

The Challenge of Informed Use: A Unique IT Experience for Teachers and Students from the Peoples' Republic of China

Michael Vallance

National Institute of Education, Singapore

This paper discusses the first use of IT by Chinese postgraduate teacher trainees of English (n=34) in the development of an IT-rich lesson for a group of Chinese students (n=38). Bulletin Board System interactions aimed to promote the independent learning skills of the Chinese students whilst simultaneously facilitated the design of digital language learning materials by the Chinese teachers. The collected data reveals that the communication between the Chinese teachers and learners will need to change if IT is to be used in an informed way in order to meet the needs of English language learners that are becoming increasingly computer literate.

On 6 December, 2003 China's online edition of the People's Daily reported that, "An IT and subject integration teaching forum of Beijing's elementary and high schools dropped a hint that next year more than 100,000 full-time teachers will have computers in the classroom" (Farewell to teacher's old friends: chalk and ferule, 2003). Like many educational policies worldwide, teachers in the People's Republic of China will consequently be expected to utilise Information Technology (IT) in their subject teaching. Additionally, young Chinese students are gradually obtaining access to computer technologies and the Internet, and are becoming digitally aware (Towndrow & Vallance, 2004) which, in turn, further enhances the pressure

on teachers to develop IT skills in their daily work.

Zhong and Shen (2002) recently entered IT-rich language classrooms in China to observe the recent impact of technology in English language teaching. They found however that the IT had not facilitated the desired communicative learning, or any significant change in the role of the teacher.

“New technologies are being used as accessories and classroom procedures, which are predominantly teacher driven, tend to follow a linear sequence. There is a conscious focus on language form rather than interaction and the use of language” (p. 43).

Despite the Chinese teachers’ willingness to develop technical presentation skills there was little evidence of any understanding of how such applications added value to the students’ learning. Zhong and Shen (2002) concluded that, “it appears that a technologised traditional classroom is emerging” (p. 46) and “little difference has been observed between the technological integrated classroom and the traditional classroom” (p. 43). In a broader context, Bruner (1996) challenges teachers to modify restrictive pedagogy.

“Modern pedagogy is moving increasingly to the view that the child should be aware of her own thought processes, and that it is crucial for the pedagogical theorist and teacher alike to help her become more meta-cognitive, to be as aware of how she goes about learning and thinking as she is about the subject matter she is studying” (p. 64).

Therefore, teachers are additionally expected to facilitate the development of active and reflective learning which, in turn, promotes independent, lifelong learning skills. In effect, the learning environment needs to be student centred and not teacher driven. There appears to be some progress towards this more learner centred classroom in China (Xiao, 2000). For instance, two of the key aims of China’s English Teaching Syllabus (1992) are like the following:

- The teacher’s role should be a facilitator and helper to guide students to develop effective learning habits;

- Teachers should be aware of the individual differences among students in the learning process (pp. 6-7).

Unfortunately, national education policies worldwide have little or no guidance for teachers of any discipline for ‘informed use’ of IT (Towndrow & Vallance, 2004) and blame for a lack of progress in IT integration is often apportioned unfairly to the teachers (Cuban, 2002). In order to address this lack of guidance, Towndrow (2004a), in his research of post-graduate Chinese teachers of English, makes a number of suggestions for teachers to understand the potential of new technologies to enhance English language teaching and learning. In summary, his suggestions include:

1. Pedagogy needs to drive the use of technology.
2. Teachers should provide opportunities for learners to use IT to exploit their knowledge and skills.
3. Learners should be given responsibility for their own learning with (and without) IT.
4. Teachers should share in the development of a bank of digital resources and seek support from colleagues.

This paper thus builds upon Towndrow’s suggestions and summarises the outcomes of Chinese teachers and learners of English using IT within the context of facilitating independent learning.

METHODOLOGY

Participants

Chinese post-graduate teacher trainees of English (n=34) were instructed to develop an IT-rich lesson for an authentic group of Chinese learners of English (n=38). The subsequent teacher and student interactions simultaneously

aimed to promote independent learning skills of the Chinese students about to embark in undergraduate study at a technical university in Singapore. Independent learning is deemed a core skill for undergraduates in Singapore and the Ministry of Education is currently seeking to engage school students in active and reflective learning to nurture independent, lifelong learners.

“Through assessing their own work and seeking ways to improve, students develop habits of independent, reflective learning and become more motivated to take responsibility for their own learning” (SAIL, 2004, p. 13).

Therefore, independent learning skills will be essential for the Chinese students entering an education system with a pedagogical approach quite different to that experienced in schools in China.

