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Online Publication Date: 01 September 2009

To cite this Article McChlery, Stuart and Visser, Susan(2009)'A comparative analysis of the learning styles of accounting students in the United Kingdom and South Africa', Research in Post-Compulsory Education, 14:3, 299 — 315
To link to this Article: DOI: 10.1080/13596740903139404
URL: http://dx.doi.org/10.1080/13596740903139404
A comparative analysis of the learning styles of accounting students in the United Kingdom and South Africa

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(Received February 2009; final version received July 2009)

Learners preferentially take in and process information in diverse ways whilst teaching methods also vary presenting the possibility for mismatching teaching methods with learners’ preferences leading to disengagement, ineffective learning and potential underperformance. Different research instruments have been used in the past to assess the learning styles of accounting students such as Kolb’s Learning Style Inventory and Honey and Mumford’s Learning Style Questionnaire. The Felder-Silverman Index of Learning Styles instrument was chosen for this empirical survey providing a further methodology to assess the learning styles of accounting students. The research project considered the indicated learning styles of 735 undergraduate accounting students within two countries (United Kingdom and South Africa) allowing comparison between the universities, differing years of the undergraduate courses as well as by age and gender. The ILS instrument was seen to have limited usefulness with the accounting students considered, having statistical weaknesses in regard to several dimensions of the instrument. The results will be discussed and recommendations made regarding the application of the learning instrument and lessons that can be learned regarding meeting students’ learning needs, pointing to areas for further research.

Keywords: accounting; education; learning styles; international comparison

Introduction

An individual’s learning orientation is an important determinant in their educational attainment (Allinson and Hayes 1988) with students learning in different ways. The learning context that a student finds him or herself in is a broad term including student-related variables such as learning styles as well as those controllable by educators. Educators may find it useful to be aware of prevailing learning styles, adopting approaches to teaching and assessment to make learning more accessible to students. Identifying students’ learning characteristics may help in areas such as improving course design and designing learning outcomes (Butler 1988). Learning style theory has already been utilised in a number of disciplines such as economics and business education (for example Lyons-Lawrence 1994; Pinto, Marshall, and Bayle 1994; Borg and Shapiro 1996; De Vita 2001; Mainemelis, Boyatzis, and Kolb 2002).
Learning contexts can be seen to vary across disciplines. Different academic fields provide different learning environments, with differences in students’ learning approaches across disciplines being observed (e.g. Meyer 1999) linked to the nature of the academic fields and the type of student drawn to them. In addition to this, students themselves are diverse in relation to gender, age and stage of education. Jenkins and Holley (1991), in a study of accounting students’ learning styles utilising Kolb’s (1985) Learning Styles Inventory (LSI), found that learning style preferences between male and female students were not significantly different, with the most popular preference being an assimilator learning style (combining reflective observation and abstract conceptualisation), although within this categorisation they noted that female students learn through reflective observation and males prefer abstract conceptualisation. Nationality can also be seen to be a factor. McKee, Mock, and Ruud (1992), again using Kolb’s LSI, measured the learning styles of Norwegian and American accounting students of varying experience levels and found that the dominant learning style amongst Norwegian accounting students is as assimilators, whilst American accounting students were convergers (combining abstract conceptualisation and active experimentation) as defined by Kolb (1985).

Interest has been shown as to whether learning style preferences change over time. Pinto, Marshall, and Bayle (1994), in a longitudinal study of learning style changes in business students utilising Kolb’s LSI instrument, suggest that the stability of learning styles during their student career is uncertain. Whilst Duff (1997) suggests that a person’s preferences regarding how they learn are personological and therefore likely to be stable over a period of time, with the actual approach to learning undertaken by the student being more dependent on situational factors such as the method of assessment. Busato et al. (1998) found no relationship between year of study and learning style preference, whilst Marriott (2002) presents evidence that differences in learning style preference exist and that these preferences change over time which may be linked to the personal maturing of students.

