



## ELEMENTS OF ONLINE TEACHER BEHAVIOUR THAT LEAD TO STUDENT SATISFACTION

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### Summary

*Research on online learning has demonstrated a positive correlation between student – teacher interaction and student satisfaction ((Shea, Fredericksen, Pickett, & Pelz, 2004). The research presented in this paper aims at acquiring a better understanding of the relationship between specific pedagogical dimensions of online teacher behaviour and student satisfaction. A scoring guideline for teacher messages was developed which contained 10 pedagogical dimensions. 249 messages were scored, and the mean length and pedagogical complexity of the messages were calculated. Two measures were used for student satisfaction; a student appraisal on a scale from 1-10, and the 14 item Support By Teacher scale (SBT).*

*The scores on the pedagogical dimensions, mean length of the messages and mean pedagogical complexity of the messages were used to calculate correlation with the satisfaction scores. In this small sample of ten online teachers the results suggest that students value teachers who craft longer and more pedagogically complex messages.*

*Four pedagogical dimensions of online teaching behaviour were found to be significantly and positively related to student satisfaction with teacher behaviour: multiple acknowledgement, personality, summary/repetition and content.*

*We will make use of these findings to augment our coaching and teaching of online teachers.*

### Introduction

Research has shown that in online courses student-teacher interaction is positively related to student satisfaction (Shea, Fredericksen, Pickett, & Pelz, 2004). This is an important issue because student satisfaction may prevent attrition of students (Levy, 2007). Interaction with the teacher can diminish the transactional distance that is seen as a problematic characteristic of online learning (Arbaugh & Hwang, 2006; Moore, 1973; Stein, Wanstreet, Calvin, Overtoom, & Wheaton, 2005) and thereby reduce the risk of attrition.

In the literature there seems to be consensus about the fact that online teaching behaviour differs from regular teaching behaviour (Conceição, 2006; Coppola, Hiltz & Roter, 2001; Easton, 2003) and there is abundant and complex advice about how to teach online (e.g. Bender, 2003; Busch & Mayer, 2002; Collison, Elbaum, Haavind & Tinker, 2000; Pallof & Pratt, 2003, 2007). Most of this advice stems from the practice of online teaching. The

prescribed behaviours seem rather complex to perform for beginning online teachers and there is no detailed information about the relative importance and effectiveness of the many behavioural components that are at stake when teaching online. This complexity may well result in uncertainty and quality problems in beginning online teachers.

Blignaut and Trollip (2003) recognized this lack of data and did exploratory research using content analysis to analyze the messages of 18 instructors. They developed a taxonomy of teaching behaviours that is shown in table 1.

*Table 1 Blignaut and Trollip taxonomy of teaching behaviours*

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<i>Criteria</i>
Administrative (with no academic content)
Affective (with no academic content)
Other (with no academic content)
Corrective (with no academic content)
Informative (with academic content)
Socratic (with academic content)

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After scoring the messages Blignaut and Trollip (ib.) conducted in depth interviews with faculty and students to verify their findings. They found that instructors manifested very different online teaching styles. Some teachers had a style that was characterized by a high percentage of affective messages, others were more cognitively oriented. From the interviews it became clear that students feel they need both types of teacher interventions. Other elements of the taxonomy that were valued by students were feedback when the cognitive content of student messages went off track and administrative and organisational messages. More ambivalent reactions were generated by off task messages and messages containing Socratic questioning. This last finding is particularly interesting because of the fact that Socratic questioning is often emphasised as an important aspect of online teaching behaviour (e.g. Bender, 2003; Busch & Mayer, 2002; Collison, Elbaum, Haavind & Tinker, 2000).

The research on online teaching can profit from the fact that much online teaching behaviour is in written form and can easily be observed. Content analysis opens the possibility of relating concrete and measurable aspects of teacher behaviour to (aspects) of student satisfaction, student (perceived) learning and teacher satisfaction. Such a line of research may in the future yield clear and concrete guidelines for online teachers.

#### Research context

Windesheim is an institution for higher education in the Netherlands. Part of this institution is the School of Education. The school of education delivers an online diploma course 'master in Special Educational Needs'. This online diploma course is the equivalent of an existing regular f2f course. Both the regular and the e-learning version are a two year part-time course (20 study hours per week). The online course has started for the first time in September 2007. It has attracted about 40-50 students per year since its start. Eleven teachers were involved in teaching ten different eight-week e-learning modules centred on the topic of learning disabilities.

To create an attractive and effective learning environment for students and to avoid excessive attrition the course design has been based on four main design principles: Structure, Interaction among students, Direct instruction and Teacher behaviour. Online discussion and the moderation thereof are central to the design of the online learning environment; the discussions take place in small subgroups of 4-8 students.

