Student and tutor perceptions of effective tutoring in distance education

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Abstract

Questionnaire responses of 457 students and 602 tutors were used to investigate conceptions of a 'good tutor'. In each case, factor analysis identified scales that reflected key constructs; cluster analysis identified subgroups with different patterns of scale scores; and discriminant analysis determined the scales that contributed the most to differences among the clusters. Both sets of data yielded conceptions of tutoring that were described as task-oriented and student-oriented, respectively. The students' data yielded an additional, career-oriented conception. The tutors' data yielded two additional conceptions that were described as knowledge-oriented and impersonal, respectively. The distribution of the tutors' conceptions (but not that of the students' conceptions) varied across different faculties, suggesting that tutors from different disciplines have different beliefs about effective tutoring. The study suggests that both tutors and students would benefit from having a better appreciation of the importance of support in facilitating learning.

Keywords: beliefs about tutoring; conceptions of tutoring; good tutoring

Introduction

There has been widespread interest in the role of the tutor in higher education, fuelled by the demands of a mass higher education system and an increasingly diverse student body with a broader range of needs. Teaching staff are to some extent expected to help students to become integrated into student life and to develop productive independent study strategies on the assumption that integration and academic support can affect student retention. In this paper we examine whether academic and social support are qualities that students are looking for in members of academic staff and whether these qualities are seen by staff as key to the role of tutoring.

Tutoring and tutoring strategies are defined in different ways at different institutions, and Thomas and Hixenbaugh (2006) provide a wide variety of case studies illustrating how the role of tutoring might be implemented in different institutions. They describe how tutoring may be designed for all students, or just those in need; it may be proactive or reactive; integrated into the curriculum or an additional support activity; based on interpersonal relations or service oriented. However, it is not clear from such institutional strategies what aspects of the tutor's role might be particularly effective in leading to better student learning or meeting diverse needs. If little is known about appropriate strategies, then we need to look at beliefs about effective tutoring.

Interview-based investigations have identified a number of different conceptions of teaching on a spectrum from a teacher-centred, content-oriented conception to a student-centred, learning-oriented conception (Kember, 1997). Gow and Kember (1993) constructed a 46-item questionnaire that measured two broad 'orientations' to teaching in higher education: an orientation towards knowledge transmission and an orientation towards learning facilitation. Norton, Richardson, Hartley, Newstead, and Mayes (2005) adapted Gow and Kember's questionnaire to measure teachers' beliefs about teaching and their intentions in practice. Their intentions were more oriented towards knowledge transmission than their beliefs. Indeed, their intentions seemed to reflect a compromise between their conceptions of

teaching and the constraints of particular academic and social contexts.

Most of the research on conceptions of teaching has been carried out in campus-based environments, where tutor support traditionally takes place in face-to-face situations. In these environments, it seems to be widely assumed that academic tutoring and personal tutoring are distinct roles. As a consequence, accounts of academic tutoring tend to omit any reference to pastoral support (e.g., Carnell, 2007; Postareff & Lindblom-Ylänne, 2008), while accounts of personal tutoring tend to omit (or, at least, to minimise) the significance of academic support (e.g., Thomas & Hixenbaugh, 2006; Wheeler & Birtle, 1993). However, in distance education the roles of academic and personal tutor are typically combined.

Programmes of study in campus-based institutions are increasing adopting a blended approach that involves e-mail, telephone, and computer conferencing as well as face-to-face meetings. In this respect, at least, there is a convergence between campus-based and distance education. Even so, the limited amount of research that has been carried out into conceptions of teaching in online environments has largely focused on the delivery of course content (e.g., Gonzalez, 2009; Roberts, 2003). In distance education, broader forms of academic and social support seem to be important, regardless of whether that support is provided face-to-face or online (Price, Richardson, & Jelfs, 2007).

Tutoring at the UK Open University

The Open University is the UK's biggest provider of distance education, with nearly 600 courses offered to 150,000 undergraduate students and 30,000 postgraduate students. The University employs 8000 part-time tutors, who act as the human interface between the university and its students. Each tutor is responsible for supporting a group of around 20 students, although the group may vary in size depending on the geographical distribution of students. So, in spite of the scale and size of the University, the strength of the system is that all students are known individually by their tutor. The tutor's role is to mark assignments with detailed formative feedback, and to provide support to students as appropriate. Central

academic staff design the courses, which are delivered in the form of printed or web based course materials. The nature of tutor support will vary to some extent with the faculty and course, but broadly speaking there is a standard remit.

All tutors must be online for administrative purposes, but also increasingly for supporting learners. Each tutor has a personalised home page, *TutorHome*, which provides access to their students' details, to course news and to other web-based resources, including the University library. Tutors are provided with access to the University's conferencing system, which provides them with an email account to use for any communication with students or the University, as well as access to a wide range of computer conferences. Since 2007, tutors have been expected to use the electronic assignment submission system for most courses, and are increasingly expected to make use of computer conferencing, whether as an adjunct to other forms of support, or as the primary means of learner support to their student group. Since early 2008, the University has moved to a virtual learning environment which integrates all online tools and resources within a single interface.

Earlier research at the Open University (Price et al., 2007) described how students viewed *tutoring* and *tuition* differently. While tuition was seen as 'a more objective impersonal activity intended to meet the needs of a group and involving interpretation and assessment of a subject', tutoring was 'a more subjective and personal activity that was intended to meet the needs of individuals, where the students themselves had the greatest influence on the nature of tutor-student interactions. It was pastoral and interactive, involving supporting, counselling and mentoring students aimed at helping them grasp the big picture' (pp. 13–14).

It can be argued that distance learners need help and guidance in coping with the associated demands of this type of studying (McGivney, 2004; Yorke, 2004) and hence that the attitudes and behaviour of tutors are crucial to students' perceptions of the academic quality of courses in distance education (Richardson, Long, & Woodley, 2003). Our aim in conducting this study has been to explore tutor and student perceptions of what constitutes good tutoring in a distance-learning environment. The following analytic strategy was used:

- First, separate factor analyses were used to identify scales that reflected key constructs in the responses given by tutors and by students to a questionnaire concerning good tutoring.
- Second, cluster analyses were used to identify subgroups of tutors and subgroups of students with qualitatively different patterns of scale scores.
- Finally, discriminant analyses were used to determine the scales that contributed the most to the differences among the different clusters of tutors and students.