The recognition of student learning styles may also help in matching those styles to modes of delivery and assessment (Sangster 1996). The matching hypothesis considers the congruence between learner and teacher and the subject matter (Hayes and Allinson 1993, 1996). A number of studies hypothesised that a lack of matching between preferred learning styles and the nature of the subject matter and teaching methods would result in lower motivation, poorer performance and potential attrition (e.g. Felder and Silverman 1988; Lumsdaine and Lumsdaine 1993). Geiger (1992) found that performance was related to learning style; students with learning styles closest to the instructor performing best with the opposite also being true.

The fostering of different learning styles can be considered in order to develop students. Boyce et al. (2001) note that the existing learning style preferences of students represent the strategies they will tend to adopt in the absence of specific strategies designed to foster other strategies. Sangster (1996) notes that the tutoring of students to alter their learning styles may help them to cope better with different forms of assessment, also noting that care should be taken when selecting forms of assessment as performance may be linked to individual learning styles rather than solely academic ability. However the argument could be made that there is a danger that we may pander to inappropriate learning styles when we should be encouraging styles appropriate to their life-long learning experience.

This study aims to contribute to the development of the body of research into student learning within the accounting discipline. It seeks to consider how learning...
amongst accounting students may differ in different cultures. Specifically, we compare the indicated learning styles of a group of accounting students from the United Kingdom (UK) and those in South Africa (SA). A literature study was undertaken in relation to developed learning style instruments with specific reference to accounting students. Prior empirical studies into the learning styles of accounting students included two instruments used in numerous disciplines: Kolb’s Learning Style Inventory (see, for example, Marriott 2002) and Honey and Mumford’s Learning Style Questionnaire (see, for example, Sangster 1996). This study will seek to use an instrument not yet utilised for researching accounting students, namely that of Felder-Solomon in order to further understand the learning styles of accounting students whilst drawing comparisons with earlier studies where appropriate.

The instrument was applied to first, second, third and fourth-year accounting students during the academic year 2004/05 at two universities, one in SA, referred to as University X, and the other in the UK, University Y. The universities have a number of similarities. Most students at the universities see an accounting degree primarily as an entry route into the accounting professions operating in their respective countries. Professional accreditation is a key factor in curriculum development in both countries as professional accounting bodies offer differing exemptions to university degrees based primarily on curriculum. Both countries are also heavily influenced by their own country’s quality-assurance regimes. In the UK the Quality Assurance Agency (QAA) provides an integrated quality-assurance service for higher education publishing key benchmarks required of an accounting degree thus informing the development of degree programmes. Similarly, in SA the South African Qualification Authority (SAQA) has enabled the setting of educational standards as well as quality assurance around their achievement. All qualifications need to be registered with SAQA who seek evidence of the achievement of the specific requirements they set. SAQA define critical outcomes for university degrees whilst several supporting subjects are added to obtain exemptions or accreditation from Professional Accounting Bodies examinations. University X hosts 28,000 students and is home to the School of Accounting Sciences with 22 full-time academic staff in post. University Y presently has over 15,000 students and 27 full-time academic staff in post in its Division of Accounting and Finance.

Learning style instruments

Two instruments utilised for accounting students in this research area are Kolb’s (1976 and 1985) Learning Style Inventory (LSI), and Honey and Mumford’s (1992) Learning Style Questionnaire (LSQ). These instruments will be discussed briefly for comparative purposes with Felder’s Index of learning styles (ILS), which is the instrument then utilised in the paper.

Kolb’s LSI

Kolb describes a four-stage cycle of learning which forms a continuum that learners move through over time. The cycle starts with Concrete Experience (CE) of an event followed by Reflective Observation (RO) leading to Abstract Conceptualisation (AC) and then Active Experimentation (AE). The model’s instrument measures learners’ strengths and weaknesses in the four stages of the learning process. Two axes lie behind the model: AC-CE and AE-RO, reflecting two basic dimensions of learning as
to how new information is perceived and acted upon. Four different groupings are formed when plotting student learning styles across the two axes: divergers, who combine concrete experience and reflective observation; assimilators, who combine reflective observation and abstract conceptualisation; convergers, who combine abstract conceptualisation and active experimentation; and accommodators, who combine concrete experience and active experimentation. Evidence suggests that accounting students are convergers (Baldwin and Reckers 1984; Baker, Simon, and Bazeli 1986).

