Reflective learning has been incorporated into many taught elements of Higher Education (HE) courses in a move to encourage learner autonomy, critical thinking and lifelong learning (Bourner 2003; Jasper 2005). In order to prepare students for their future careers, it is imperative that they develop reflective thinking skills during their university education (Ryan 2010). Further, ‘reflective practice’ (Schon 1983, 1987) has become a mainstay of ongoing professional learning. This presents a challenge for educators as reflection is a ‘complex, rigorous, intellectual and emotional enterprise which takes time to do well’ (Rodgers 2002, p.845).

Whilst there is clear evidence that reflective skills can be taught (Eraut 2004; Moon 1999) there is a lack of clarity regarding the antecedent qualities of reflection and appropriate teaching strategies (Moon 1999). Therefore, an appropriate pedagogical approach needs to be developed as a means to improving professional practice and learning. A number of ‘reflection models’ (Kolb 1984; Gibbs 1988) have been created to support reflective thinking and are frequently incorporated into university programmes. However it is only through the assessment of student attainment that we can ascertain how effective these approaches are in developing reflective thinking.

Writing is the most frequently used measure of attainment for the skill of reflection (Charon and Hermann 2012). Whilst there has been some attempt to establish attainment levels for reflective writing (Ryan and Ryan 2012; Wald et al. 2012) the majority of academic literature focuses on the tools and approaches for recording reflection (Hogan 1995; Ryan and Ryan 2012). However, academic reflective writing is a complex process and this is compounded by the requirements of different disciplines and contexts (Ryan 2010). This presents a further challenge to assess student progress when the characteristics of good reflective writing are varied and not clearly defined.

Researchers at Aberdeen Business School (ABS) collected reflective writing from students at the beginning and end of their taught courses. The aim of this exercise was to capture data which not only described student perceptions of learning but which gauged the development of student reflective thinking; the intention being to undertake some course evaluation and to inform the teaching and
assessment of reflection in subsequent years. This paper describes the evaluation and exploratory analysis of the collected reflective accounts using a form of discourse analysis called I-statement analysis (Gee et al. 2001).

Approach
I-statement analysis is an approach to enquiry which focuses on how individuals speak or write in the first person to describe their actions, achievements and goals (Ushioda 2008). I-statements are simply articulations where the participant uses the word ‘I’ to refer to him or herself (Gee et al. 2001). This approach provides a systematic tool to analyse personal narratives by categorising each ‘I-statement’ into one of five groups (Ushioda 2008; Gee et al. 2001) and is one of the few established analysis methods used to scrutinise reflective writing (Ushioda 2008). I-statement categories include ‘cognitive’, ‘affective’, ‘achievement’, ‘state versus action’ and ‘ability versus constraint’ statements. The framework enables researchers to track individual student progress across a period of time and to follow student response patterns across a whole learner group.

Thirty-five participants were asked to write a personal reflective statement at the end of their first two weeks of postgraduate study. At this stage the students had not been introduced to the subject of reflection. Following the taught course, which included the teaching of reflective skills, the same group of students were asked to write another reflective statement about their last two weeks of study. This generated two examples of reflective writing per student which the research team examined.

The statements were scrutinised to identify the I-statements in each example; I-statements were then coded and logged on an analysis matrix to provide an overview of the responses. At each stage of the process the validity of the analysis was enhanced by ensuring agreement on the I-statement coding across the research team. In the first stage of analysis the research team sought to identify the key areas of learning for students on the postgraduate programme at an individual and group level. In the second stage they compared individual reflective writing as it developed over the course of the programme to establish whether there was progress in student reflective abilities.

Findings and discussion
The analysis process proved more challenging than first expected. Whilst coding the student statements into I-statement categories, the researchers found that the given categories were not comprehensive. Another category was identified which had not been included in the analysis framework; students had made statements about their learning intentions and therefore this category was incorporated (Gee et al. 2001). Intention statements were apparent in both sets of reflective writing though were more frequent in the second sample.

It was noted that the pre-existing categorisations were not necessarily discrete; they could be difficult to interpret, with I-statements varying across contexts (Gee et al. 2001). For example, one student wrote “I feel I could have exploited this skill more”; this could be interpreted as either a ‘cognitive’ or an ‘ability v constraint’ statement. Further, when reviewing students’ writing, it became apparent that some reflective statements had not been written in the first person causing the researchers to identify ‘self-statements’ as opposed to ‘I-statements’ in order to complete the analysis.

The analysis of the students’ reflective statements indicated that there had been development in student reflective writing over the course of the semester. In the second sample of writing there were fewer ‘cognitive’ and ‘state v action’ statements indicating that the writing was become less descriptive. In terms of complexity, an array of ability was evident in the writing samples; some showing basic reflection while others showed more in depth reflection. In addition, there were more ‘achievement’ statements showing that some students were now more able to identify learning outcomes from their experiences. Despite this the number of ‘ability v constraint’ statements remained approximately the same across the two samples of writing; there was no noticeable development in the students’ evaluation skills. Evaluation is regarded as the highest order cognitive skill (Bloom 1956) and is a key element of many models of reflection (Gibbs 1988; Johns 1994). This study seems to indicate that the level of reflection students were engaging in was not as deep as we had hoped.

**Conclusions and next steps**

The findings highlight the need to focus on the development of evaluation skills in postgraduate student writing. A programme of teaching will be developed in the forthcoming academic year and evaluated using the upgraded I-statement framework.