This analytic strategy has been used in a number of previous exploratory studies in higher education and clinical psychology (Makoe, Richardson, & Price, 2008; Richardson, 1996, 2007; Zelinski, Gilewski, & Thompson, 1980).

Method

We utilised an amended version of Gow and Kember's (1993) original questionnaire to investigate students' and tutors' conceptions of a 'good tutor'. Four of the 46 items were concerned with the use of audiovisual aids, and these were dropped as Open University tutors are not expected to provide audiovisual support materials. The 42 remaining items were supplemented by nine additional items of our own devising, and the 51 resulting items were rephrased in terms of 'a good tutor' or 'good tutoring'. The instructions followed those of Gow and Kember: the respondents were asked to indicate their level of agreement or disagreement with each item using a 5-point scale from 1 ('definitely disagree') to 5 ('definitely agree'). The midpoint (3) 'should only be used if you really find it impossible to give a definite answer'. The 51 items are shown in Appendices 1 and 2.

Courses were presented in the undergraduate programme at each of Levels 1, 2 and 3 (i.e. introductory, intermediate and honours) in each of nine major faculties. The population of students was restricted to those who were available to be surveyed under the University's procedures (which among other things prohibited students from being asked to participate in more than two surveys in any given calendar year). The resulting population was stratified by

academic level and faculty. Within each of the 27 strata, a random sample of 45 students was drawn using a computer algorithm, yielding a total sample of 1215 students. A comparable sample was sought from among the tutors who were tutoring courses at each of the levels in each of the faculties. However, limited numbers in some combinations of level and faculty meant that this sample consisted of 962 tutors.

The questionnaires were mailed to both samples in April 2006, and a reminder was sent to any non-respondents two weeks later. The survey was not anonymous, but participants were assured that their responses would be treated in complete confidence. Both the students and the tutors were provided with the addresses of websites where they could respond online if they preferred. This prompted a tutor to commend the survey in an online discussion forum for associate lecturers, which in turn elicited responses from a number of tutors who had not been sampled. However, only responses from the tutors who were contained in the original sample were included in the analysis. Thus, the investigation compared samples which were representative of students and tutors across different academic levels and disciplines.

Results and discussion

Since the data analysis was relatively complex, we discuss the results as they emerged in a single 'Results and discussion' section to assist readers in their interpretation.

Copies of the questionnaire were returned by 1083 of the respondents, reflecting an overall response rate of 49.7%. The response rate was significantly higher for the tutors (63.8%) than for the students (38.6%) ($\chi^2 = 136.65$; d.f. = 1; $p < 0.001$). The former would be considered excellent, and the latter would be considered adequate for a postal survey (Babbie, 1990, p. 182; Kidder, 1981, pp. 150–151). Only 7.0% of the respondents used the online version of the questionnaire, a figure that was identical for both tutors and students.

Among the students, the response rate was significantly higher in women (43.0%) than in men (32.8%) ($\chi^2 = 13.06$; d.f. = 1; $p < 0.001$). It also varied significantly across the nine faculties ($\chi^2 = 34.85$; d.f. = 8; $p < 0.001$), being highest in Arts and Education (47.4%)

and lowest in Business (21.5%). The respondents were significantly older (M = 44.6 years) than the nonrespondents (M = 38.9 years) (F = 74.69; d.f. = 1, 1213; $p < 0.001$). However, the response rate did not vary by the academic level of the course (χ^2 = 2.17; d.f. = 2; p = 0.34). Among the tutors, the response rate was again significantly higher in women (67.3%) than in men (58.0%) (χ^2 = 8.79; d.f. = 1; p = 0.003). However, it did not vary significantly across the faculties (χ^2 = 7.85; d.f. = 8; p = 0.35), by age (F = 1.80; d.f. = 1, 960; p = 0.18), or by the academic level of the course (χ^2 = 1.82; d.f. = 2; p = 0.40).

Of the 1083 respondents, 92 had failed to provide a response to one or more of the 51 items in the questionnaire. In most cases, these were isolated instances, and it was felt to be appropriate to regard them as items that did not apply to the respondent in question; they were therefore coded as '3' . Nevertheless, 22 (or 2.0%) of the respondents had missed four or more items, and they were dropped from further analysis. Accordingly, the final sample consisted of 1061 respondents who had provided usable sets of data.

Across the 51 items, the median response was 3 for three items, 4 for 16 items, and 5 for 32 items. In other words, most of the respondents tended to agree with most of the items. However, in a preliminary analysis, it was observed that two students tended to disagree with most of the items. Their overall scores across the factor-based scales (see below) were very low, and their profile of mean scores was the mirror-image of that of the other students. This suggests that they may simply have misconstrued the direction of the 5-point response scale. Whatever the reason, they were regarded as outliers and removed from the main analysis.

This was based on the responses given by 1059 participants, who represented 97.8% of the total number of respondents. The 457 students were aged between 21 and 81 (M = 44.6 years); 36.3% were men and 63.7% were women. The 602 tutors were aged between 23 and 77 (M = 51.5 years); 44.5% were men and 55.5% were women. A test of the homogeneity of the dispersion (variance–covariance) matrices between the students and the tutors yielded a highly significant result (F = 2.03; d.f. = 1326, 2909131; $p < 0.001$). This suggests that their responses had different factor structures, and so separate analyses were carried out on the student data and on the tutor data.

Analysis of student data

Factor analysis

A common factor analysis was carried out on the responses given by the 457 students who provided usable sets of data. A principal component analysis identified 12 components with eigenvalues greater than 1, but the eigenvalues-one rule is known to overestimate the true number of components in correlation matrix because of sampling effects (Cliff, 1988). The scree test indicated that five components should be extracted, and this was confirmed by comparison with the results of a parallel analysis of 1,000 random correlation matrices using O'Connor's (2000) program. Accordingly, principal axis factoring was used to extract five factors, and these were submitted to oblique rotation using a quartimin method. Principal axis factoring allows for the possibility of measurement error in the data, whereas oblique rotation allows for the possibility that the resulting factors are correlated with each other (Thompson, 2004, pp. 36–44, 53–56). The pattern factor matrix is presented in Appendix 1.

Loadings greater than .40 in absolute magnitude were regarded as salient for the purposes of interpretation. On that basis the rotated solution exhibited 'simple structure', in that 33 of the items showed salient loadings, and no item showed salient loadings on more than one factor. The items that showed salient loadings on each factor are listed in decreasing order of absolute magnitude of their loadings, and the factors were labelled on the basis of the content of the items with the highest loadings (see Thompson, 2004, pp. 97-98). In the following account, the 51 items are identified by their sequential order in the questionnaire.