Sadler-Smith (2001a) notes criticisms of the model in that it puts together unrelated elements of cognitive process, style and level and that the model on which the LSI is based is not so much related to learning style but is rather a map of the learning process. Garner (2000) criticised the model in that it seems uncertain whether the learning styles represent a stable trait within disciplines or a flexible state. Both Sadler-Smith (2001b) and Garner (2000) suggest from different studies that the LSI is unsatisfactory with respect to its reliability and validity. Psychometric tests also by Geiger, Boyle, and Pinto (1992, 1993), Stout and Ruble (1994) and Ruble and Stout (1993, 1994) produced low validity scores and only moderate reliability leading Duff (1998) to conclude that the LSI should be suspended in accounting education research.

**Honey and Mumford’s LSQ**

The LSQ was developed around Kolb’s cycle of learning, being designed to assess the strengths of four different learning styles: Activist, Reflector, Theorist and Pragmatist (corresponding to Kolb’s categorisations AE, RO, AC and CE). Pragmatists enjoy trying out new ideas, theories and techniques to see if they work in practice; reflectors prefer to ponder their experiences observing them from different perspectives; theorists try to adapt and integrate experiences into logical, complex theories, whilst activists act first, considering the consequences later. Each individual has a unique combination of the four styles. Similar to Kolb this produces two dimensions of learning combining the four styles into bipolar dimensions indicating individual preference for theory over a pragmatic approach, labelled prehension; and action over reflection, labelled transformation. The two models described are closely aligned as shown in Figure 1.

The LSQ has similar origins to Kolb’s LSI and has received some similar criticisms. Swailes and Senior (1999), for example, when considering the validity of the questionnaires, found (using factor and cluster analysis) that one third of the scale items did not discriminate between learning styles. Sadler-Smith (2001a) argued that the LSQ measures learning processes and not learning styles. Duff (2001) reported that the construct validity of the instrument was not supported by his data.

**Felder’s Index of learning styles (ILS)**

Cuthbert (2005) argues that there is evidence to suggest that the two learning styles instruments most widely used in the UK (LSI and LSQ) appear to be unsatisfactory with serious problems of definition and implementation. Geiger and Boyle (1992), Stout and Ruble (1994) and Rebele et al. (1998) advocate the use of alternative learning style instruments in the wake of the weaknesses identified in instruments such as Kolb’s LSI. This paper will consider one further instrument for assessing learning
styles. The ILS as designed by Felder and Silverman (1988), which originally focused on the learning styles of engineering students and is designed to tap four bipolar scales related to preference for learning style: Active/Reflective, Sensing/Intuitive, Visual/Verbal and Sequential/Global. It is important to assess such an instrument to the accounting field to find it’s appropriateness as with prior studies of other emerging learning instruments (e.g. Eide, Marshall, and Schwartz 2001).

Active/Reflective: Active learners understand new information by doing something with it whilst reflective learners prefer to think about new information before acting on it.

Sensing/Intuitive: Sensing learners are concrete, practical, oriented towards facts and procedures, solving problems by well-established methods, being uncomfortable with abstract and theoretical information. Intuitive learners prefer to discover possibilities and relationships themselves being innovative in their approach to problem solving.

Visual/Verbal: Visual learners understand and retain information best when they see visual representations of course material whilst verbal learners understand new information best through written and spoken words.

Sequential/Global: Sequential learners understand new information in linear logical steps whilst global learners learn in large leaps and think holistically.
The ILS is a self-scoring instrument that assesses preferences for learning on these four dimensions. It could be argued that this gives a more rounded instrument giving a profile rather than a score. The questionnaire asks 44 questions with 11 relating to each of the four groupings above. Each question has two responses (a or b) corresponding to one or other category of the dimension being considered e.g. sequential/global. For example, question 1 seeks to draw out from the students their active/reflective dimension, whilst question 7 considers the visual/verbal dimension:

(1) I understand something better after I:
(a) try it out.
(b) think it through.
(7) I prefer to get new information in:
(a) pictures, diagrams, graphs or maps.
(b) written directions or verbal information.

It should be noted that the questions are somewhat general and not contextualised enabling comparability across disciplines. For example numerical problems per se are not considered although generic mathematics is considered in only two of the 44 questions, e.g.

