20-24 yrs</td>
<td>206</td>
<td>381</td>
<td>587 (27.8%)</td>
</tr>
<tr>
<td>Over 25</td>
<td>125</td>
<td>239</td>
<td>364 (17.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>719 (34.1%)</td>
<td>1392 (65.9%)</td>
<td>2111</td>
</tr>
</tbody>
</table>

Differences between mature-aged and traditional students

There were significant differences in mean scores between traditional students aged under 19 years of age and those aged over 25 years of age (mature aged students). Mature aged students scored significantly higher on Academic Application \( t = -3.20, p < .001 \), Academic Orientation \( t = -12.76, p < .001 \) and Satisfaction \( t = -7.09, p < .001 \). Mature age students invested more hours on average preparing for class \( t = -12.82, p < .001 \), were more likely to adopt meaning strategies \( t = -5.20, p < .001 \) and less likely to adopt reproduction strategies \( t = 7.01, p < .001 \) than were younger students. In terms of temporal orientations, mature aged students scored higher mean scores on orientation to the Future, \( t = -10.10, p < .001 \), were less likely to have negative feelings about their pasts (Past Negative) \( t = 4.40, p < .001 \), be less hedonistic (Present Hedonistic) \( t = 9.60, p < .001 \) and also less fatalistic (Present Fatalistic) \( t = 5.88, p < .001 \) than traditional students.
Relationships among variables

Significant associations were found between several of DVs and the IVs. Future was significantly associated with Academic Application ($r = .31$, $p < .01$), Academic Orientation ($r = .39$, $p < .01$), Meaningful Strategy ($r = .58$, $p < .01$), and Hours ($r = .36$, $p < .01$). An orientation to the Future was also significantly, but negatively, associated with Present Fatalistic ($r = - .38$, $p < .01$), indicating that an orientation to the Future was associated with a belief in personal agency. Although the association between Future and Present Hedonistic for this sample was significant but small ($r = -.29$, $p < .01$), Present Hedonistic was strongly and significantly associated with Present Fatalistic ($r = .30$, $p < .01$). Hours was significantly associated with Meaning ($r = .30$, $p < .001$), and also with Future ($r = .36$, $p < .001$).

Orientation to the Future was significantly and positively associated with Academic Application for traditional students ($r = .30$, $p < .001$), but not for mature-aged students ($r = .25$, $p < .001$). Table 3 shows the bivariate correlations among all the variables for this study split to allow examination of the differences in relationships among the variables for traditional and mature-aged students.

Predicting engagement

To better understand the differences in student engagement between traditional students and mature-aged students, two-step hierarchical regression was used to examine the predictor variables for the two age groups.

Factors predicting meaningful approach to study

For the traditional students Future ($\beta = .53$, $sr^2 = 22.1\%$) was the strongest sole predictor of Meaning in Step 1. Altogether the five temporal orientation variables were able to explain 34% of the variance of Meaning ($F (5, 1152) = 117.13$, $p < .001$) at Step 1. Future ($\beta = .36$, $sr^2 = 8.41\%$) continued to contribute in Step 2, although mediated by the relationships between Academic Orientation, Academic Application and Hours. Future thus exerts both direct and indirect influence on Meaning for this age group. Academic Orientation ($\beta = .34$, $sr^2 = 9.0\%$), Academic Application ($\beta = .11$, $sr^2 = 1.0\%$) and Hours ($\beta = .09$, $sr^2 = 0.64\%$) together added another 13% of variance, hence 47% of the Meaning was explained by these variables ($F (8, 1149) = 125.25$, $p < .001$).

For mature-aged students, Future was also the strongest predictor ($\beta = .54$, $sr^2 = 23.04\%$) of Meaning. Future continued to make a significant contribution to Meaning at Step 2 ($\beta = .42$, $sr^2 = 12.25\%$), although mediated by the relationships of Academic Application ($\beta = .16$, $sr^2 = 1.96 \%$), Academic Orientation ($\beta = .11$, $sr^2 = 0.64\%$) and Hours ($\beta = .09$, $sr^2 = 0.36\%$) with Meaning. Taken together these variables explained 44% ($F (8, 353) = 34.87$, $p < .001$) of Meaning for this age group.