The first factor was defined by the following items and labelled 'Critical Thinking':

48. A good tutor cultivates critical thinking.

17. A good tutor helps students to analyse a situation and display logical and rational thinking.

41. A good tutor helps students to adopt a critical approach.

46. A good tutor encourages independent learning.

7. A good tutor helps students to start thinking in a critical way.

18. A good tutor encourages students to ask questions.

47. A good tutor motivates students to learn.

13. A good tutor develops students into self-motivated learners.

36. A good tutor allows students to take responsibility for their own learning.

43. A good tutor is able to enthuse students.

31. A good tutor stimulates the interest of students in the subject matter.

37. A good tutor facilitates learning.

The second factor was defined by the following items and was labelled 'Vocational Guidance':

19. A good tutor prepares students for their future career.

33. A good tutor prepares students for their future roles.

8. A good tutor helps students to cope in the world of work

The third factor was defined by the following items and was labelled 'Subject Expertise':

32. A good tutor is an expert in their subject.

11. A good tutor knows their subject area very well.

27. A good tutor has a thorough knowledge of their discipline.

51. A good tutor keeps abreast of their field of knowledge.

44. A good tutor knows what is happening in the subject area.

The fourth factor was defined by the following items and was labelled 'Promoting Interaction':

4. A good tutor gets students to interact.

1. A good tutor spends less time giving information and more time engaging in discussion.

3. A good tutor helps students engage in learning through problem solving rather than learning through memorisation.

42. A good tutor encourages discussion among students.

The fifth factor was defined by the following items and was labelled ‘Pastoral Care’:

23. A good tutor recognises the needs of students.

12. A good tutor cares for students and understands their problems.

45. A good tutor is always sympathetic when students need help with their studies.

38. A good tutor cares for their students and is willing to help them.

10. A good tutor makes a real effort to understand the difficulties that students may be having with their work.

15. A good tutor gives helpful feedback on how students are doing.

30. A good tutor is always available when students want help.

26. A good tutor has an interest in students and is concerned for their well-being.

20. A good tutor returns marked assignments promptly.

Following Pedhazur and Schmelkin (1991, pp. 625–626), the salient items on each of the five factors were taken to define a factor-based scale, and students were assigned scores on each scale according to the mean of their responses to the relevant items. Table 1 contains descriptive statistics for the five scales. Cronbach’s (1951) coefficient alpha is shown as a measure of internal consistency. Each value would be regarded as satisfactory or better on conventional research-based criteria (Nunnally, 1978, pp. 245–246; Robinson, Shaver, & Wrightsman, 1991).

(Insert Table 1 about here)

All the factors were significantly and positively correlated with one another, and so a second-order factor analysis was carried out on the scores on the five scales. A principal component analysis identified one component with an eigenvalue greater than 1. The idea that one component should be extracted was confirmed by comparison with the results of a parallel analysis of 1,000 random correlation matrices using O’Connor’s (2000) program. Principal axis factoring was used to extract one factor, and its loadings are shown in Table 1. The second-order factor was an overarching construct of good tutoring to which each of the five scales made a salient contribution.

Cluster analysis

A hierarchical cluster analysis was carried out on the students' scores on the five scales. The method of complete linkage clustering (also known as the 'furthest-neighbour' method) was chosen because it is largely dependent on the ordinal properties of the proximity matrix; it therefore generates similar results across different measures of similarity or dissimilarity and reduces the difficulties involved in combining several different scales into a single proximity measure (Everitt, 1993, p. 71). In this case, the dissimilarity between any pair of students was defined in terms of the city-block metric (as the sum of the absolute differences between their scores on the six scales). Using artificial data sets, Overall, Gibson, and Novy (1993) found that complete linkage clustering and the city-block metric achieved better recovery of latent clusters than all other combinations of clustering methods and metrics.

The differences in fusion coefficients between successive stages in the agglomeration schedule remained small until three clusters were reduced to two, which suggested that three clusters should be identified in these data. Table 3 shows the mean scores obtained by the students in the three clusters on the five scales. A multivariate analysis of variance showed that students in the three clusters obtained significantly different scores ($F = 74.77$; d.f. = 10, 900; $p < .001$). Univariate analyses showed that they also produced significantly different scores on each of the five scales ($F \geq 7.26$; d.f. = 2, 454; $p < .001$ in each case). The differences among the three clusters were explored using the Newman-Keuls technique, which compares all pairs of means whilst protecting against the increased risk of falsely rejecting the null hypothesis (i.e. a Type I error). The results are summarized in Table 2.

(Insert Table 2 about here)

Discriminant analysis

The students' scores on the five scales were correlated with each other, and therefore simple univariate comparisons do not identify the particular scales that differentiate among the three

clusters, because some of these effects might have been an artefact resulting from the confounding among the five scales. Discriminant analysis was therefore used to predict the membership of the three clusters on the basis of the students' scores on the five scales.

Both of the discriminant functions were significant. Table 3 shows the correlations between the scale scores and the two discriminant functions. The first discriminant function showed its highest correlation with Vocational Guidance but also showed correlations larger than .40 with Promoting Interaction and Pastoral Care. The second discriminant function showed its highest (and only salient) correlation with Promoting Interaction. Neither Critical Thinking nor Subject Expertise showed salient correlations with either discriminant function. This implies that the differences on these scales in Table 2 resulted from a confounding with the other three scales. It should also be noted from Table 1 that these two scales showed the highest overall scores, and ceiling effects may have constrained their discriminative power.

(Insert Table 3 about here)

Table 4 shows the centroids of the three clusters on the two discriminant functions. A multivariate analysis of variance showed that students in the three clusters obtained significantly different scores on the two discriminant functions (F = 188.17; d.f. = 4, 906; $p <$ .001). Univariate analyses showed that they produced significantly different scores on each of the functions individually (F = 301.54 and 99.77, respectively; d.f. = 2, 454; $p <$ .001 in each case). All pairwise differences among the three clusters were significant according to the Newman-Keuls technique.