These Chinese students attend a 6-month full time English bridging course prior to their undergraduate studies at the Singapore technical university. All students have some experience using the Internet to check their e-mail or visiting Websites and most can type in a word processor. The undergraduates participate in a self-access learning module in order to independently develop specific language skills. For instance, all the students develop a learning plan focussing upon their personal development in the four language skills (reading, writing, speaking and listening) as well as further development of grammar, vocabulary, and pronunciation. Additionally, the students develop an awareness of independent learning (learning to learn) strategies.

The Chinese teachers of English, on the other hand, attend a one-year Post Graduate Diploma course in English Language Teaching. One of the modules is Instructional Technology whose aim is to develop computer-based competencies and critically explore the effective utilisation of IT in English language teaching and learning. The 24-week (48- hour) course, over two semesters, balances the production of digital resources for English teachers through commonly available applications with reference to academic topics discussing English teaching and Computer Assisted Language Learning (CALL). Core skills include familiarisation with Microsoft’s Word and

PowerPoint, the development of a Website, use of organisational software (Inspiration), creation of online exercises (Hot Potatoes) and participation in the class Bulletin Board System. CALL topics include history of English language teaching and CALL, roles of the teacher and student, informed use, Digital Age intellectual property rights, and digital literacy. The final assessed project for the teachers is the design, production and justification of two- 50 minute lesson plans and associated digital resources that incorporate IT in an informed way. Towndrow's suggestions (above) were considered best implemented through an authentic project for the teachers that simultaneously developed the undergraduates' skills in independent learning. It was decided to blend the teachers' assessed project assignment so that the Chinese teachers would teach the Chinese learners.

The two groups were never expected to physically meet, but to communicate asynchronously on the class Bulletin Board System (BBS). A BBS was used as the sole medium of communication, in English, between the teachers and learners and as a context upon which to evaluate the effect of initial use of IT by teachers in an authentic educational setting. Williams *et al* (2001) discovered that students had become better at critiquing, analysing and questioning through the use of a BBS. New information can be acquired, integrated and reflected upon (Chickering & Ehrmann, 1996). Also, students make connections between their immediate learning (via the BBS) and their personal experiences (Ferdig & Roehler, 2003). In effect, a BBS allows students to reflect, evaluate and self analyse. Language students in particular welcome the opportunity to draw out the thinking process; unlike in a classroom where they may be requested to respond instantaneously (Warschauer, 1999). The BBS was therefore considered an appropriate medium to evaluate the teachers' pedagogy that utilised IT and also the effect of the interactions in the development of the learners' independent learning skills.

Towndrow (2004b) advises teachers using IT with Chinese students, particularly online, that "learning tasks be designed and implemented that give prominence to the factors of controllability and shared responsibility" (p. 179). In essence, tasks need to be personalised to the students' needs and

interests if students are to be resilient and resolute in their use of IT for independent study. Also, students need to be made aware of the benefits of communicating openly and sharing information on a BBS.

Previous learning experiences and cultural heritage are also to be taken into account. Towndrow (2004b) found in his research that “students can feel uncomfortable when the material they use has not been prepared with them specifically in mind” (p. 181). These were thus accounted for as the Chinese teachers prepared their lesson plans specifically for their Chinese students. However, for teachers to value independence in learners, teachers need to get to know their students, to find something out about their experiences, knowledge, skills and understanding, and to recognise and respond to the multitude of experiences brought to the learning environment by these Chinese students.

Therefore, each student was assigned a teacher for the online correspondence and interaction. This was made feasible as both the teachers and students were supervised by the same instructor. The project assignment was provided to the teachers in the first lesson of Semester 2 so they had, in effect, ten weeks to correspond with their assigned students prior to the submission deadline.

Instrument

The instrument used for collecting the data was a questionnaire (see Appendix) based upon a case study design by Knipe and Lee (2002). The categories were used as “they would make sense to both teachers and students and be relatively simple to interpret” (p. 203).

A Classroom Activities framework was designed to capture the variety of pedagogy employed over the period of the interactions; ranging from teacher led actions such as giving information, guidance and explanation, to student led actions such as planning and group work. Teachers and learners simply had to check YES or NO if the activity took place during, or as a direct result of, the BBS interaction.

As teachers sought to question, instruct and present information and exercises to the learners (Towndrow's suggestion 2), it was anticipated this would provide opportunities to exploit the knowledge and skills of the individual learners through the medium of IT. These were categorised as QUESTION, INSTRUCT, PRESENT, EXERCISES and IT in the questionnaire.

For teachers to encourage learners to become responsible for their own learning (Towndrow's suggestion 3) there needs to be explanations and guidance to help the learners plan a revision of previously studied language and then development into new levels. These were categorised as EXPLANATION, GUIDANCE, PLAN, and REVISE in the questionnaire.