Factors predicting Academic Application

For traditional age students, the five temporal orientation variables were able to explain 13% of the variance of Academic Application ($F(5, 1152) = 33.49$, $p < .001$). Future ($\beta = .35$, $sr^2 = 9.61\%$) was the strongest sole predictor of Academic Application at Step 1. At Step 2, Future continued to make a significant individual contribution ($\beta = .21$, $sr^2 = 2.56 \%$). However, Meaning, Hours and Academic Orientation mediated the relationship with Future indicating
that this temporal variable exerted both a direct and an indirect influence on Academic Application via Meaning, Academic Orientation and Hours. Together all of the variables explain 17% of Academic Application ($F(8,1149) = 29.94, p < .001$) for traditional students.

For mature-aged students, Future was the strongest sole predictor of Academic Application ($\beta = .19, sr^2 = 2.89\%$) in Step 1. Together the five temporal orientation variables explained 13% of the variance of Academic Application, ($F(5,356) = 10.22, p < .001$). In Step 2, Meaning ($\beta = .22, sr^2 = 2.89\%$), Academic Orientation ($\beta = .16, sr^2 = 1.96\%$) and Hours ($\beta = .12, sr^2 = 1.21\%$) were influential and Future no longer exerted influence on Academic Application. Taken together all the variables explained 21% of the variance of Academic Application, ($F(8,352) = 12.01, p < .001$).

Factors predicting Academic Orientation

For the traditional students, the temporal orientation variables explained 17% of the variance of Academic Orientation ($F(5, 1152) = 47.93, p < .001$). Future ($\beta = .33, sr^2 = 8.41\%$) made a significant individual contribution to the understanding of the variable. In Step 2, Future ($\beta = .07, sr^2 = 0.25\%$) and Past Positive ($\beta = .09, sr^2 = 0.64\%$) continued to contribute significantly to the variance, so that although mediated by the relationships of Meaning ($\beta = .44, sr^2 = 11.56\%$) and Academic Application ($\beta = .09, sr^2 = 0.64\%$) with Academic Orientation exerted both a direct and an indirect effect on Academic Orientation. Taken together the variables were able to explain 31% of the variance of Academic Orientation ($F(8, 1148) = 65.68, p < .001$).

For the mature-aged students, the temporal orientation variables were able to explain 15% of the variance of the variable Academic Orientation ($F(5, 356) = 12.99, p < .001$), with Future ($\beta = .29, sr^2 = 6.25 \%$) making significant individual contributions to the understanding of the variance. At Step 2, Academic Orientation was predicted by the relationships of Meaning ($\beta = .31, sr^2 = 5.76 \%$) and Academic Application ($\beta = .15, sr^2 = 1.69 \%$); Future exerted no indirect effect. Taken together all the variables explained 25% of the variance of Academic Orientation ($F(8,352) = 15.01, p < .001$).

Discussion

There were three important findings from this study of first year students in terms of student engagement in higher education. First, we were able to demonstrate that there are significant inter-relationships between the student engagement variables of Academic Orientation, Academic Application and Meaning. This indicated that students who valued academic endeavour and learning were more likely than students who did not, to approach their studies with diligence and to adopt deep rather than surface approaches when studying.

Second, we have shown that temporal orientation influences both the behavioural and psychological dimensions of student engagement. In particular, an orientation to the future emerged as the strongest single predictor of the student engagement variables, Academic Application, Academic Orientation and the application of meaningful approaches to study (Meaning). This provides strong empirical support for the hypothesis that future oriented students are more likely than other students to invest psychological and physical energy in their studies.