(Insert Table 4 about here)

A univariate analysis of variance found that the students in the three clusters differed in their ages (F = 9.84; d.f. = 2, 454; $p <$ .001), and pairwise comparisons using the Newman-Keuls technique showed that students in Cluster 2 tended to be younger (mean age = 43.0 years) than the students in Cluster 1 (mean age = 47.8 years) or Cluster 3 (mean age = 49.1 years), whereas the two latter groups were not significantly different from one another. The students in the three clusters were also significantly different in their gender distribution (χ^2 = 7.75; d.f. = 2; p = .02), such that Cluster 2 contained a lower proportion of men (32.4%) than

either Cluster 1 (48.1%) or Cluster 3 (44.7%). However, the students in the three clusters were not significantly different either in the level of the course they were taking ($\chi^2 = 4.70$; d.f. = 4; $p = .32$) or in the faculty of that course ($\chi^2 = 13.14$; d.f. = 16; $p = .66$).

In interpreting these results, it needs to be remembered that the students in all three clusters tended to produce high scores on both Subject Expertise and Critical Thinking, and these seem to be important aspects of the conceptions of good tutoring that are shared by all students. Nevertheless, relative to students in the other two clusters, those in Cluster 1 tended to have very low scores on Vocational Guidance and low scores on Promoting Interaction. These students expected tutors to have subject expertise and to promote critical thinking, but not to provide vocational guidance or to promote interaction among the students. This cluster seems to represent an instrumental or task-oriented conception of tutoring. It contained 11.8% of the students; they tended to be older than other students, and of the three clusters it contained the highest proportion of men.

Relative to students in the other two clusters, those in Cluster 2 tended to have high scores on Vocational Guidance. These students expected tutors to have Subject Expertise, to promote Critical Thinking but also to provide Vocational Guidance. This seems to represent a career-oriented conception of tutoring. This cluster contained 71.6% of the students; of the three clusters, it contained the highest proportion of women and also contained somewhat younger students than those in the other two clusters.

Relative to students in the other two clusters, those in Cluster 3 tended to have high scores on Promoting Interaction but low scores on Vocational Guidance. These students expected tutors to have Subject Expertise, to promote Critical Thinking but also to promote Interaction among their students. This seems to represent a student-oriented conception of tutoring. This cluster contained 16.6% of the students, and like Cluster 1 it contained a relatively high proportion of men and also tended to contain older students.

Analysis of Tutor Data

Factor analysis

A common factor analysis was carried out on the responses given by the 602 tutors who provided usable sets of data. A principal component analysis identified 10 components with eigenvalues greater than 1, but the scree test indicated that just six components should be extracted, and this was confirmed by comparison with the results of a parallel analysis of 1,000 random correlation matrices using O'Connor's (2000) program. Accordingly, principal axis factoring was used to extract six factors, and these were submitted to oblique rotation using a quartimin method. The pattern factor matrix is presented in Appendix 2.

Once again, loadings greater than .40 in absolute magnitude were regarded as salient for the purposes of interpretation. The rotated solution exhibited 'simple structure', in that 32 of the items showed salient loadings, and no item showed salient loadings on more than one factor. The items that showed salient loadings on each factor are listed in decreasing order of absolute magnitude of their loadings, and the factors were labelled on the basis of the content of the items with the highest loadings.

The first factor was defined by the following items and labelled 'Active Learning':

42. A good tutor encourages discussion among students.

49. A good tutor encourages participation from the students to make learning more engaging.

48. A good tutor cultivates critical thinking.

46. A good tutor encourages independent learning.

43. A good tutor is able to enthuse students.

47. A good tutor motivates students to learn

41. A good tutor helps students to adopt a critical approach.

37. A good tutor facilitates learning.

4. A good tutor gets students to interact.

39. A good tutor provides an environment for the students to learn.

18. A good tutor encourages students to ask questions.

36. A good tutor allows students to take responsibility for their own learning.

50. A good tutor puts students in touch with fellow students.

The second factor was defined by the following items and was labelled ‘Transmitting Knowledge’:

34. Good tutoring is the transmission of knowledge.

16. A good tutor passes on what they know to the students.

14. A good tutor teaches students the basic knowledge of their speciality.

24. A good tutor imparts information to their students.

The third factor was defined by the following items and was labelled ‘Subject Expertise’:

27. A good tutor has a thorough knowledge of their discipline.

51. A good tutor keeps abreast of their field of knowledge.

11. A good tutor knows their subject area very well.

44. A good tutor knows what is happening in the subject area.

32. A good tutor is an expert in their subject.

The fourth factor was defined by the following items and was labelled ‘Pastoral Care’:

38. A good tutor cares for their students and is willing to help them.

12. A good tutor cares for students and understands their problems.

26. A good tutor has an interest in students and is concerned for their well-being.

45. A good tutor is always sympathetic when students need help with their studies.

23. A good tutor recognises the needs of students.

The fifth factor was defined by the following items and was labelled ‘Vocational Guidance’:

19. A good tutor prepares students for their future career.

33. A good tutor prepares students for their future roles.

8. A good tutor helps students to cope in the world of work.

The sixth factor was defined by the following items and was labelled ‘Supporting Learning’:

9. A good tutor guides students in the process of learning so that they actually learn instead of just memorising.

17. A good tutor helps students to analyse a situation and display logical and rational thinking.

The salient items on each of the six factors were taken to define a factor-based scale, and the tutors were assigned scores on each scale according to the mean of their responses to the relevant items. Table 5 contains descriptive statistics for the six scales, and Cronbach’s (1951) coefficient alpha is again shown as a measure of internal consistency. Except in the case of the value obtained for Supporting Learning, each value would be regarded as satisfactory or better on conventional research-based criteria (Nunnally, 1978, pp. 245–246; Robinson et al., 1991).

(Insert Table 5 about here)

All the factors were significantly and positively correlated with one another, and so a second-order factor analysis was carried out on the scores on the six scales. A principal component analysis identified one component with an eigenvalue greater than 1. The idea that one component should be extracted was supported by Cattell’s (1966) scree test and confirmed by comparison with the results of a parallel analysis of 1,000 random correlation matrices using O’Connor’s (2000) program. Principal axis factoring was used to extract one factor, and its loadings are shown in Table 5. The second-order factor was an overarching construct of good tutoring to which each of the six scales made a salient contribution.