(12) When I solve math problems:
(a) I usually work my way to solutions one step at a time.
(b) I often just see the solutions but then have to struggle to figure out the steps to get to them.

The learning styles dimensions are to be ‘regarded as continua, not either or categories’ (Felder and Spurlin 2005, 104). Therefore the dimensions should not be regarded as mutually exclusive with a student’s preference for one or other pole of a given dimension but rather showing a mild, moderate, strong etc. preference for one over the other, suggesting behavioural tendencies rather than predictors of behavior.

For statistical analyses only (a) responses are counted thus leaving for each dimension a score between 0 and 11. Thus if the active/reflective dimension responses for which there are 11 questions showed six (a) responses and five (b) responses this would be recorded as active +6 with the student having a mild preference for reflective learning. A further method of recording is for the (a) and (b) scores on each dimension to be subtracted from one another leaving a score that is an odd number between −11 and +11. Both scoring methods produce similar results on each dimension except that one method’s scores are shown on a positive scoring scale whilst the other pronounces the differences more emphatically with each scale reaching a negative and positive maximum of 11. Each student’s results can be considered for each of the dimensions of learning on a scale between two extremes as shown diagrammatically in Figure 2.

The four scales can be seen to be linked to other studies where similar characteristics are compared. The Active/Reflective scale is somewhat similar to Kolb’s Active Experimentation and Reflective Observation dimension focusing on how what is perceived is acted upon. In addition to this the Sensing/Intuitive dimension which was taken directly from the Myers-Briggs Type Indicator (Myers and Myers 1980) may be seen to be related to the Concrete Experience and Abstract Conceptualisation dimension of Kolb’s model. The Visual/Verbal distinction can be seen to have clear links with a number of studies related to information processing e.g. Martin (1978) and Crowder and Wagner (1992). The Sequential/Global dimension has numerous
comparators. For example, Das (1988) cites cognitive processing studies that have established two information coding systems: successive coding (sequential) and simultaneous coding which involves synthesis (global). Two of the ILS scales are similar to the two dimensions of the Riding and Reyner (1998) cognitive style analysis where they consider a holistic-analytic style dimension and a verbal-imagery style dimension.

The four learning style dimensions are seen as continua and are not either/or categorisations with the students potentially being mild, moderate or strong for either pole of a dimension. The learning style profiles are to be recognised as being behavioural tendencies rather than being perfect predictors of behaviour. Thus, a student can show traits for either style on any of the four dimensions. However, if faced with a diverse assortment of learning situations, those classified as, for example, visual, would behave in a manner consistent with this style of learning rather than a verbal style. The learning style preferences are not to be seen as indicators of learning strengths and weaknesses as they do not seek to provide a measure of the skills associated with the characteristics of each dimension. Felder and Spurlin (2005) note that the point of identifying learning styles is not to label individual students and modify instruction to those labels. This is especially true in that it may be inappropriate to teach to exclusively accommodate a specific learning style preference as students need to gain practice in all types of learning styles in preparation for their professional lives. These authors assert that the model’s main application is in aiding the design of effective learning, addressing the needs of all students.

Felder and Silverman (1988) note that certain approaches to managing the learning and teaching environment may match the learning styles of the students and that educators should consider these. This may be a somewhat simplistic adoption of specific learning activities linked specifically to one dominant learning style e.g., visual stimulus. In addition to the concentration on individual learning factors there is also the opportunity of linking two or more of the dimensions. For example, if the students were sensing and active students then the use of multimedia and computer-assisted assessment may find responsive students.

In addition to this there is the opportunity of developing over time the depth of analysis with the progressive academic development of the learner in mind. This would be
consistent with such thinking as Bloom et al. (1956) who present a ‘taxonomy of educational objectives’ as a progressive hierarchy (knowledge, comprehension, application, analysis, synthesis and evaluation). Bloom would assert that teachers cannot expect students to be able to evaluate, for example, if they have not attained the subordinate objectives. Thus educators have to consider how to foster student learning styles in order to develop their deeper learning skills by using appropriate learning activities. For example there could be the provision of concrete examples of the phenomena a theory describes or predicts (sensing), then the development of theory (intuitive/sequential) followed by presenting applications (sensing/sequential). It would also be possible to adopt differing styles of problem based learning to foster development of learning styles e.g., starting with small case study exercises (sensing/active/sequential) before moving onto some open-ended problems and exercises that call for analysis and synthesis (intuitive/reflective/global).

