Academics' conceptions of assessment and their assessment practices

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The present study focuses; firstly, on analysing academics’ conceptions of the purpose of assessment; secondly, on their assessment practices; and thirdly, on the relationship between their conceptions and practices. The data consisted of interviews with 28 pharmacy teachers. The analysis resulted in a continuum of categories of conceptions, from reproductive conceptions with an emphasis on measuring the reproduction of correct information, to more transformational conceptions with an emphasis on the development of students’ thinking and understanding. Although broad variation in assessment practices was recognised, teachers mostly described the use of traditional forms of assessment. Analysis of the relationship between conceptions and practices revealed high consistency between conceptions and practices.

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Introduction

Assessment in the field of higher education has been the subject of extensive study from various perspectives. Researchers have been especially interested in how assessment influences students’ study strategies and learning processes (e.g., Biggs & Tang, 2007; Gibbels, Segers, & Struyf, 2008; Struyven, Dochy, & Janssens, 2005). These studies emphasise that students are sensitive about what will be assessed and how, since they want to proceed and succeed in their studies. Thus, assessment considerably influences students’ studying (Struyven et al., 2005). Research has further shown that different kinds of assessment methods may have either desirable or undesirable consequences for students’ learning. The shift from traditional, and sometimes even discouraging, forms of summative assessment towards more formative forms of assessment has been occurring for long in higher education (Brown, Bull, & Pendlebury, 1997). Formative, active and creative modes of assessment, such as self-assessment and assessment of the learning process, encourage students to focus on the construction of knowledge and deep understanding, while more traditional forms of exams and testing leads students to focus more on memorisation and grades rather than on the learning itself (Struyven et al., 2005). Traditional in this context refers to a paper and pencil examination at the end of a study module without any material at hand. Traditional forms of assessment which might encourage students to memorise knowledge may lead to a situation where students may successfully complete their courses while never gaining a firm understanding of fundamental ideas (see Ramsden, 2003; Segers, Dochy, & Cascallar, 2003a; Struyven et al., 2005). By aligning assessment with the expected learning outcomes of students and the teaching and learning activities, and by choosing proper assessment methods and tasks, teachers can effectively guide students’ study practices and enhance deep, meaning-oriented learning (Biggs & Tang, 2007; Boud & Falchikov, 2006; Brown et al., 1997). However, recent research has also shown the complexity of steering student learning through assessment. Previous results indicate that changes in students’ perceptions of assessment demands are more likely to occur than changes in their learning practices (Gijbels et al., 2008).

Rapid societal change, increasing knowledge, development of communications technology and globalisation has shaped the competencies required of higher education students when entering working life. Nowadays, higher education is expected to produce generic skills, such as interaction skills, information literacy reading skills, and problem solving skills (Tynjälä, 2008). Enhancement of such competencies requires changes in assessment practices and criteria as well (Baartman, Bastiaens, Kirschner, & Van der Vleuten, 2006; Choa, Schunn, & Wilson, 2006; Ploegh, Tillema, & Segers, 2009). Therefore, more recent research emphasises the use of assessment to serve lifelong development purposes. For example, the use of self assessment, peer assessment and formative assessment, which is oriented...
towards facilitating students’ learning and enabling students to judge their own achievements, could serve such purposes (Bartrum, 2004; Boud & Falchikov, 2006). Students should be involved as active participants in the assessment process and they should have the opportunity to see how the assessment process actually occurs. Assessment tasks, practices, criteria and scores should be shared and negotiated between teachers and students. Learners tend to have a positive attitude towards assessment tasks and methods if assessment positively affects their learning and if they perceive assessment as fair (Segers et al., 2003a; Segers, Dochy, & Casillar, 2003b; Struyven, Dochy, & Janssens, 2003).

What is known about academics’ conceptions of assessment?

Academics’ conceptions of teaching have been quite intensively studied. When research focuses on the relationship between teachers’ conceptions of teaching and their teaching practices, the results reveal that conceptions of teaching greatly influence how teachers actually go about teaching (Eley, 2006; Kember & Kwan, 2000; Postareff, Katajavuori, Lindblom-Ylänne, & Trigwell, 2008; Trigwell & Prosser, 1996). Teaching practices reported in the above mentioned studies have often excluded assessment practices, or at least they are not emphasised. Research has shown that teachers in higher education are usually more concerned about the content of the course and teaching methods than about assessment, which is often taken as granted (see Ramsden, 2003, p. 173; Boud & Falchikov, 2006). Furthermore, assessment is often viewed as separate from teaching, or as an addition to teaching, rather than as an essential part of it (Parpala and Lindblom-Ylänne, 2007). Parpala and Lindblom-Ylänne (2007) noticed that university teachers did not emphasise the link between assessment and good teaching. When describing characteristics of good teaching, only one teacher out of 20 pointed out that assessment should be taken into account in good teaching. Ramsden (2003) showed that teachers who conceive teaching as transmission of knowledge are likely to see teaching as distantly related to assessment. These teachers consider assessment as something that follows learning, rather than as a way of helping students to gain deeper understandings. Thus, the studies focusing on academics’ conceptions of teaching do not necessarily include information about the conceptions of assessment. However, previous results have shown that teachers who view teaching as guiding students’ knowledge construction usually adopt more variable teaching, as well as assessment practices (Postareff & Lindblom-Ylänne, 2008).