Very limited training time was available for future online teachers. We used the guidelines formulated by Collison et al. (2000) and Bender (2003) as a start for the development of the training. Given the limited training time we felt the need to simplify the guidelines. This

resulted in a short manual for online teaching with guidelines and examples of moderating behaviour. An overview of the teaching elements described in the manual is provided in table 2.

The research presented in this paper aims at acquiring a better understanding of the relationship between teacher behaviour and student satisfaction. The research question the paper tries to answer is which different aspects of teaching behaviour are related to student satisfaction.

*Table 2. Windesheim master SEN: overview of pedagogical guidelines for online teachers*

<i>Teacher tasks</i>	<i>Teacher behaviour</i>	<i>Teaching tools</i>
Is visibly present in the student discussions	Regular log in, regular posting; three times a week	Messages in the discussionboards
Activates inactive students	Sends carefully crafted e-mails to inactive students	E-mails (not visible in the discussionboards)
Creates a warm and safe environment	Formulates carefully and respectfully. Shows positive affect and personality.	Voices and tones (Collison et al., 2000), humour, empathy
Provides collective feedback	Directs feedback to the group, not to individuals	Dutch second person plural pronoun ('jullie') is used while addressing the feedback
Clarifies tasks and demands	Explains and repeats elements of the course structure (tasks, demands, schedule)	Messages Tasks, demands and schedule
Helps students to move the cognitive discussion forward, repairs off track	Mentions several students in one message, repeats / summarizes their contribution without providing individual feedback. Weaves their messages together and moves the discussion further from that point.	Content that is contained in the module Own knowledge of the content subject Summarizing Socratic questioning Examples, metaphors Voices and tones (ib.), humour, empathy

## Methodology

To gather data on teacher behaviour we conducted a content analysis of the messages of the teachers to students. Data on student satisfaction were collected through an online survey administered to the students.

## Content analysis

To be able to conduct the content analysis we developed a scoring guideline that contains ten pedagogical dimensions of online teaching behaviour. The pedagogical dimensions were inspired by the work of Collison et al. (2000), by our manual for teachers, by the taxonomy of Blignaut and Trollip (2003) and by an inspection of the 249 messages that are the subject of this study. This inspection revealed that there were characteristics in the teacher messages that we had advised against in the manual. This concerned the fact that individual feedback was frequently found. Both positive and negative feedback are thought of as a risk in an online setting (Collison, 2000, p. 37). We decided to score these as two separate categories. The scoring guidelines have been refined in discussion with a second scorer. A simplified version of the guideline is presented in table three.

*Table 3: Dimensions of online teaching behaviour*

1. Content	The teacher uses content to lead the discussion in the right direction, provides explanation and examples, direct instruction
2. Multiple acknowledgement	Mentions more than one student name and summarizes or repeats (aspects of) what these persons have contributed to the discussion.
3. Summary / repetition	Summarizes or repeats what the group has contributed (with or without the use of names)
4. Personality / emotion/ affective	Shows own emotions, gives an empathic reaction, humour
5. Organisation	Explains the course structure, the demands, the tasks, structures the learning process
6. Questions	Poses questions in order to further knowledge construction and understanding, Socratic questioning
7. Positive individual feedback	Positive feedback addressed to an individual
8. Negative individual feedback	(mild) Criticism addressed to an individual
9. Collective feedback	Feedback addressed to the group.
10. Sorry	A message that expresses sorry about an event in the platform

We analyzed the content on message level. Per message multiple teaching dimensions could be scored. A particular dimension could only be scored once per message in order to optimize (interscorer) reliability and to diminish the complexity of the analysis. Each message contained at least one teaching dimension. Two dimensions show overlap: multiple acknowledgement and summary / repetition. If both were applicable both were scored. We did this because we had a specific interest in the function of the use of names (dimension Multiple acknowledgement). In addition we counted the number of words per message. For the content analysis we used the modules about which we had collected data on student satisfaction. In these modules we analyzed all teacher messages in the discussions that were predefined as discussion tasks in the original module design. We analyzed the messages of ten different online teachers in six different modules. Per module all teacher messages in three to six discussions were examined. In total 249 messages were analyzed. All the teachers involved are female. Eight out of the ten teachers are very experienced in regular teaching. Two are beginning teachers in higher education.

#### Student survey: 'Support By Teacher' (SBT)

The survey that we used contained 14 questions about components of teaching behaviour. The instrument was a three point Likert type of instrument (1=no, 2=somewhat, 3=yes). The students indicated whether specific aspects of teaching were present and supportive to their learning proces. The SBT is used as an indication of student satisfaction with teacher behaviour. The 14 items formed a scale (Cronbach's  $\alpha$  is 0.90). In addition to the SBT the students were asked to value the role of the specific teacher as well as the general satisfaction with the specific module on a scale from 1-10. The students are licenced teachers and speech therapists, mostly working in primary and secondary education.