Cluster analysis

A hierarchical cluster analysis was carried out on the tutors’ scores on the six scales, once again using complete linkage clustering and the city-block metric. The differences in fusion

coefficients between successive stages in the agglomeration schedule remained small until five clusters were reduced to four, which suggested that five clusters should be identified in these data. Table 6 shows the mean scores obtained by the tutors in the five clusters on the six scales. A multivariate analysis of variance showed that tutors in the five clusters obtained significantly different scores ($F = 59.17$; d.f. = 24, 2066; $p < .001$). Univariate analyses showed that they also produced significantly different scores on each of the six scales ($F \geq 25.91$; d.f. = 4, 597; $p < .001$ in each case). The differences among the five clusters were explored using the Newman-Keuls technique, and the results are summarized in Table 6.

(Insert Table 6 about here)

Discriminant analysis

Discriminant analysis was used to predict the membership of the five clusters on the basis of the tutors' scores on the six scales. All four of the discriminant functions were significant. Table 7 shows the correlations between the scale scores and the four discriminant functions. The first discriminant function showed its highest correlation with Transmitting Knowledge but also showed a correlation larger than .40 with Subject Expertise. The second discriminant function showed its highest correlations with Active Learning, Supporting Learning and Pastoral Care, although it also showed a negative correlation with Transmitting Knowledge; it was interpreted as measuring Student Support. The third function showed its highest correlation with Subject Expertise, although it also showed a negative correlation with Pastoral Care. The fourth function showed its highest correlations with Vocational Guidance (positive) and Active Learning (negative), and it was interpreted as measuring Career Development.

(Insert Table 7 about here)

Table 8 shows the centroids of the five clusters on the four discriminant functions. A multivariate analysis of variance showed that tutors in the five clusters obtained significantly different scores on the four discriminant functions ($F = 92.72$; d.f. = 16, 1815; $p < .001$).

Univariate analyses showed that they produced significantly different scores on each of the functions individually (F = 344.29, 82.21, 24.69 and 5.61, respectively; d.f. = 4, 597; $p < .001$ in each case). The differences among the five clusters were explored using the Newman-Keuls technique, and the results are summarised in Table 8.

(Insert Table 8 about here)

A univariate analysis of variance found that the tutors in the five clusters differed in their ages (F = 2.67; d.f. = 4, 588; p = .03), but none of the pairwise comparisons among the five clusters was significant. The tutors in the five clusters were not significantly different in their gender distribution (χ^2 = 8.26; d.f. = 4; p = .08) or the level of the course that they were tutoring (χ^2 = 9.17; d.f. = 8; p = .33), but they were significantly different in the faculty of the course (χ^2 = 47.25; d.f. = 28; p = .01).

In interpreting these results, it should be noted that the differences among the five clusters in their scores on Career Development were fairly slight and may have achieved statistical significance only because of the large sample size. It should also be noted from Table 5 that the scale concerned with Vocational Guidance showed the lowest overall score, and so this does not seem to be an important aspect of the conceptions of good tutoring held by Open University tutors. Equally, the tutors in all five clusters tended to produce high scores on both Active Learning and Supporting Learning, and these seems to be important aspects of the conceptions of good tutoring that are shared by all tutors.

Nevertheless, relative to tutors in the other four clusters, those in Cluster 1 tended to have high scores on Student Support and low scores on Transmitting Knowledge and Subject Expertise. They expected tutors to be concerned with promoting learning through supporting students rather than through their grasp of the subject matter. This cluster seems to represent a student-oriented conception of tutoring. It contained 22.2% of the tutors, who were more likely to be tutoring courses in the Social Sciences, Health and Social Care or the Sciences.

Relative to tutors in the other four clusters, those in Cluster 2 tended to have high scores on Transmitting Knowledge. They expected tutors to be concerned with promoting learning through knowledge transfer rather than with other aspects of tutoring. This cluster

seems to represent a knowledge-oriented conception of tutoring. It contained 49.7% of the tutors, who were more likely to be tutoring courses in the Arts.

Relative to tutors in the other four clusters, those in Clusters 3 and 4 obtained low scores on Transmitting Knowledge and Student Support. Although they expected tutors to be concerned with promoting learning, they had no specific expectations about how this might be achieved. The tutors in Cluster 3 obtained the lowest scores on Student Support, and so this cluster seems to represent an impersonal conception of tutoring. It contained 10.3% of the tutors, who were more likely to be tutoring courses in Technology. Those in Cluster 4 obtained the lowest scores on Transmitting Knowledge, and this cluster seems to represent a task-oriented conception of tutoring. It contained 15.1% of the tutors, who were more likely to be tutoring courses in Business Studies and Mathematics.

Relative to tutors in the other four clusters, those in Cluster 5 obtained very low scores on Transmitting Knowledge but very high scores on Student Support and Subject Expertise. They expected tutors to be concerning with promoting learning by delivering subject matter in a way that would be personally meaningful to the students. This cluster seems to represent a profession-oriented conception of tutoring. It contained just 2.7% of the tutors, who were more likely to be tutoring courses in Education.

Comparisons between Students and Tutors

The questionnaire responses produced by the students and tutors generated different factor structures, and hence they are not strictly commensurable in their conceptions of tutoring. There was only a very broad similarity between the students' Critical Thinking scale and the tutor's Active Learning scale. Moreover, the students' responses yielded a scale concerned with Promoting Interaction that was not apparent in the tutors' responses, while the tutors' responses yielded scales concerned with Supporting Learning and Transmitting Knowledge that were not apparent in the students' responses. Nevertheless, in two cases, scales produced by the students and the tutors had an identical composition (Subject Expertise and Vocational

Guidance), and in a third case (Pastoral Care) only one item differed between the two scales. It is therefore appropriate to compare the scores obtained on these three scales. Univariate tests showed that the students obtained higher scores than the tutors on both Subject Expertise ($F = 99.83$; d.f. = 1, 1057; $p < .001$) and Vocational Guidance ($F = 10.77$; d.f. = 1, 1057; $p = .001$), but that there was no difference in their scores on Pastoral Care ($F = 0.28$; d.f. = 1, 1057; $p = .60$).

Conclusion

This study found some interesting similarities and differences between students' and tutors' conceptions of tutoring. The responses produced by both students and tutors yielded three factors in which effective tutoring encompassed subject expertise, vocational guidance, and pastoral care, respectively. There was also a broad similarity between the students' conception of tutoring as promoting critical thinking and the tutors' conception of tutoring as promoting active learning. This confirms the suggestion that we made at the beginning of this paper, that tutors could encourage greater retention if students were supported in their study strategies and academic integration. Nevertheless, the responses produced by the tutors yielded more factors and more clusters than the responses produced by the students. This could be taken to suggest that the tutors' conceptions of tutoring were more elaborated than those of the students. Among other things, this could mean that aspects of tutoring that are salient for tutors may actually be of little consequence for their students.