A few studies have focused particularly on academics’ conceptions of assessment and the assessment practices in higher education (Samuelowicz & Bain, 2002; Watkins, Dahlin, & Ekholm, 2005). Six orientations to assessment practice emerged from the study of Samuelowicz and Bain (2002). These six orientations could be defined with six belief dimensions. The orientations range from reproduction of important bits of knowledge to transforming conceptions of the discipline or/and world. The orientations differ, e.g., in their beliefs of the nature and the structure of the knowledge, and in how students’ contribution is viewed. As Samuelowicz and Bain (2002) state the results share similarities with the studies concerning conceptions of teaching (e.g., Trigwell, Prosser, Marton, & Runesson, 2001).

The results of Watkins et al. (2005) resulted in eight categories of conceptions, which were grouped in three general types of conceptions of backwash effect. In the first type assessment is seen as separate from teaching and learning process, and the focus in on the subject content. Second type teachers are aware of teaching and learning process, but they believe that there is a sort of basic knowledge students have to acquire before using more sophisticated learning strategies. In the third type assessment is seen as an integral part of the teaching process, and the deeper strategies of learning, such as problem solving, have significant importance already from the start of the basic courses. Watkins et al. (2005) suggest that two features of the conceptions identified in their study are critical for changing teachers’ views of the role of assessment. One is the way teachers understand the significance of “basic knowledge“ in their own discipline while the other is whether teachers look upon the relation between teaching and assessment. In conclusion, the results of both Samuelowicz and Bain (2002) and Watkins et al. (2005) show that academics’ views concerning assessment range from reproduction of knowledge to construction of knowledge.

Although research on academics’ conceptions of assessment has not been studied extensively, primary and secondary education teachers’ conceptions of assessment has been intensively studied in recent years (Brown, Kennedy, Fok, Chan, & Yu, 2009; Brown, Lake, & Matters, 2009b; Brown, Lake, & Matters, 2011; Remesal, 11; Segers & Tillema, 2011). The results showed, for example, a clear alignment between school teachers’ conceptions of assessment and assessment practices (Brown et al., 2009a). Furthermore, the results showed significant differences in teachers’ conceptions of assessment in different cultures (Segers & Tillema, 2011). Recent research has pointed out that different kinds of teaching cultures originate different conceptions and practices related to assessment (Segers & Tillema, 2011). Brown et al. (2011) similarly address, that the assessment culture, meaning the practices and policies implemented in the teaching environment, affects the way teachers compose their conceptions of teaching, as well as of assessment. Furthermore, research has shown that discipline has an impact on teachers’ teaching and assessment practices. There is evidence that teachers in soft sciences tend to be more learning-focused than teachers in hard sciences. Hard sciences contain a lot of factual and exact knowledge which may easily lead to content-focused teaching and testing facts in exams (Lindblom-Ylänne, Trigwell, Nevgi, & Ashwin, 2006; Luekkede, 2003; Nieminen, Lindblom-Ylänne, & Lonka, 2004; Postareff, Lindblom-Ylänne, & Nevgi, 2008b; Prosser, Ramsden, Trigwell, & Martin, 2003).

The aim of this study

The present study focuses on conceptions of the purpose of assessment and assessment practices among pharmacy teachers. Conceptions of the purpose of assessment are analysed from the teacher interviews in which they answered the following interview questions: What is important in assessing student learning? What is the purpose of assessment? The teachers mainly described the nature or the level of knowledge or skills that should be assessed. From these descriptions, the conceptions of the purpose of assessment were inferred. Assessment practices were analysed from the interview question “How do you assess your students’ learning”? The hypothesis is that a same kind of relationship between conceptions of assessment and assessment practices can be identified as have been identified between conceptions of teaching and teaching practices (Eley, 2006; Kember & Kwan, 2000; Postareff et al., 2008a; Trigwell & Prosser, 1996). Previous research related to academics’ conceptions of assessment have shown that teachers representing different disciplines conceive of assessment in very different ways (Samuelowicz & Bain, 2002; Watkins et al., 2005). These studies have been conducted in several disciplines with a rather low number of participants. By exploring teachers specifically from one discipline it is possible to get profound information about the specific characteristics of that discipline. Recent studies have emphasised the importance of discipline specific pedagogical...
research in order to develop teaching in different disciplines (Lindblom-Ylänne et al., 2006; Young, 2010). Furthermore, it has been suggested that discipline-based research provides a basis for exploring the ways in which more generic issues are contextualised within the issues of a specific discipline (Young, 2010).

The present study aims to analyse (1) teachers’ conceptions of the purpose of assessment, (2) their assessment practices, and (3) the relationship between these conceptions and practices. The results will be compared to the conceptions identified in previous research in the field of higher education (Samuelowicz & Bain, 2002; Watkins et al., 2005).

Methodology

Participants

The total number of teachers at the Faculty of Pharmacy, University of Helsinki, was 49 at the time this research was conducted. Of them, approximately 60% were selected randomly, representing all levels of academic staff in the six divisions of the Faculty. All 28 teachers agreed to participate in the study. The participants included ten full professors, six senior lecturers (corresponding to assistant professors), six post-doctoral researchers, and six doctoral students. Of these, 15 were male and 13 female. Twenty had participated in courses of university pedagogy organised for university teachers.