#### Results

Table 4 presents per teacher the results of students' satisfaction with teaching behaviour, students' rating on the SBT and the overall satisfaction with the six modules. We found a significant correlation between students' overall satisfaction with teaching behaviour and the overall satisfaction with the module ( $r= 0,511$ ,  $p < 0,01$ ). The scores on satisfaction with

teacher behaviour (on a scale from 1-10) and the scores on the SBT are highly and significantly correlated ( $r= 0,831$ ,  $p< 0,01$ ).

*Table 4: Student satisfaction: means and standard deviations for ten teachers in six different modules*

Teacher (number) in Module (number)	Student satisfaction teacher behaviour 1-10 N= 77 X (SD)	SBT 14 scale 1-3 N= 77 X(SD)	ITEMS Overall satisfaction module 1-10 N=69 X(SD)	student with
Teacher 1 M1	5.37 (1.68)	1.88 (0.53)	7.38 (0,74)	
Teacher 2 M1	7.8 (0.63)	2.74 (0.19)	7.9 (0,57)	
Teacher 3 M2	6.89 (1.17)	2.32 (0.55)	7.0 (1,15)	
Teacher 4 M3	6.45 (1.51)	2.25 (0.53)	6.8 (0,92)	
Teacher 5 M3	8.00 (1.60)	2.5 (0.42)	7.38 (1,06)	
Teacher 6 M4	8.25 (1.36)	2.72 (0.26)	8.17 (0,42)	
Teacher 7 M5	7.66 (0.58)	2.67 (0.30)	8 (0,00)	
Teacher 8 M6	6.80 (0.84)	2.26 (0.50)	7.8 (0,84)	
Teacher 9 M6	7.36 (0.92)	2.76 (0.21)	7.55 (1,14)	
Teacher 10 M3	7.50 (1.73)	2.46 (0.39)	7.25 (1,26)	
Mean (SD)	7.21 (0.85)	2.46 (0.28)	7.52 (0.44)	

Note: Scale 1-10: 1 = extremely poor, 5 = unsatisfactory, 6= satisfactory, 10 = extremely excellent (this scale refers to the Dutch grading system); SBT Scale 1-3: 1=no, 2=somewhat, 3=yes)

The mean number of times that a specific pedagogical dimension of teacher behaviour appeared per discussion was calculated. When we correlated the mean number of messages with student overall satisfaction and SBT we found two pedagogical dimensions of teaching behaviour that are positively and significantly correlated to student satisfaction with teacher behaviour: multiple acknowledgment and personality/ emotion/affective. Table 5 presents the correlations between pedagogical dimensions of teaching behaviour and student satisfaction. First the mean number of times that the pedagogical dimension appeared per discussion is presented. Then the correlation with overall student satisfaction and SBT is given.

*Table 5: Correlation of pedagogical dimensions per discussion with student satisfaction with teacher behaviour and SBT N=10*

Dimensions of teaching behaviour present per discussion	Mean appearance of pedagogical dimension per discussion X(SD)	Correlation with student satisfaction with teacher behaviour on a scale of 1-10	Correlation with SBT (14 items, range 1-3)
1. Content	1.99 (1.57)	0.627	0.602
2. Multiple acknowledgement	0.59 (0.42)	0.782**	0.807**
3. Summary / repetition	1.12 (0.87)	0.604	0.568
4. Personality / emotion/ affective	0.67 (0,57)	0.706*	0.692*
5. Organisation	1.90 (1.16)	0.515	0.534

6. Questions	1.25 (0.69)	0.485	0.542
7. Positive individual feedback	1.36 (1.54)	0.458	0.275
8. Negative individual feedback	0.21 (0.32)	0.181	-0.67
9. Collective feedback	1.38 (0.92)	0.391	0.536
10. Sorry	0.09 (0.11)	0.067	0.133

Note: Scale 1-10: 1 = extremely poor, 5 = unsatisfactory, 6= satisfactory, 10 = extremely excellent (this scale refers to the Dutch grading system); Scale 1-3: 1=no, 2=somewhat, 3=yes); \*\* statistically significant  $p < 0.01$  (2-tailed); \* statistically significant  $p < 0.05$  (2-tailed)

Teachers differed in the number of messages they wrote per discussion (see table 7). To find whether there were effects on the message level rather than on the discussion level we also calculated the presence of the dimensions per message and their correlation with overall student satisfaction and SBT. On the message level we found a significant correlation between the content dimension and both scores on student satisfaction. The correlation between summary / repetition and the SBT was also found to be significant. The results are given in table six.