In the development of a bank of digital resources (Towndrow's suggestion 4) teachers were expected to provide information such as online resources through the BBS postings to learners. Additionally, teachers could have shared their final assignment resources by posting them online. This was simply categorised as INFORMATION although the category NOTES was added as teachers posted opinions or musings not necessarily deemed concrete information of educational value but personal to the specific teacher and learner partnership.

A Cognitive Outcomes framework captures the different types of learning which teachers intended or students engaged in during, or as a result of, the BBS interaction. Examples of cognitive outcomes are learning new terminology (TERMS), producing new ideas (NEW IDEAS), expressing views (VIEWPOINTS), making decisions (DECISIONS) and problem solving (PROBLEM). This more subjective data was captured on a 6-point Likert scale (0 = not at all, 5= very much) and then re-categorised into YES/NO (0-2 for NO and 3-5 for YES) for analysis.

This data was used in order to evaluate how the pedagogy employed related to teachers and learners in their attempt to create an online educational experience of value; in this case, the use of a BBS to develop IT awareness in the teachers and independent learning skills of the students. In part, this would attempt to address the suggestion that pedagogy drive the technology as the focus on the assignment was not the IT employed but the

interactions, the teaching and the learning that led to the development of an IT rich lesson plan (Towndrow's suggestion 1). The questionnaires were individually completed at the end of the course.

Procedure

Teachers and learners were provided with initial instructions regarding the aims of the project assignment and the expectation of teacher- student interaction. The postgraduate English teachers' expectations were higher in stake than the undergraduate English learners as the justification of their lesson plans to teach the students relied upon the discussions held on the BBS. Additionally, the undergraduates needed to develop their online communication and independent learning skills by acting upon the teachers' BBS postings. Time was provided in class for the asynchronous postings, although the BBS was accessible 24/7.

At the end of the course the teachers submitted their lesson plans, the digital resources supporting the plan and a justification essay relating to the informed use of IT for their particular learner. The teachers also completed the end-of-course questionnaire to indicate what activities they thought took place during the BBS discussions in the development of their teaching with IT and what cognitive outcomes they thought were being facilitated.

The students completed the questionnaire to indicate what activities they thought took place during the BBS discussions in the development of their independent learning skills and how the teacher helped facilitate their learning. Also, the students provided information on the survey of what cognitive outcomes they thought were being encouraged by the teachers.

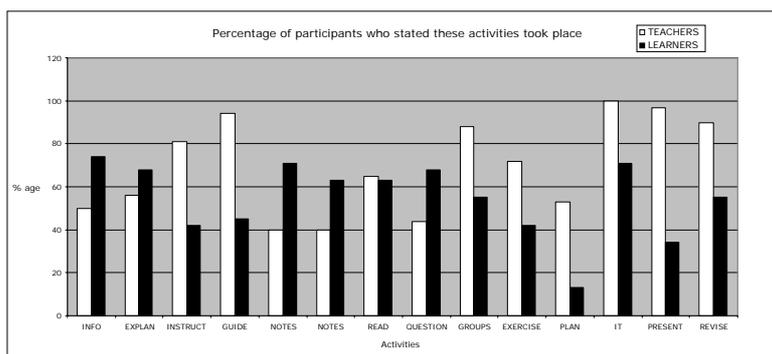
RESULTS

With reference to Figure 1, *Classroom Activities*, it can be seen that there is a vast disparity across the range of activities. What the teachers assumed

was taking place throughout the eight-week BBS communication was not necessarily agreed by the learners. For instance, 81% of teachers instructed their learners to undertake a language exercise but only 42% of learners recognised this instruction (INSTRUCT). 72% of teachers stated they provided, or provided links to, exercises online yet only 42% of learners stated they undertook any exercise (EXERCISE). 98% of teachers stated they presented information (PRESENT), yet this was acknowledged by only 35% of the learners.

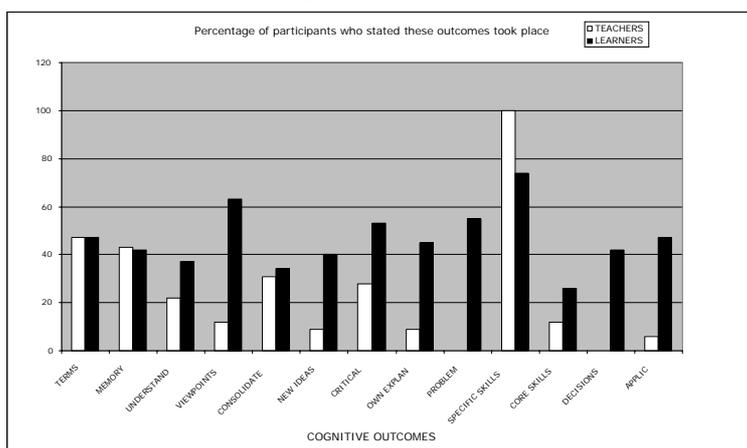
The INSTRUCT and EXERCISE activities above are considered didactic (teacher driven) but the results that promote independent learning skills fared equally poorly. For example, 94% of teachers stated they offered guidance in developing English language skills yet only 45% of learners recognised this (GUIDE). Only 55% of learners stated they worked in groups even though 88% of teachers encouraged them to do so (GROUPS). 53% of teachers considered they planned or encouraged the planning of project activities but only 13% of learners considered themselves to be involved in any planning (PLAN). Oddly, 44% of teachers stated that they questioned the learners but a higher proportion of learners (68%) indicated they were involved in question and answer interactions. These results indicate much disparity between the online experience of the teachers and learners.