The Faculty of Pharmacy at the University of Helsinki provides the highest level of education in the field in Finland. The University of Helsinki chose the Faculty as one of its high quality teaching units in 2005, and the Faculty was commended for its enthusiastic and intensive approach to the strategic and content-related development of education (Himanen, 2006). In addition, the Finnish Higher Education Evaluation Council selected the Faculty as one of its centres of excellence in teaching in the university sector for the years 2010–2012.

Although the Faculty has been rewarded of its teaching, previous research has shown that pharmacy teachers’ conceptions of teaching were more developed and learning-focused than their teaching practices, which were more traditional and content-focused (see Postareff et al., 2008b). In addition, assessment in pharmacy education in Finland has traditionally focused much on the memorisation of facts (Nieminen et al., 2004). Pharmacy is a typical example of applied hard science; it has roots in natural sciences, but on the other hand, it is also a professionally oriented discipline where the knowledge about medicines and medications needs to be applied in patient counselling.

The need to improve assessment practices at the Faculty has been recognised widely: the development of assessment practices has been one of the priorities in the Faculty’s action plan since 2010. Feedback from pharmacy students has shown that teaching at the Faculty is mainly considered to be good but assessment procedures should be developed further. Also the international evaluation of the teaching highlighted the need to improve assessment at the Faculty. Thus, the Faculty of Pharmacy offers an interesting research environment to investigate academics’ conceptions of the purpose of assessment and their assessment practices: How do teachers in the high quality teaching unit describe their conceptions of assessment and assessment practices?

Methods and analyses

The interviews were semi-structured and open-ended: the interviewer presented the same questions to all informants, yet the interviews were flexible. The interviewer asked specifying and clarifying questions if the respondents’ answers were insufficient to get a deep insight into the teacher’s thoughts about assessment. This is common in active interviews, as individuals may express themselves or understand the questions differently (Johnson & Weller, 2002). Not all teachers were able to describe their assessment with pedagogical terms but instead they described their thoughts about assessment in their own words.

The third author conducted the 28 interviews in autumn 2005, which were transcribed verbatim. The interviews lasted from 45 to 90 min. The interviews focused broadly on teaching in higher education, but for the present study questions concerning assessment were analysed; the first two questions enquired about teachers’ conceptions of the purpose of assessment, and the third one, their teaching practices: What is important in assessing student learning? What is the purpose of assessment? How do you assess your students’ learning? These were the main questions of the interviews but the interviewer asked for clarifying questions during the interview.

The content analysis method (e.g., Flick, 2002) was applied in analysing the interview data. The aim was to identify all variation in the teachers’ descriptions concerning assessment. In the analysis process, attention focused less on how verbatim the respondents answered than on the content of their message (Johnson & Weller, 2002). Firstly, the first and second authors read repeatedly and independently the teachers’ responses and identified the range of conceptions in each interview. In addition, they both grouped the identified conceptions under different categories representing qualitatively similar conceptions through applying a data driven analysis procedure. Secondly, the first and the second authors compared the identified conceptions and the categorisation of these conceptions. Both authors had identified similar conceptions, and also the categorisation was quite similar. However, some unclear descriptions or conceptions were re-read and re-discussed until consensus about the categorisation was reached. Also the labelling of the categories was discussed in detail.

Thirdly, the third and fourth authors validated the preliminary categorisation of conceptions by thoroughly checking the categorisation of the conceptions independently. The categorisation of the conceptions remained similar, but some words describing the categories were changed. After categorising the teachers’ conceptions of the purpose of assessment, the analysis focused on the teachers’ descriptions of their assessment practices. Again, both the first and the second authors identified all descriptions related to assessment practices. These were discussed and compared, and a similar list of descriptions was identified. After that, the first and the second author discussed the categorisation of these descriptions, and consensus of the categorisation was reached easily. After recognising all variation in their teaching practices, teachers’ assessment practices were compared to the range of conceptions. Each teacher’s conception was marked with a code according to our categorisation of conceptions (A, reproductive conceptions, meaning that understanding can be measured through assessing how well students can repeat correct information; B, transformational conceptions, meaning that understanding can be measured through assessing students’ own thinking processes) and correspondingly, the type of each teacher’s assessment practice was marked with a code referring to use of traditional (code 1) or alternative (code 2) practices. Four types of combinations of conceptions and practices were identified (A1, A2, B1 and B2). In addition, representative quotes from the teachers’ descriptions were selected to illustrate the conceptions and practices the teachers described in the interviews.

Each teacher’s conception was classified in one category, meaning that this conception is the “highest”, and in all cases also the most emphasised conception by the teacher. The categorisation of conceptions was hierarchical in a way that the “highest” transformational conceptions might include elements
from the “lower” conceptions as well. For example, a teacher, who is categorised as having a higher level conception which emphasises the process of learning in assessment, may also view that ability to repeat and remember factual knowledge is important, although the emphasis is on the higher level conception. However, in most cases the teacher’s conception reflects purely the characteristics of only one category but in some cases the conceptions were more plural. Samuelowicz and Bain (2002) did not align conceptions with participants because according to them conceptions are dependent on the context, and therefore the same individual can express more than one conception during an interview. We agree with this, but made a similar solution as Trigwell et al. (2001) in their study which reported the ‘highest’ conceptions of academics related to teaching and learning. Our aim was to align conceptions with participants because we wanted to explore the relationship between conceptions and practices at the individual level.