Duff (1998) notes that prudent scholarship requires that learning style questionnaires be subjected to critical analysis from evidence from within the accounting education context before being used in correlation studies and for making recommendations in that sector. Tests of internal consistency reliability and construct validity are standard measures for research of this nature.

Internal consistency reliability refers to the homogeneity of items intended to measure the extent to which responses of the items are correlated. A high level of internal consistency amongst the items would be expected in a valid instrument. For single dimensional additive scales, such as used in the Felder model, the generally preferred measure of internal scale reliability is Cronbach’s alpha (Van Zwanenberg, Wilkinson, and Anderson 2000). Nunnally and Bernstein (1994) consider alpha coefficients over 0.70 to be adequate for instruments for general assessment, whilst DeVellis (1991) regards below 0.60 as unacceptable. Felder and Spurlin (2005), when considering the ILS’s reliability and validity, quote Tuckman (1999) who suggests that whilst an alpha of greater than 0.75 is acceptable for achievement tests, only 0.50 is required for attitude assessments. Table 1 shows the Cronbach alphas for a number of ILS studies in several contexts. Using DeVellis’ categorisation the Sensing/Intuitive and Visual/Verbal dimensions are broadly acceptable, whilst the Active/Reflective veers between undesirable and unacceptable and the Sequential/Global dimensions as unacceptable.

Felder and Spurlin (2005) carried out a number of further tests. Using four previous ILS studies and calculating Pearson correlation coefficients for preferences on different scales it was noted that whilst three of the scales were reasonably orthogonal, the Sensing/Intuitive and Sequential/Global preferences were correlated. This is consistent with three of the studies they considered who had used a rotated principal component methodology and found that whilst all other scales could be seen as independent the Sequential/Global and Sensing/Intuitive scales showed a moderate degree of association.

Research study
The Felder ILS instrument was applied to first, second, third and fourth-year accounting students at two universities. Table 2 contains descriptive statistics regarding the respondent sample. Non-participation of students in the study was a function of class attendance, which is not compulsory, rather than those students attending choosing to participate. Of the students enrolled on the courses 87% completed questionnaire
responses. Non-response bias is regarded therefore as minimal and the sample an adequate representation of the population of accounting students attending lectures at the two universities. It was noted that the female students at both universities are in the majority (57.36% and 52.63%) and that the majority of the respondents in SA are from the age 20–24 years grouping, whilst in the UK the majority are younger than 20 years. The paper considers the learning styles in relation to both age and gender as well as by year of the programme.

The comparison of the Cronbach alpha for the two universities in different countries is shown in table 3 below. The study provided data with Cronbach alphas of 0.6 and above, except for the Active/Reflective and Sequential/Global dimensions. Item analysis showed that the reliability of these weaker dimensions could only be

<table>
<thead>
<tr>
<th>Study</th>
<th>Context</th>
<th>Sample size</th>
<th>Act/Refl</th>
<th>Sens/Int</th>
<th>Vis/Verb</th>
<th>Seq/Glob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacon (2004)</td>
<td>Undergraduate business students</td>
<td>161</td>
<td>0.60</td>
<td>0.70</td>
<td>0.66</td>
<td>0.47</td>
</tr>
<tr>
<td>Genovese (2004)</td>
<td>Undergraduate educational psychology students</td>
<td>131</td>
<td>0.63</td>
<td>0.72</td>
<td>0.71</td>
<td>0.53</td>
</tr>
<tr>
<td>Litzinger et al. (2005)</td>
<td>Engineering, liberal arts and education undergraduates</td>
<td>572</td>
<td>0.60</td>
<td>0.77</td>
<td>0.74</td>
<td>0.56</td>
</tr>
<tr>
<td>Livesay et al. (2002)</td>
<td>Engineering undergraduates</td>
<td>242</td>
<td>0.56</td>
<td>0.72</td>
<td>0.60</td>
<td>0.54</td>
</tr>
<tr>
<td>Van Zwanenberg, Wilkinson, and Anderson (2000)</td>
<td>Engineering undergraduates and undergraduate and postgraduate business students</td>
<td>279</td>
<td>0.51</td>
<td>0.65</td>
<td>0.56</td>
<td>0.41</td>
</tr>
<tr>
<td>Zwyno (2003)</td>
<td>Engineering undergraduates</td>
<td>557</td>
<td>0.60</td>
<td>0.70</td>
<td>0.63</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Note: Act/Refl, Active/Reflective; Sens/Int, Sensing/Intuitive; Vis/Verb, Visual/Verbal; Seq/Glob, Sequential/Global.