There were differences, too, in the nature of the clusters and in the extent to which different conceptions of tutoring varied with age, gender and subject area. The responses produced by the students yielded a conception of tutoring based on promoting interaction, suggesting that they were looking to their tutors to promote their social integration. In contrast, the responses produced by the tutors yielded conceptions of tutoring based on supporting learning and transmitting knowledge, respectively. Younger students and female students wanted more vocational guidance from their tutors than older students, whereas

older students tended to have more task-oriented and student-oriented conceptions of tutoring. Students' conceptions of tutoring did not differ from one discipline to another.

However, the tutors in different disciplines had differing conceptions, so that Social Science, Social Care and Science tutors had high scores on Student Support and low scores on Transmitting Knowledge and Subject Expertise, which we see as a student-oriented conception. Arts tutors had high scores on Transmitting Knowledge and a knowledge-oriented conception. Technology tutors had the lowest score on Student Support and Transmitting Knowledge and we have defined this as an impersonal concept of tutoring. The Business Studies and Mathematics tutors had the lowest score on Transmitting Knowledge and were more task oriented. Education Tutors had very low scores on Transmitting Knowledge, but high scores on Student Support and Subject Expertise; they were also more profession oriented.

Why should tutors in different disciplines have different conceptions of tutoring? One possible explanation is that the epistemologies of particular disciplines promote different conceptions of tutoring in those disciplines. Surveys at campus-based institutions in the United States have found that teachers' beliefs about teaching vary with their beliefs about the nature of the discipline that they are teaching. The latter beliefs in turn seem to have a direct influence on teaching practices (see Braxton & Hargens, 1996; Stark, 2000; Stark, Lowther, Bentley, & Martens, 1990; Stark, Lowther, Ryan, & Genthon, 1988). This idea would be worth exploring in the context of tutoring in distance education.

Conversely, it could be that our results are mainly applicable to the Open University's style of tutoring, and it would be useful to try to replicate them in campus-based institutions, where it is typically assumed that academic tutoring and personal tutoring are distinct roles. Even so, our findings provide a basis for thinking about the diversity of roles taken by tutors and the diversity of expectations on the part of their students. Our study suggests that both tutors and students would benefit from having a better appreciation of the importance of support in facilitating learning. Further research is needed in this area on whether disciplines (or contexts) influence the beliefs that tutors have about effective tutoring. More generally, it

would be interesting to compare students' and tutors' conceptions of tutoring with measures of tutor effectiveness and with measures of student satisfaction and performance.

Acknowledgements

We are grateful to Janet Macdonald and Pete Cannell for discussions that prompted this study and to Keith Trigwell for his comments on an earlier account of the findings. We are also grateful to Pete Russell and Mary Kirby in the Open University's Student Services for identifying the tutors surveyed in this study, to Nick Haycox for identifying the samples of students for the questionnaire survey and to his staff in the Open University's Survey Office for preparing and distributing the questionnaires and processing the responses.

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Appendix 1. Pattern factor matrix for the student data

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1. A good tutor spends less time giving information and more time engaging in discussion.	-.06	.01	.04	**.56**	.01
2. A good tutor uses the question-answer approach because it is more active and not so dull.	.05	.06	.01	.34	.06
3. A good tutor helps students engage in learning through problem solving rather than learning through memorisation.	.17	-.06	-.02	**.50**	-.03
4. A good tutor gets students to interact	.06	.08	.11	**.59**	.01
5. A good tutor gives a lot of time to commenting on students' work.	.11	.04	.02	.06	.27
6. A good tutor tries to help students to learn.	.27	.09	-.03	.01	.24
7. A good tutor helps students to start thinking in a critical way	**.61**	-.10	-.02	.07	.08
8. A good tutor helps students to cope in the world of work.	.00	.70	-.06	.07	-.01
9. A good tutor guides students in the process of learning so that they actually learn instead of just memorising.	.38	.07	.00	.16	.13
10. A good tutor makes a real effort to understand the difficulties that students may be having with their work.	-.03	.02	-.01	.06	**.58**
11. A good tutor knows their subject area very well.	-.13	-.02	**.64**	.08	.05
12. A good tutor cares for students and understands their problems.	-.01	.13	-.08	.04	**.66**
13. A good tutor develops students into self-motivated learners.	**.46**	.16	-.04	-.03	.20
14. A good tutor teaches students the basic knowledge of their speciality.	.15	.27	.15	-.17	.17
15. A good tutor gives helpful feedback on how students are doing	.22	-.24	.02	.00	**.53**
16. A good tutor passes on what they know to the students	.21	.24	.19	-.27	.23
17. A good tutor helps students to analyse a situation and display logical and rational thinking	**.65**	.02	.11	-.09	.01
18. A good tutor encourages students to ask questions	**.51**	.06	.02	.15	.10
19. A good tutor prepares students for their future career	.10	**.85**	-.04	.00	-.03
20. A good tutor returns marked assignments promptly	.02	-.06	.04	.06	**.43**
21. A good tutor guides students in learning instead of dictating what they should learn.	.25	.07	.06	.26	.08
22. A good tutor helps students to feel confident in their chosen field.	.22	.39	-.02	.06	.16
23. A good tutor recognises the needs of students	.07	.03	-.05	.07	.66
24. A good tutor imparts information to their students.	.26	.06	.16	-.25	.31
25. A good tutor helps students to feel part of the University community.	.14	.35	-.01	.21	.25
26. A good tutor has an interest in students and is concerned for their well-being.	.13	.23	-.02	.12	**.44**
27. A good tutor has a thorough knowledge of their discipline.	.14	-.21	**.64**	.02	.02
28. A good tutor is a resource in terms of sharing information.	.30	.14	.28	-.08	.06
29. A good tutor encourages lifelong learning	.39	.34	-.10	.05	.09
30. A good tutor is always available when students want help	-.09	.23	.04	-.06	**.50**
31. A good tutor stimulates the interest of students in the subject matter	.43	.11	.12	.02	.12
32. A good tutor is an expert in their subject .	-.14	.11	**.69**	.05	-.04
33. A good tutor prepares students for their future roles.	.00	**.80**	.05	.11	.02
34. Good tutoring is the transmission of knowledge.	.11	.35	.27	-.29	.13
35. A good tutor gives lots of help before assignments.	-.06	.31	.16	-.18	.35
36. A good tutor allows students to take responsibility for their own learning.	**.46**	-.03	-.02	.17	-.02
37. A good tutor facilitates learning.	**.40**	-.07	.13	.03	.24
38. A good tutor cares for their students and is willing to help them	.04	.10	.02	.01	.64
39. A good tutor provides an environment for the students to learn	.22	.35	.03	.17	.08