Results

In general, the results showed that there was a lot of variation in teachers’ descriptions concerning the purpose of assessment and the assessment practices they apply. Almost all teachers emphasised that assessment significantly affects student learning, and a majority of the teachers emphasised that assessment should focus on measuring how well students have understood the content of the study module. However, ‘understanding’ was described in diverse ways. While some teachers described that understanding can be reached through one’s own thinking and construction of knowledge, others felt that the repetition of knowledge is the key to understanding. Most teachers had a difficulty in describing the purpose of assessment; these descriptions were narrow and non-reflective and focused mostly on the assessment practices the teachers apply in their teaching. However, a minority of the teachers described the purpose of assessment and its impact on student learning in more depth and deeply reflected on their arguments concerning assessment.

The categorisation of the teachers’ descriptions of assessment appears below in three parts. The first part addresses the teachers’ conceptions of the purpose of assessment, the second part their assessment practices, and the third part focuses on the relationship between conceptions and practices.

Conceptions of the purpose of assessment

Five categories of conceptions of the purpose of assessment were recognised (Table 1). Each teacher’s conception is classified in one category. Some teachers described more plural conceptions, but the conception of a teacher was categorised according to the most dominant conception of that teacher. Therefore, the categories form a hierarchical continuum and higher level conceptions might include elements from lower level conceptions, but not vice versa.

The five categories could further be merged into two larger groups (Table 1); the conceptions in subcategories A–C emphasised that the purpose of assessment is to measure reproduction of knowledge, whereas the conceptions in subcategories D–E focused more on transformational purposes. This categorisation is similar as in the influential study by Marton and Saljö (1976) in which they explored qualitative differences in learning and showed that the learner might be engaged with surface-level (reproductive) or deep-level (transformational) processing of information.

The reproductive conceptions are characterised by rather narrow and non-reflective descriptions of the purpose of assessment, and emphasise that understanding can be measured through assessing how well students can repeat correct information related to a study module (subcategories A and B). A more developed conception emphasises measuring one’s application of knowledge (subcategory C), but yet in a more reproductive than transformational way. Therefore, this conception was considered to represent the reproductive rather than the transformational purpose of assessment. Teachers holding conceptions that were categorised into subcategories A–C (Table 1) altogether emphasised that students should cover the content of a study module: to repeat it, to describe it in one’s own words, or to apply it in practice.

The transformational conceptions (subcategories D and E in Table 1) provide a more complete view of the purpose of assessment. These conceptions are characterised by deeper and more reflective descriptions of the purpose of assessment, including reflection of own conceptions and justification for the descriptions/arguments. In these conceptions assessment of students deep understanding that reveal students’ own thinking is emphasised. In addition, the importance of feedback, assessment criteria and the validity or equality of assessment are considered important in assessing student learning in these conceptions.

The categories of conceptions form a continuum of categories, from reproductive conceptions to more transformational conceptions. The transformational conceptions might include elements from reproductive conceptions. However, in the transformational conceptions such elements were not common, and if they existed, they were not emphasised, and often described in a qualitatively different manner.

Reproductive conceptions of the purpose of assessment

Twenty-two teachers’ descriptions of the purpose of assessment were categorised as representing reproductive conceptions (categories A–C). These teachers held that, at least in an exam, students should cover the content of a study module, be able to repeat it, describe it in one’s own words, or apply it in practice. However, the teachers held different views of how such knowledge should be measured and how the form or type of assessment affects student learning. For example, one teacher thought that detailed questions guide students to study more profoundly and are more demanding than essay-type questions, because students do not have to study as hard to write an essay. In contrast, some teachers mentioned that multiple-choice exams guide students to study the details whereas larger essay questions encourage students to combine and apply knowledge.

Table 1
The categorisation of the pharmacy teachers’ conceptions of the purpose of assessment. Each teacher’s conception is classified in one subcategory reflecting the “highest” and most dominant conception of the teacher.

<table>
<thead>
<tr>
<th>The categories of conceptions</th>
<th>The purpose of assessment is to…</th>
<th>Number of teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive conceptions of the purpose of assessment</td>
<td>(a) Measure repetition and memorisation of facts</td>
<td>5/28 teachers</td>
</tr>
<tr>
<td></td>
<td>(b) Measure how well students cover the contents of the study module</td>
<td>8/28 teachers</td>
</tr>
<tr>
<td></td>
<td>(c) Measure application of knowledge</td>
<td>9/28 teachers</td>
</tr>
<tr>
<td>Transformational conceptions of the purpose of assessment</td>
<td>(d) Measure deep understanding and students’ own thinking</td>
<td>4/28 teachers</td>
</tr>
<tr>
<td></td>
<td>(e) Measure the process and development of students’ own thinking</td>
<td>2/28 teachers</td>
</tr>
</tbody>
</table>
Subcategory A: The purpose of assessment is to measure repetition and memorisation of facts

Five teachers’ responses fell into this subcategory. These teachers’ descriptions concerning the purpose of assessment were narrow and non-reflective. They emphasised the importance of understanding, but felt that the repetition of knowledge is the key to understanding. These teachers emphasised that assessment should be designed to measure the memorisation or repetition of core content, as the following extract shows:

This subject is like that, that you have to memorise things. After you have a certain amount of factual knowledge, you can commit yourself on a certain matter. A classic exam is good, where you have a question of a larger topic/entity, but the question is related to a more detailed part of it. Then the student does not have to consider what is the most important thing in the whole entity. The aim of assessment is that the student knows the relevant things. (Teacher 21)