Table 2. Descriptive statistics of all respondents to Felder’s Learning Style Questionnaire.

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>University X</th>
<th>University Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>Total</td>
<td>735</td>
<td>469</td>
<td>266</td>
</tr>
<tr>
<td>Female</td>
<td>409</td>
<td>269</td>
<td>140</td>
</tr>
<tr>
<td>Male</td>
<td>326</td>
<td>200</td>
<td>126</td>
</tr>
<tr>
<td>Age:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;20</td>
<td>323</td>
<td>169</td>
<td>154</td>
</tr>
<tr>
<td>20–24</td>
<td>399</td>
<td>297</td>
<td>102</td>
</tr>
<tr>
<td>25–29</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>&gt;30</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>
improved marginally by removing two questions which provided poor correlation with the total of all the items in the subscales. The low scoring for these dimensions is consistent with the findings of other studies in Table 1. For consistency with the implementation of the Felder instrument all questions were maintained in the research instrument. The weaknesses of these dimensions will be reflected in the analysis section of the paper.

Tables 4–7 below contain a comparison between the indicated learning styles of accounting students from year one to year four of the two universities. In reading these tables the following should be noted:

- Columns 2 and 3 with the figures (Bal.%%) contain the percentage of the learners with a preference of $-3$ to $+3$, on a scale of 1 to 11 meaning the learners are balanced for the learning style of e.g., active and reflective;
- Columns 4 and 5 (group ‘a’) contain the information of the percentage of the learners with a preference active, sensing, visual and sequential learning style with a score of 5 to 11;
- Columns 6 and 7 (group ‘b’) contain the information of the percentage of the learners with a preference reflective, intuitive, verbal and global learning style having a score of $-5$ to $-11$.

A further analysis was made by comparing each consecutive year’s accounting students of the UK (University Y) with the respective year’s accounting students of South Africa (University X) to measure the magnitude of differences in learning styles as gauged by the ILS. This was accomplished by two-way tables to determine Cohen’s (1988) effect sizes (as applied in previous studies such as Ramburuth and McCormick [2001]). Cohen’s (1988) effect sizes of $p = 0.1$ is classified as a small effect (i.e., a significantly small difference between the samples from the two countries), $p = 0.3$ as a medium effect and $p = 0.5$ as a large effect. All the above figures, as reported in Table 5, are less than 0.3 and therefore have a small effect, meaning that there is no difference between the respective years’ accounting students of the universities studied in the two countries, although the interpretation must take cognizance of the differing contexts of the populations. However, again it is notable that the Sequential/Global dimension proves problematic showing the most significant effects for two of the years’ data. Table 5 contains the information of all these comparisons of all four years for all the learning style categories.

Whilst Table 5 shows that there is statistically no difference between the respective years’ accounting students, an analysis of year-on-year provides some interesting comparisons. The learning style preferences of first-year students in SA and the UK (Table 4), are comparatively the same in total when adding the balanced to the ‘a’ categorisation, UK students preferred active and sequential, SA sensing and visual.
These differences in the ‘a’ readings are mild except for sequential where there is 20.27% difference in the ‘a’ reading for the UK students. The second year findings are similar to the first year with accounting students in both countries being in the majority balanced active/reflective, and sequential/global in SA and the UK, but dominated...
by sensing especially in SA whilst skewed towards visual in both countries. The learning style preferences of third-year students in both SA and the UK, have the majority as balanced active/reflective, and sequential/global. However in SA students have altered their position from second year with the majority preferring a balance between a visual/verbal learning style, whilst in the UK the students have increased their preference for visual. Both countries have shown an increase in the preference for sensing, with the UK increasing their ‘a’ scores by approximately 20%. The learning style preferences of fourth-year students in SA and the UK show a dominance of balanced students for active/reflective, visual/verbal and sequential/global but the majority prefer sensing.