Lastly, we showed that there are differences in temporal orientation between traditional students and mature-aged students (Table 3). In the current study, mature-aged students
showed stronger orientation to the future than traditional students, and also appeared to be both less fatalistic and less hedonistic than traditional students. This indicates that mature-aged students are better able to work towards future goals and more able to make choices in the present that better serve those future goals than are traditional students. This was demonstrated by lower scores on the Present Hedonistic scale for mature-aged students as compared to traditional students. Mature-aged students also appeared to have greater feelings of personal agency than traditional students as shown by lower scores on the fatalism measure (Present Fatalistic). Traditional students may be at greater risk of disengagement than mature-aged students. This is consistent with the findings of Krause et al (2005) that mature-aged students are more strategic in terms of managing their study workloads, having a stronger sense of purpose about their future occupations and appear to work more independently than traditional students.

Table 3. Summary of hierarchical regressions: Temporal predictors of engagement

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Strongest Sole Predictor</th>
<th>Indirect influences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaning</td>
<td>Traditional Future (22%)</td>
<td>Future (8%)</td>
</tr>
<tr>
<td></td>
<td>Mature Age Future (21%)</td>
<td>Future (12%)</td>
</tr>
<tr>
<td>Academic Application</td>
<td>Traditional Future (10%)</td>
<td>Future, Present Fatalistic</td>
</tr>
<tr>
<td></td>
<td>Mature Age Future (3%)</td>
<td>Past Negative</td>
</tr>
<tr>
<td>Academic Orientation</td>
<td>Traditional Future (8%)</td>
<td>Future, Past Positive</td>
</tr>
<tr>
<td></td>
<td>Mature Age Future (15%)</td>
<td>-</td>
</tr>
</tbody>
</table>

The Present Fatalistic and Past Positive temporal orientations are significant predictors of engagement of traditional students and hence may be levers to enhance engagement. It is important for younger students at the beginning of their higher education experience to be able to link their study efforts to study outcomes and careers to reduce a sense of fatalism. Many younger first year students do not have a clear sense of purpose when they enter university (Krause et al, 2005). Positive earlier educational experiences influence a student’s attitudes and beliefs about education. Through incorporating and valuing students’ previous experiences in curriculum design and teaching processes, it is possible to engender a better and more positive sense of past educational and life achievements. Another method for achieving this is through improved quality and timeliness of feedback on student work. More than one-third of first year university students report that they get less than desirable feedback on their work (Krause et al, 2005). Assisting students to understand their personal strengths and weaknesses in a study area, and providing concrete suggestions for improvement, lies at the heart of fostering feelings of personal agency for students.

It thus appears clear that students who are more future-orientated, less hedonistic and less fatalistic, are more likely than other students to engage in their higher education studies. The differences between traditional and mature-aged students on these temporal variables suggests areas where traditional students may need to be challenged and supported in their first years at university to enhance their engagement.

The interlinked nature of the student engagement variables and temporal orientation suggests that multiple strategies are required; not merely attendance a workshop on time management or career development. In additional to helping students develop future aspirations, we need curriculum change and teaching strategies that foster development of temporal orientations that most influence engagement. By changing temporal orientations, students are better able...
to enhance personal management and influence their own behaviour so that it is consistent with their educational and life goals. As Tinto (1993) recommends, strategies are best integrated and embedded in students’ circular experiences, rather than bolted on to the curriculum. Phalet, Andriessen and Lens (2004) also argue for innovative ways, within the curriculum, to develop future time perspective as a mechanism mitigating against failure and early departure from university study. It seems that to enhance student engagement and improve persistence in higher education, it is, literally, a matter of time.

Conclusion

This paper sought to demonstrate the influence of temporal orientation on student engagement for a cohort of first year university students at a multi-campus institution in Australia. The findings confirmed future orientation as the strongest sole predictor of the three measures of student engagement used for this study, namely: use of deep approaches to study, Academic Orientation and Academic Application. Important differences were found between mature-aged and traditional students such that Present Fatalistic and Past Positive emerged as significant predictors of engagement for traditional students, while Present Negative emerged as a significant predictor of engagement for mature-aged students. While it is not unexpected to find that students who are more future-orientated and less hedonistic or fatalistic are more likely than other students to engage in their studies. The differences between mature-aged and traditional students on these temporal variables suggest areas where at risk traditional students may need to be challenged and supported to enhance their engagement in their studies in the first years of their higher education.

References