Subcategory B: The purpose of assessment is to measure how well student cover the contents of the study module through designing proper questions for the examination (and to control students studying and learning)

Eight teachers fell into this category. They emphasised that students should cover the whole content of a study module and that with properly designed questions, they can control how well their students have understood the content. These teachers considered it important that students would be able to repeat the content, at least in the exam. These teachers also believed that assessment can encourage students to study. The following interview quotation illustrates this subcategory:

The purpose of assessment. . . well, it’s hard to say. At least the exam questions should be designed to measure understanding. . . Of course there can be detailed questions as well. Students are lazy in a way. If you don’t have a final exam they try to pass the course with a minimum effort. If there is an exam, they have to make an effort. (Teacher 1)

Subcategory C: The purpose of assessment is to measure application of knowledge

Nine teachers believed that assessment should focus on measuring how well students can apply the knowledge they have gained during the study module. Some teachers described, that deep understanding is hard to assess, but application of knowledge can be more easily assessed. Assessment of application of knowledge was considered important due to the nature of pharmacy as an applied science. The following extract describes this subcategory:

One assesses, for example the labels of medicines, so that it looks like a real label, is correctly written and includes all necessary warnings and instructions . . . I can’t really know whether the student has understood the content, even if she/he could make the label correctly and without errors. The assessment just stays on that level. (Teacher 5)

Transformational conceptions of the purpose of assessment

A minority of teachers (6 of 28) emphasised that students should be able to create an individual view and understand the content to be learned, and that assessment should focus on measuring deep understanding, which can be reached through deep processing.

Subcategory D: The purpose of assessment is to measure deep understanding and students’ own thinking

Four teachers were classified into subcategory D, because they placed a greater emphasis on students’ own thinking processes rather than purely on producing correct answers. Concentrating on assessing larger entities, deep understanding and students’ own thinking was considered as important. In addition, these teachers did not seem to consider assessment as a means of controlling student learning, but rather as a means of enhancing the quality of student learning. In the following extract a teacher categorised in this category describes the purpose of assessment:

The purpose of assessment is, of course, that one is able to think independently and apply knowledge. I design exam questions in a way that students really have to think deeply of the big picture and the relevant things . . . They have to justify and compare. Comparisons are good, because then students have to relate one idea into a bigger picture. These kinds of exams tell whether the student has really understood the big picture, or do they try to pass with pure memorization of things. If you just memorise things for the exam, you do not get much out of it. Learning occurs somewhere else and for some other reasons. (Teacher 22)

Subcategory E: The purpose of assessment is to measure the process and development of students’ own thinking

Two teachers emphasised that the purpose of assessment is to develop student’s own thinking and to see how students construct knowledge. They also emphasised that assessment should act as a feedback tool so that the teacher can improve his or her teaching, and the students can diagnose their strengths and weaknesses to improve their own learning through individual feedback. One teacher describes the purpose of assessment as following:

My aim in assessment is that one (student) applies the knowledge . . . so that they, for example, write an essay, search information for it from various sources, evaluate the quality of information and construct their own knowledge in order to form an understanding . . . I appreciate if I see how students’ own thinking develops and how they have learned to see things . . . I try to develop my courses on the basis of assessment . . . from the students’ assessment I can see if they have learned or not. (Teacher 13)

Variation in assessment practices

Teachers’ descriptions of the assessment practices they apply varied from quite short descriptions of an assessment method to broader descriptions with arguments on the reason for using a particular method. In response to the question concerning assessment practices, four themes emerged from the data: summative vs. formative assessment, assessment methods, criteria for assessment, and grading. However, only a few teachers mentioned criteria or grading at all, or formative assessment. A majority of the teachers described only summative assessment when asked about their assessment practices, and in fact most teachers talked only about the questions they formulate for traditional exams. The assessment practices the teachers described were divided into “more traditional assessment practices” and “alternative assessment practices”.

More traditional assessment practices

A total of 20 teachers used only one type of assessment method: the traditional “paper and pencil” exam at the end of the study module. Thus, summative assessment was emphasised, and focus of descriptions was on what kind of questions they design for exams, as the following extract shows:

One must design the question so that one can see whether the matter has been understood or whether it is just memorised . . . if one uses old exam questions, one can never know whether the matter has been learnt in whole or whether the answer to the old question has been memorised. (Teacher 18)
The questions were designed mostly to measure how well the students covered the content of the study module. Two teachers counted how many correct and wrong facts the replies include and issued the grade on this basis. Two other teachers mentioned that they use extra questions in the exams, which go beyond the content of the course. In this way, they separated the most qualified students from the others and gave them the highest grades. One teacher emphasised that the criteria for passing the courses should be more demanding. One teacher said that he applies the gauss curve when assessing his students:

When there are only a few participants and the same set of questions, first of all, one can rank the students in order of superiority and begin to reflect on the grades they should receive. (Teacher 14)

Of the teachers who applied traditional assessment practices, only a few mentioned the use of clear assessment criteria or justifications for grading when describing how they assessed their students learning. However, mentioning the criteria did not mean that the teacher would use any criteria in assessment, as the following extract shows:

I only design essay exams . . . (I assess) in this classical way 'how I feel'. When one reads those tasks, the marker pen moves in two ways: one way is to mark the facts that I consider important, so that the facts that the student knows earns a mark, and all the mistakes earn a mark . . . and then, the assessing is essentially optical. It involves no more detailed mathematics. (Teacher 14)

These teachers did not describe assessment from the students' perspective, but two teachers mentioned that some student groups are more talented than others in different courses. These teachers did not change their teaching or the exams because they felt that it was up to the students to determine how well they would succeed in the exams.