*Table 6: Correlation of pedagogical dimensions per message with student satisfaction with teacher behaviour and SBT N=10*

Dimensions of teaching behaviour present per discussion	Mean number of messages containing dimension for ten teachers X(SD)	Correlation with student satisfaction with teacher behaviour on a scale of 1-10	Correlation with SBT (14 items, range 1-3)
1. Content	0.48 (0.26)	0.759*	0.795**
2. Multiple acknowledgement	0.18 (0.13)	0.577	0.559
3. Summary / repetition	0.32 (0.17)	0.617	0.644*
4. Personality / emotion/ affective	0.19 (0.13)	0.522	0.535
5. Organisation	0.53 (0.15)	0.255	0.443
6. Questions	0.35 (0.13)	0.193	0.301
7. Positive individual feedback	0.31 (0.27)	0.570	0.286
8. Negative individual feedback	0.05 (0.07)	0.251	-0.095
9. Collective feedback	0.40 (0.18)	0.281	0.507
10. Sorry	0.03 (0.02)	-0.487	-0.510

We calculated the number of teacher messages per discussion, the number of words per message and the mean number of pedagogical dimensions of teacher behaviour per message. The number of words per message and the mean number of pedagogical dimensions per message showed a high and significant correlation ( $r=0,885$ ,  $p < 0,01$ ). Both were significantly correlated to student satisfaction with teacher behaviour, suggesting that

the students were more satisfied when the teacher crafted longer and more complex messages. The results are presented in table 7.

*Table 7: Quantitative characteristics and pedagogical complexity of teacher messages, correlation with student satisfaction about teacher behaviour and SBT*

	Mean	SD	Correlation with student satisfaction on a scale of 1-10	Correlation with SBT (14 items, range 1-3)
Mean number of messages per discussion	3.47	1.706	0.483	0.506
Number of words per message	103.782	33.44	0.802**	0.703*
Number of pedagogical dimensions per message	2.901	0.7639	0.874**	0.804**

Note: Scale 1-10: 1 = extremely poor, 5 = unsatisfactory, 6= satisfactory, 10 = extremely excellent (this scale refers to the Dutch grading system); Scale 1-3: 1=no, 2=somewhat, 3=yes); \*\* statistically significant  $p < 0.01$  (2-tailed); \* statistically significant  $p < 0.05$  (2-tailed)

#### Conclusions and discussion

This study was undertaken to the purpose of identifying specific aspects of pedagogical behaviour that seem positively related to student satisfaction with teacher behaviour. Knowledge thereof may enable teachers to consciously influence student satisfaction and may therefore be relevant to future online teacher training.

In this small sample of ten online teachers the results suggest that students value teachers who craft longer and more pedagogically complex messages. It is not so much in the number of messages per discussion, but the positive evaluation is related to the length of the messages and the number of pedagogical dimensions that they contain.

A possible explanation for this phenomenon may be that longer and pedagogically complex messages demonstrate that a teacher pays close attention to the learning process within the group, cares about teaching the group and takes serious time to reflect on their messages. In this way he may (partially) bridge the transactional distance gap that exists in online learning. Four specific components of online teaching behaviour were found to be significantly and positively related to student satisfaction with teacher behaviour. Two dimensions showed a relation to student satisfaction on the level of the discussion: multiple acknowledgement and personality. Two other dimensions showed this relation on the message level: content and summary/repetition. These results closely align with the findings of Blignaut and Trollip (2003) although they used slightly different categories. They found that students need content, personal acknowledgement and affection from their teachers.

The positive reaction to the techniques of multiple acknowledgement and summary/repetition may be explained by the fact that these can be seen as the online equivalent of being seriously listened to and having your contribution very specifically acknowledged. This is done by mentioning multiple student names and by summarizing or repeating relevant elements of their contributions. Collison et al. (ib, p. 37, 38) recommend to use this type of intervention in each teacher message. Our online teachers make substantially less use of this technique as can be seen from the data. A coordinated effort to teach this technique to them and to motivate them to make more use of it seems legitimate in view of the findings.

The second seemingly influential aspect of teacher behaviour is the manifestation of online personality and affect. From the data we can infer that this is a rather challenging aspect for

the online teacher. In many postings it is not realised. Two teachers with relatively low satisfaction scores do not realize this aspect at all in their messages. Wise, Chang, Duffy and Del Valle (2005) suggest that this may be a binary variable with a threshold value. Above a certain value there may be no further positive effect, but a value of zero will certainly be to low.

The relative importance of content at the message level seems to emphasize the need for content specialists as online teachers. A content specialist can keep students on track in their discussions and can add relevant content to the student discussion. This is somewhat contrary to the current belief that online moderators should move away from the centre of the learning process and be 'a guide on the side' as is advocated by Collison et al.(2000).

We will use the current research to augment our coaching and teaching of online teachers. Follow up questions that we are interested in are: How does online pedagogical behaviour develop over time? and: Does training succeed in influencing online teacher behaviour?

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