In relation to the ‘b’ categories it was noted that these were in the minority for all learning styles. This was somewhat disappointing as these learning styles would be regarded as being related to the higher learning objectives of education. One might have hoped that these would have shown an increase in preference over the years but was not seen to do so, and on occasions was seen to decrease.

In relation to the learning style active/reflective the accounting students’ learning style preferences reflect that the majority in SA and the UK is balanced for active/reflective. The remainder of the students are skewed towards an active learning style rather than reflective. This tendency towards active learning styles is consistent with the earlier research that suggested that accounting students are convergers. It might have been expected that there would have been intuitively a higher scoring for reflective learning in the fourth year but this scoring had actually decreased significantly (by approximately 50% in both countries from the second year reading). The findings for the active/reflective scale category must be read in the light of the poor Cronbach Alpha readings shown in Table 3.

The second group of learning styles namely sensing/intuitive showed that the majority of the learners prefer a sensing learning style rather than a balance between sensing and intuitive (which was the second preference). This result is reflected in all four years of accounting students in SA and the UK. However, whilst SA has remained roughly similar in each year, the UK’s scores for a balance between the two learning styles reduced with most students in later years preferring sensing.

With the visual/verbal learning styles there would appear to be an even number of students preferring a balance between visual and verbal as those preferring visual. There is a slight difference in the results of the UK and SA. In SA the majority of the learners prefer visual in the first and second year but are balanced between visual and verbal in the third and fourth year. In the UK the majority of the learners prefer a balance between visual and verbal in the first, second and fourth year level but the third years’ majority is visual. Few students preferred verbal as their learning style.

The last group of learning styles, namely sequential/global, found the majority of the learners preferring a balance between the sequential and global learning styles from year one to year four in SA and the UK. A significant number of students preferred a sequential learning style with only a minority preferring a global learning style. SA was seen to be higher overall in global learning styles than the UK. However the findings for the sequential global scale category must be read in the light of the poor Cronbach Alpha readings shown in Table 3.

A further analysis was carried out in relation to age and gender to consider whether there was any difference between the age and gender profiles of the students and their learning styles. Table 6 shows the results again utilising phi coefficients. All of the figures are below 0.3 and therefore have a small effect meaning that there is
only a small correlation between indicated learning styles of the learners and either age and gender.

Wijewardena and Cooray (1995) argue that a need exists for studies covering various aspects of accounting education in different countries. This study shows that although there are certain differences in students’ learning styles these were not seen as statistically significant. Whilst Jenkins and Holley (1991) noted gender differences in learning styles this study noted no significant differences. The study also would infer that there is little change in the students’ learning styles over time which agrees with Duff (1997) and Busato et al. (1998).

Conclusion

One can posit that learners have different strengths and preferences in the ways they absorb and process information, leading to different learning styles. Lecturers also vary in their methods or styles of teaching or lecturing. When the learning style of the learner is not compatible with the teaching style of the lecturer, difficulties in academic achievement may emerge as well as behavioural problems. This survey’s objective was not to change the teaching style of lecturers nor the learning style of accounting students. It is also not possible for lecturers to attempt to tutor in order to match each learner’s learning style. However, recognition of students’ different styles of learning by educators may provide a catalyst for appraising the learning environment to create improvements in the opportunity for the success of learners through better matched learning activities (Witkin 1976), developing perceived weaknesses in individual’s learning styles (Kolb 1984) and modifying the learning style of the trainee (Honey and Mumford 1992).