Alternative assessment practices

Of the 28 teachers, eight teachers applied alternative assessment practices. They described the use of formative assessment, a variety of assessment practices, clear criteria for assessment, and gave justifications for their grading procedure. These teachers aimed at enhancing student learning through such assessment procedures. Descriptions of assessment methods ranged from essays to peer assessment, portfolios, diary logs and group projects. These teachers emphasised that the expected learning outcomes determine which assessment method they use. In descriptions related to formative assessment it was emphasised that assessment focuses on the learning process rather than merely on the learning outcome, as the following extracts show:

The number of students can be huge in an exam, and they usually get feedback only through the grade. There should be assessment during the course, because then one can see what went well, what is new, what kinds of questions emerged and it makes one process the knowledge and think how it can be applied. (Teacher 15)

These teachers emphasised that they want to assess how well students cover the “big picture” of the course instead of fragmented knowledge. They seemed to support students' academic thinking by designing tasks where students needed to combine the different content of the course into one answer or into a presentation. They also recognised the importance of academic writing skills in grading:

In a response to the exam, one focuses attention on the presentation of logic and that the entity is good . . . when the outcome does not form an entity, such as a mature text, then the level of learning outcome remains low. (Teacher 21)

One teacher found the process of producing the solution to be essential, and that even an incorrect solution can result in a high grade. This teacher pointed out that a teacher should try to understand the answers from the students’ perspective:

If one solves a problem and the result is right, one gets the highest points. But one can get almost the highest points even if the result would be wrong. But the process was correctly conducted. One does not have to remember everything, but through describing things properly it is possible to get the maximum points. The teacher must be able to see the process from the students' perspective. (Teacher 19)

In general, teachers applying alternative assessment practices wanted to support student learning through assessment instead of testing students' knowledge, as the following extract shows:

Exams are not about just asking questions. The assessment should be designed in a way that the students really have to think of the big picture and the relations between the things they are trying to learn . . . (Teacher 22)

The relationship between conceptions and practices

While conceptions of teaching are viewed as related to the way teachers actually go about teaching (e.g., Trigwell & Prosser, 1996), our analysis focused next on the relationship between teachers’ conceptions of the purpose of assessment and their assessment practices. Our analysis revealed high consistency between conceptions and practices, even though there were some exceptions (see Table 2). The consistency between the practices and purposes was explored by calculating the Kappa coefficient which was .62. This means that the degree of consistency is substantial (above average).

Traditional assessment practices combined with reproductive conceptions

Of the 28 teachers 19 applied traditional assessment practices and held reproductive conceptions of assessment. Thus, conceptions and practices were logically related to each other in most cases. Most of these teachers described only the kind of questions they felt should be formulated in exams at the end of a study module, and thought that the purpose of assessment is to test the repetition or application of knowledge. Such reproductive conceptions were described along with the use of traditional exam at the end of a study module:

I think that at the university level assessment should focus not only on memorisation, but also on application of knowledge. In exams my aim is . . . of course there are basic questions that measure knowledge of facts, but also ones that measure application of knowledge. (Teacher 10)

Alternative assessment practices combined with reproductive conceptions

Three teachers described applying a variety of assessment practices, yet described purely reproductive conceptions of assessment. This reflects an inconsistency between practices

<table>
<thead>
<tr>
<th>Reproductive conception</th>
<th>Traditional assessment practices</th>
<th>Alternative assessment practices</th>
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<tr>
<td></td>
<td>19 teachers</td>
<td>3 teachers</td>
</tr>
<tr>
<td>Transformational conception</td>
<td>1 teacher</td>
<td>5 teachers</td>
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</table>

Table 2

The relationship between conceptions of assessment and assessment practices.
and conceptions. These teachers did not deeply justify the use of a certain assessment method, but instead mainly listed the methods they apply. In the following example, a teacher had difficulties in describing the purpose of assessment, but when describing assessment practices, there was more variation:

I do not have any other purpose that just to give grades to the students. It is quite a big work. Personally I don't have any other purpose for assessment. I have applied a practical exam, where students had to act in a real working life setting. In a written exam you can only see how well the students have read the course books. (Teacher 14)

Another teacher described that assessment should focus on memorising how well students can remember the course contents, but when describing assessment practices, he listed a number of assessment practices which assess different types of knowledge and skills.