40. A good tutor contacts students regularly to check on their progress.	-.09	.39	.08	.04	.24
41. A good tutor helps students to adopt a critical approach	**.64**	.06	.02	.08	-.06
42. A good tutor encourages discussion among students	.14	.12	.12	**.45**	.17
43. A good tutor is able to enthuse students.	**.44**	.06	.20	.03	.11
44. A good tutor knows what is happening in the subject area	.28	.02	**.55**	.00	-.07
45. A good tutor is always sympathetic when students need help with their studies.	-.12	.03	.16	-.07	**.64**
46. A good tutor encourages independent learning.	**.61**	-.03	.02	.03	.04
47. A good tutor motivates students to learn.	**.51**	.15	.04	.00	.14
48. A good tutor cultivates critical thinking.	**.78**	.05	.10	.05	-.17
49. A good tutor encourages participation from the students to make learning more engaging	.32	.16	.14	.32	.12
50. A good tutor puts students in touch with fellow students	.02	.23	.12	.29	.26
51. A good tutor keeps abreast of their field of knowledge.	.24	-.09	**.61**	.02	.01
Percentage of variance explained	19.45	14.54	11.13	6.90	19.38
Factor intercorrelations					
Factor 1	1.00	.30	.38	.35	.50
Factor 2	.30	1.00	.24	.12	.53
Factor 3	.38	.24	1.00	.03	.40
Factor 4	.35	.12	.03	1.00	.14
Factor 5	.50	.53	.40	.14	1.00

Note. Loadings greater than .40 in absolute magnitude are shown in bold font.

Appendix 2. Pattern factor matrix for the tutor data

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
1. A good tutor spends less time giving information and more time engaging in discussion.	.35	-.21	-.02	-.03	.19	.02
2. A good tutor uses the question-answer approach because it is more active and not so dull.	.13	.12	-.04	.03	.14	.09
3. A good tutor helps students engage in learning through problem solving rather than learning through memorisation.	.19	-.13	-.06	-.02	.17	.32
4. A good tutor gets students to interact	**.49**	-.05	-.02	-.01	.14	-.05
5. A good tutor gives a lot of time to commenting on students' work.	.06	.12	-.07	.18	-.04	.11
6. A good tutor tries to help students to learn.	.02	.13	-.00	.06	.05	.37
7. A good tutor helps students to start thinking in a critical way	.35	.03	.14	-.14	-.04	.39
8. A good tutor helps students to cope in the world of work.	-.12	.12	-.03	.04	**.76**	.15
9. A good tutor guides students in the process of learning so that they actually learn instead of just memorising.	.09	-.03	.02	.12	.21	.47
10. A good tutor makes a real effort to understand the difficulties that students may be having with their work.	-.02	.00	-.02	.36	.08	.34
11. A good tutor knows their subject area very well.	-.14	.05	**.72**	.09	-.10	.01
12. A good tutor cares for students and understands their problems.	-.02	.00	.06	**.71**	.03	.01
13. A good tutor develops students into self-motivated learners.	.29	.15	.06	.12	.08	.27
14. A good tutor teaches students the basic knowledge of their speciality.	.02	**.55**	.06	-.07	.12	.16
15. A good tutor gives helpful feedback on how students are doing	.00	.10	.09	.20	-.09	.37
16. A good tutor passes on what they know to the students	-.05	**.57**	.14	.07	.09	.10
17. A good tutor helps students to analyse a situation and display logical and rational thinking	.16	.21	.09	.04	-.02	**.45**
18. A good tutor encourages students to ask questions	**.45**	.05	.03	.12	-.05	.21
19. A good tutor prepares students for their future career	-.10	.16	.13	.06	**.77**	.10
20. A good tutor returns marked assignments promptly	-.07	.07	.12	.33	-.02	.21
21. A good tutor guides students in learning instead of dictating what they should learn.	.17	-.14	.12	.14	.19	.28
22. A good tutor helps students to feel confident in their chosen field.	.10	-.03	.13	.34	.23	.09
23. A good tutor recognises the needs of students	.20	-.07	.07	**.51**	-.01	.11
24. A good tutor imparts information to their students.	-.08	**.54**	.08	.11	-.05	.06
25. A good tutor helps students to feel part of the University community.	.25	.07	.07	.30	.21	-.10
26. A good tutor has an interest in students and is concerned for their well-being.	.07	-.10	.04	**.64**	.12	.03
27. A good tutor has a thorough knowledge of their discipline.	-.15	.00	**.78**	.14	-.05	.00
28. A good tutor is a resource in terms of sharing information.	.22	.15	.23	.14	.12	.02
29. A good tutor encourages lifelong learning	.36	-.07	.14	.20	.18	.09
30. A good tutor is always available when students want help	.07	.17	.03	.40	.16	-.19
31. A good tutor stimulates the interest of students in the subject matter	.39	.10	.16	.22	-.19	.12
32. A good tutor is an expert in their subject .	-.07	.24	**.57**	.05	.08	-.09
33. A good tutor prepares students for their future roles.	.00	.09	.14	.07	**.76**	-.06
34. Good tutoring is the transmission of knowledge.	.05	**.72**	.09	-.13	.13	-.13
35. A good tutor gives lots of help before assignments.	.15	.33	.04	.12	.17	-.16
36. A good tutor allows students to take responsibility for their own learning.	**.42**	-.10	.06	.03	.02	.21
37. A good tutor facilitates learning.	**.50**	-.06	.01	.17	-.01	.21