In the light of criticisms of alternative learning style instruments (Cuthbert 2005), the application of the Felder learning style instrument provides an alternative prism on the understanding of accounting students. The Active/Reflective scale is somewhat similar to Kolb’s Active Experimentation and Reflective Observation dimension whilst the Sensing/Intuitive dimension relates to the Concrete Experience and Abstract Conceptualisation dimension of Kolb’s model. The Felder model, it could be argued, gives a more rounded assessment of students’ learning styles and adds the dimensions of Verbal/Visual and Sequential/Global which are important characteristics of the learning environment. The study also allows a comparison of the higher level (type ‘b’) learning styles as opposed to those regarded as lower level. Acknowledgment of student learning styles does not necessarily lead to a focus on one type of learning, whether the students preferred choice, skewed to type ‘a’, or the educators preferred learnings towards type ‘b’. Imaginative tuition methods could bring together

<table>
<thead>
<tr>
<th>Learning styles</th>
<th>Age</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>Y</td>
</tr>
<tr>
<td>Active/Reflective</td>
<td>0.03</td>
<td>0.14</td>
</tr>
<tr>
<td>Sensing/Intuitive</td>
<td>0.03</td>
<td>0.21</td>
</tr>
<tr>
<td>Visual/Verbal</td>
<td>0.05</td>
<td>0.03</td>
</tr>
<tr>
<td>Sequential/Global</td>
<td>0.05</td>
<td>0.04</td>
</tr>
</tbody>
</table>
a mix of learning methodologies that stimulate numerous different learning styles e.g., activities advocate both reflection and action.

The learning instrument proved problematic in regard to two dimensions; the active-reflective and sequential global dimensions had poor internal consistency as measured by the Cronbach alphas of less than 0.6. These findings were seen as consistent with other studies of business students (Bacon 2004 and Van Zwanenberg, Wilkinson, and Anderson 2000). A number of ILS-based research studies have justified their low alpha scores (e.g., Litzinger et al. 2005; Viola, Graf, and Kinshuk 2006) with reference to Tuckman’s (1999) baseline of 0.5 for attitude assessments. However, established values are normally set higher with Nunnally and Bernstein (1994) considering alpha coefficients over 0.70 to be adequate for instruments for general assessment, whilst DeVellis (1991) regards below 0.6 as unacceptable. From a psychometric viewpoint two dimensions of the ILS may not thus be suited to accounting students. This study represents an initial effort to assess the usefulness of the ILS to accounting students and until additional research is conducted users of the ILS within the accountancy field should be cautioned as to these apparent inherent weaknesses which limits its application to this field. The Active/Reflective and Sequential/Global dimensions as defined still present valid areas for consideration within the field of accounting and further studies of means of understanding these dimensions in students learning styles should be considered.

For the two other dimensions of the study there is a significant skewing towards sensing and visual learners with students not showing a strong preference for intuition and verbal learning styles. Educators need to reflect on whether they match these identified styles with appropriate learning methodologies. Ford (1995), Geiger (1992) and Riding and Douglas (1993) found that learning outcomes were significantly affected when students were presented with learning materials that were matched rather than mismatched with their learning style. Alternatively, mismatching can help learners overcome weaknesses in their cognitive styles developing a more integrated approach to their learning e.g., Rush and Moore (1991). Sensing learners tend to be practical, preferring to solve problems by way of well-established procedures and working with material applicable to real life e.g. specific case studies from real life. To accommodate the visual learners, lecturers need to offer the learning content by way of diagrams, pictures, illustrations, flow charts, etc. Research into the matching of learning styles with teaching methodologies regarding the Sensing/Intuition and Visual/Verbal dimensions should be considered.

The study’s findings of students not preferring intuition and verbal learning styles may not be important if it does not reflect on the learning outcomes of a programme of study. However, the authors would be concerned if accounting students were incapable or reticent to apply these deeper and higher learning objectives aligned to Bloom’s Taxonomy of learning objectives. Professional bodies as well as the quality assurance agencies in both countries advocate the higher level learning styles. For example SAQA, using Bloom’s taxonomy as a guide would expect the ratio of low to high level learning outcomes and styles to be 80:20 in first year developing to 20:80 by the fourth year. Educators should consider fostering these higher level styles.

Note
1. It should be noted that the LSI has been criticised by a number of researchers as being deficient in terms of internal consistency, test-retest reliability and construct validity (Garner

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References