Alternative assessment practices combined with transformational conceptions

Only a minority of the teachers, who applied a rich variety of assessment methods, were aware of the purpose of a particular method, and able to align the assessment method with the expected learning outcomes. Teachers who applied a range of different assessment methods included mostly those with more transformational conceptions of assessment. Five teachers were categorised as having such a combination of conceptions and practices. These teachers also emphasised that assessment of student learning should focus on the whole learning process, not merely on the outcome:

The main things are the big lines, and the core content and the essential content. How we test does not mean a lot; many kinds of exams must be available, and they are. The final exam is indeed relevant … one can get an idea of what kind of gang graduates. We do have exams during the courses—voluntary. Thus, they serve as preparation for the final exam … Certain things can be examined with home exams and pair exams. (Teacher 17)

Traditional practices combined with transformational conceptions

Only one teacher who described transformational conceptions of the purpose of assessment described using merely traditional exams at the end of a study module. This teacher seemed to feel that the purpose of assessment is to guide students' learning by emphasising that the process of thinking is more important than the correct facts. However, the teacher could not describe how to guide student learning through assessment in his/her own teaching:

So, I think that it is more important that the line of thought heads in the right direction than that all the facts are correct at the moment they are expressed … I am always irritated when I see that a student has not understood the question correctly (at the final exam) and writes whatever. (Teacher 23)

Discussion

In this study, the aim was to explore conceptions of the purpose of assessment and the assessment practices of academics, as well as to examine the relationship between these two. Although there is a number of studies focusing on academics’ conceptions of teaching, and on the relationship between such conceptions and teaching practices, similar research focusing on assessment is scarce (see research by Samuelowicz & Bain, 2002; Watkins et al., 2005). Therefore, the results of the present study add to our understanding of assessment in higher education. Our results on teachers’ conceptions of the purpose assessment resulted in five categories which range from measuring reproduction of knowledge to measuring the process and finally, development of students' own thinking. There was variation in how teachers conceived of understanding, as those representing reproductive conceptions described that understanding can be measured through assessing how well students can repeat correct information and those representing more transformational conceptions described that understanding can be measured through focusing on the students’ own thinking processes and knowledge construction. Some teachers described that application of knowledge is a key to understanding, but application was described in a more repetitive manner (e.g., repeating procedures in the laboratory). Our categories are to a large extent comparable to the six categories identified by Samuelowicz and Bain (2002), and to the eight categories of Watkins et al. (2005). In each of these studies conceptions can be divided in two qualitatively different groups with the distinction between reproduction of knowledge and construction of knowledge, including a middle category related to application of knowledge. The way teachers view the students' role, or how the teachers talk about students, seem to differ in a similar manner in all these studies. In the lower level conceptions there are no descriptions concerning the purpose of assessment as a means of guiding students' learning. In the higher level conceptions teachers view the purpose of assessment as enhancing student learning, or even as developing teacher’s own views.

Our most striking finding was that the assessment practices in the study context were mostly conventional and that most academics had difficulty describing the purpose of assessment.

A minority of teachers conceived of the purpose of assessment in a transformational way, pointing out, for instance, formative assessment and the importance of feedback for learning or of adopting a rich variety of assessment methods. Most teachers still use traditional methods and emphasise the measurement of learning using summative assessment, such as final exams.

Taking into account of the pharmaceutical instruction and practice, the results of the present study showing that about 3/4 of the participants use assessment for measuring reproduction of knowledge are understandable. The teachers at the Faculty probably want to ensure that their students have a sufficient amount of factual knowledge when they enter the working life where the graduates have a huge responsibility of their customers. The teachers seem to consider that more transformational types of assessment cannot be used to control the amount and level of student learning. Meanwhile, the academic environment shares a consensus that the reproduction of knowledge is not enough for the competences that are needed in the working life. Thus, based on the statement that assessment guides a lot what competences the students will have, our results suggest that the assessment practices in pharmacy education should be carefully considered.

Peer assessment was mentioned only rarely in the teachers’ descriptions, and self assessment was not mentioned at all. However, an ability to evaluate one’s own skills and knowledge becomes increasingly important since requirements in working life are changing constantly. Therefore, more recent research emphasises the use of e.g., self assessment, peer assessment and formative assessment to serve lifelong development purposes (e.g., Bartram, 2004; Boud & Falchikov, 2006). Assessment tasks, criteria and scores should be shared and negotiated between teachers and students. Learners have shown a positive attitude towards such assessment tasks and methods as long as the assessment positively effects their learning and students have found it fair (Segers et al., 2003a, 2003b; Struyven et al., 2003). Based on our results, however, a minority of the teachers themselves can even describe the assessment criteria, and most teachers focused on the
questions (i.e., what kind of question they should formulate to obtain the proper answer). Thus, the assessment practices applied by the teachers participating in the present study seem not to support deep, student-focused learning process that creates a foundation for life-long learning effectively enough.

However, a majority of the teachers were aware that assess-ment guides students’ learning, as previous research has indicated (Brown et al., 1997; Struyven et al., 2005). Most of the teachers were aware of the risk that students would study only for the exam, but a majority of the teachers seemed to be unaware of the opportunity to guide what their students were learning or considered it impossible to influence what they learn. Thus, aligning the course objectives and teaching with the assessment seemed difficult for most teachers. It is noteworthy that the Faculty of Pharmacy was selected as one of the centres of excellence in teaching in 2010–2012. The atmosphere at the Faculty is enthusiastic for the development of teaching and a lot of effort has been paid to teaching development. On the basis of the results of the present study, it can be argued that assessment practices are not equally developed with teaching practices.

Our results support the results of Parpala and Lindblom-Ylänne (2007) who showed that assessment is often viewed as separate from teaching rather than an essential part of it, even in high quality teaching units. Thus, in developing teaching in higher education more emphasis should be paid on assessment and especially on how to integrate assessment to the teaching and learning process to make them more aligned. Assessment can be seen as more “sophisticated” even in hard sciences which contain a lot of fact knowledge.