38. A good tutor cares for their students and is willing to help them	.00	-.07	.01	**.78**	-.00	-.03
39. A good tutor provides an environment for the students to learn	**.47**	.09	-.02	.03	.19	-.12
40. A good tutor contacts students regularly to check on their progress.	.23	.08	.09	.28	.23	-.19
41. A good tutor helps students to adopt a critical approach	**.50**	-.02	.22	.01	-.12	.28
42. A good tutor encourages discussion among students	**.75**	.00	.07	.03	-.05	-.06
43. A good tutor is able to enthuse students.	**.52**	.19	.01	.16	-.18	.04
44. A good tutor knows what is happening in the subject area	.16	-.02	**.71**	-.09	.08	-.04
45. A good tutor is always sympathetic when students need help with their studies.	.04	.13	.06	**.51**	-.07	-.04
46. A good tutor encourages independent learning.	**.54**	.01	.08	.04	-.13	.25
47. A good tutor motivates students to learn.	**.51**	.14	.04	.14	-.05	.16
48. A good tutor cultivates critical thinking.	**.56**	.02	.18	-.04	-.12	.34
49. A good tutor encourages participation from the students to make learning more engaging	**.65**	-.01	.03	.11	-.03	.01
50. A good tutor puts students in touch with fellow students	**.41**	.16	-.01	.12	.11	-.13
51. A good tutor keeps abreast of their field of knowledge.	.15	-.04	**.75**	-.13	.11	-.01
Percentage of variance explained	17.03	8.31	11.99	15.08	8.12	9.45
Factor intercorrelations						
Factor 1	1.00	.11	.29	.40	.30	.39
Factor 2	.11	1.00	.35	.38	.18	.08
Factor 3	.29	.35	1.00	.37	.16	.21
Factor 4	.40	.38	.37	1.00	.25	.30
Factor 5	.30	.18	.16	.25	1.00	.02
Factor 6	.39	.08	.21	.30	.02	1.00

Note. Loadings greater than .40 in absolute magnitude are shown in bold font.

Table 1. Descriptive statistics of students' scale scores.

Scale	Mean	Standard deviation	Coefficient alpha	Factor loading
Critical Thinking	4.45	0.47	.89	.82
Vocational Guidance	3.18	1.06	.87	.54
Subject Expertise	4.59	0.45	.79	.50
Promoting Interaction	4.11	0.64	.66	.46
Pastoral Care	4.23	0.57	.85	.75

Note. $N = 457$. Scale scores range from 1 to 5.

Table 2. Mean scale scores of students in three clusters.

Scale	Cluster 1 (n = 54)	Cluster 2 (n = 327)	Cluster 3 (n = 76)
Critical Thinking	3.99[a]	4.55[b]	4.35[c]
Vocational Guidance	2.16[a]	3.67[b]	1.80[c]
Subject Expertise	4.48[a]	4.64[b]	4.45[a]
Promoting Interaction	3.06[a]	4.24[b]	4.26[b]
Pastoral Care	3.80[a]	4.38[b]	3.90[a]

Note. Scale scores range from 1 to 5. Pairs of mean scores on the same scale with the same superscript are not significantly different according to *post hoc* tests using the Newman-Keuls technique. All other pairs on the same scale are significantly different from each other.

Table 3. Correlation coefficients between students' scale scores and discriminant functions.

Scale	Function 1	Function 2
Critical Thinking	.33	.29
Vocational Guidance	.94	–.32
Subject Expertise	.15	–.04
Promoting Interaction	.41	.88
Pastoral Care	.40	.03

Table 4. Centroids of three clusters of students on two discriminant functions.

Scale	Cluster 1 (n = 54)	Cluster 2 (n = 327)	Cluster 3 (n = 76)
Vocational Guidance	–2.00	0.72	–1.69
Promoting Interaction	–1.39	–0.03	1.12

Note. All pairs of mean scores on the same scale are significantly different according to *post hoc* tests using the Newman-Keuls technique.

Table 5. Descriptive statistics of tutors' scale scores.

Scale	Mean	Standard deviation	Coefficient alpha	Factor loading
Active Learning	4.49	0.43	.87	.69
Transmitting Knowledge	3.63	0.77	.75	.55
Subject Expertise	4.25	0.60	.83	.58
Pastoral Care	4.25	0.56	.81	.69
Vocational Guidance	2.98	0.96	.88	.52
Supporting Learning	4.61	0.49	.53	.60

Note. $N = 602$. Scale scores range from 1 to 5.

Table 6. Mean scale scores of tutors in five clusters.

Scale	Cluster 1 (n = 134)	Cluster 2 (n = 299)	Cluster 3 (n = 62)	Cluster 4 (n = 91)	Cluster 5 (n = 16)
Active Learning	4.58[a]	4.66[a]	4.16[b]	3.98[c]	4.62[a]
Transmitting Knowledge	3.09[a]	4.19[b]	3.57[c]	2.92[a]	2.09[d]
Subject Expertise	3.93[a]	4.59[b]	4.13[c]	3.63[d]	4.68[b]
Pastoral Care	4.35[a]	4.49[a]	3.76[b]	3.70[b]	4.01[c]
Vocational Guidance	2.92[a]	3.28[a]	2.23[b]	2.52[b]	3.23[a]
Supporting Learning	4.63[a]	4.81[a]	4.17[b]	4.15[b]	4.81[a]

Note. Scale scores range from 1 to 5. Pairs of mean scores on the same scale with the same superscript are not significantly different according to *post hoc* tests using the Newman-Keuls technique. All other pairs on the same scale are significantly different from each other.

Table 7. Correlation coefficients between the tutors' scale scores and discriminant functions.

Scale	Function 1	Function 2	Function 3	Function 4
Active Learning	.37	.64	–.15	–.50
Transmitting Knowledge	.78	–.44	–.24	.28
Subject Expertise	.49	.18	.76	–.01
Pastoral Care	.37	.48	–.44	.00
Vocational Guidance	.21	.31	–.02	.69
Supporting Learning	.34	.55	–.04	.25

Table 8. Centroids of five clusters of tutors on four discriminant functions.

Function	Cluster 1 (n = 134)	Cluster 2 (n = 299)	Cluster 3 (n = 62)	Cluster 4 (n = 91)	Cluster 5 (n = 16)
Transmitting Knowledge	–1.04[a]	1.44[b]	–0.65[a]	–2.38[c]	–2.11[c]
Student Support	0.82[a]	–0.01[b]	–1.32[c]	–0.68[d]	2.36[e]
Subject Expertise	–0.43[a]	0.03[a,b]	0.38[b]	–0.05[a,b]	2.00[c]
Career Development	–0.16[a,b]	0.06[a,b]	–0.41[a]	0.29[b]	0.05[a,b]

Note. Pairs of mean scores on the same scale with the same superscript are not significantly different according to *post hoc* tests using the Newman-Keuls technique. All other pairs on the same scale are significantly different from each other.