The results of the present study showed that teachers’ conceptions of the purpose of assessment seem to strongly impact how they actually assess their students’ learning, as was hypothesised. This result is in line with previous research showing a connection between conceptions of assessment and assessment practices (Samuelowicz & Bain, 2002) and more widely, a connection between conceptions of teaching and teaching practices (Trigwell & Prosser, 1996). In our study, only few teachers described inconsistency between conceptions and practices.

Nowadays higher education is expected more and more to produce generic skills, such as interaction skills, information literacy reading skills, and problem solving skills. Consequently, helping students to develop these skills would require changes in the assessment culture as well (Baartman et al., 2006; Choa et al., 2006; Ploegh et al., 2009; Segers et al., 2003a). Our results showed that only those teachers with a more transformational conception of the purpose of assessment pointed out the importance of generic skills by emphasising, for example, students’ ability to think and to process knowledge, rather than merely producing the correct answer. These teachers also applied a range of different assessment methods, which are more likely to invoke deeper approaches to learning than the more traditional forms of assessment (Birenbaum & Feldman, 1998; Brown et al., 1997; Segers et al., 2003b).

Previous results indicate that the differences in assessment practices, as well as in conceptions of assessment, are affected by the prevailing culture (Brown et al., 2009b, 2011; Segers & Tillema, 2011). Based on that, knowledge of the discipline specific ways of thinking and practicing (McCune & Hounsell, 2005) is important in order to explain the conceptions and practices we have described. In the sciences, it is common to seek exact and factual knowledge (Neumann, Parry, & Becher, 2002). In line with that, students at the Faculty of Pharmacy find that assessment focuses on memorisation of facts (Nieminen et al., 2004). Pharmacy education involves much lecturing for large classes. These characteristics typical of science and pharmacy education most likely explain the results of the present study. An underlying assumption in pharmacy education is that basic facts are needed for understanding, for example, the functioning and effects of medicines. Furthermore, working life in pharmacy field includes procedures where exact and correct procedures are needed. All those probably encourage teachers to view assessment as a means of measuring factual knowledge and to adopt traditional and conventional assessment practices. Most teachers seem not to be aware that assessment could serve other purposes as well, such as enhancing student learning through assessment. Although most teachers in the present study have participated in pedagogical training organised for university teachers, there seems to be a gap between teaching and assessment practices at the Faculty of Pharmacy. Majority of the teachers have participated in the first 10 ECTS course which focuses generally on teaching and learning in higher education. A continuing 5 ECTS course focuses specifically on assessment of student learning, but none of the teachers had participated in that specific course. This might explain why a majority of the teachers held reproductive conceptions of assessment and applied traditional assessment practices. In addition, pedagogical courses are likely to change teachers’ conceptions and practices, but the process is slow and requires intensive pedagogical courses for university teachers (e.g., Postareff, Lindblom-Ylänne, & Nevgi, 2007; Postareff et al., 2008a).

Implications for practice

Several researchers have suggested that conceptions of teaching must develop first before changes in teaching practices can occur (Ho, Watkins, & Kelly, 2001; Oosterheert & Vermunt, 2003; Postareff et al., 2007, 2008b). Thus, when developing assessment practices, attention should be paid on developing or changing teachers’ conceptions of assessment along with assessment practices. Our results suggest that it is important to raise awareness among academics of the importance of assessment and its effects on studying and learning. Without pedagogical awareness it is difficult for the teachers to vary their assessment practices.

At the University of Helsinki, teachers have for long had the possibility to participate in pedagogical courses. In addition, the universities aim to support assessment procedures that follow changes in the surrounding society, and which encourage students to evaluate their own skills or to serve lifelong development purposes (Ploegh et al., 2009). Anyway, our results imply that teaching and assessment practices change slowly (see also Postareff et al., 2007, 2008a). This may reflect the gap between research in higher education pedagogy and practices in real university teaching environments. The way of thinking and practicing differ between the disciplines (McCune & Hounsell, 2005). Therefore, we suggest that more discipline-specific research in teaching and learning is needed to bridge this gap and to change assessment practices in different disciplines.

We suggest that pedagogical awareness can be adopted and shared not only in pedagogical courses, but also through more collaborative practices in the teaching society of the discipline, as Meirink, Meijer, and Verloop (2007) state. In our case, most academics were aware of the relationship between assessment practices and student learning, but assessment practices supporting deep learning were adopted by only a minority of teachers. Guskey (2002) presented a model of teacher change, which suggests that significant change in teachers’ beliefs and attitudes occurs primarily after they see evidence of improvement in student learning following changes in the teachers’ classroom practices. Thus, sharing positive experiences in collaborative settings may result in higher pedagogical awareness in the entire society. In order to foster this, a pedagogical training which is based on collaborative learning was established for pharmacy teachers. This
training lasts for one year and aims at increasing co-operation between teachers and sharing good teaching and assessment practices used by teachers and finally – to develop also the assessment procedures at the Faculty.

Future research could focus on analysing the interview data from a different perspective. The conceptions of the purpose of assessment could be analysed without aligning the conceptions with participants which might result more detailed information about how the teachers associate the purposes with each other and how strongly they support each purpose. The interviews could be analysed separately for those respondents who described their conceptions more explicitly and for those whose responses were vague. Future research should also explore the disciplinary variation in assessment in more depth. For example, the type of knowledge and skills that are assessed in different disciplines at different study phases is the focus of our future research.

References