FIGURE 1
Classroom Activities



With reference to Figure 2, *Cognitive Outcomes*, a stark contrast in views indicated by the Chinese teachers and students is illustrated. The results of learning new terminology, memorisation and consolidating previous studied material, though mostly less than 50%, fared equally well (TERMS 47-53%; MEMORY 42-43%; CONSOLIDATE 31-34% for teachers and learners, respectively). However, all the other categories of cognitive outcomes produced vastly different data sets. For example, 65% of learners stated they expressed their own viewpoints throughout the interaction but only 15% of teachers recognised this (VIEWS). Around half the students stated they were provided opportunities to express new ideas (40%), offer personal explanations (45%), be critical(50%) and make decisions (40%) yet most teachers did not recognise or attempt to support these. 55% of learners were involved in problem solving yet no teachers stated they facilitated this (PROBLEM). In general, a higher percentage of learners stated that they considered learning took place. As such it may be stated that the teachers underestimated the effect of their BBS interactions in the development of the students' independent learning.

FIGURE 2
Cognitive Outcomes



DISCUSSION

The discussion addresses the questions posed earlier regarding the development of an informed lesson plan and associated materials for an authentic group of Chinese learners. If teachers and learners were clear about what they were doing together, then it is pre-supposed that any difference in collated data would be minimal. Moreover, Towndrow's suggestions for the promotion of informed use of IT are discussed with reference to the results from the data collected from the teachers and learners.

First, Pedagogy Needs to Drive the Use of Technology. This is analysed with reference to the cognitive outcomes deemed by teachers and learners. It is acknowledged that the list of activities and cognitive outcomes could be achieved in a classroom without IT. However, the course aimed to provide teachers with the opportunity to explore the use of IT in their teaching through authentic, experiential learning.

The recognition of a number of activities and cognitive outcomes indicate that the pedagogy was being implemented and that IT became a tool to facilitate teaching and learning. The results indicate though that the learners appeared to be more aware of the cognitive outcomes, and that teachers did not credit their own instructional input. Only SPECIFIC SKILLS scored higher than 50% by teachers and many outcomes perceived by the teachers scored below 20%. The majority of outcomes were thus recognised as applicable by the learners but less so by the teachers.

Throughout the project the teachers did not teach any software; the focus was primarily on English language learning. The course, Instructional Technology, helped the teachers in developing their IT utilisation in an informed way in the teaching of English. Although the BBS provided the opportunity for meaningful communication between the teachers and more IT-literate students, it is suggested that the participants lacked critical digital literacy skills (Towndrow & Vallance, 2004; Warschauer & Kern, 2000). As such, further guidance in online strategies for communication was required.

Second, Teachers Should Provide Opportunities for Learners to Use IT to

Exploit their Knowledge and Skills. The interaction did little to help learners exploit their knowledge of the world around them. For instance, only 44% of teachers stated they questioned the learners in order to obtain information on language problems or insights into the learners' personal experiences. Also, there appears to have been little interaction that facilitated planning; an essential ingredient in the development of effective and sustained independent learning. In effect, the teachers failed to obtain in depth information beyond the generalities so that lessons could be designed and advice provided for learners to exploit in their personal domain through the use of IT. Some of the differences in teacher and learner data may also be attributed to participants' lack of awareness of what is to be (or being) learned. Interviewing learners will have revealed further information.

An affective benefit from the interactions is the learners' increased ability to ask questions and seek clarification from their higher status teachers. For instance, the values of filial piety of the Chinese learners may have influenced the decisions made before, during and after the BBS postings which, in turn, would affect the learners' linguistic experiences and progress towards being an independent learner.

Third, Learners Should Be Given Responsibility for their Own Learning with (and without) IT. There appears to be little evidence of teachers facilitating the development of the learners' independent learning skills. This may be due to the lack of understanding on the part of both teacher and learner of the difference between instruction (teacher as expert) and guidance (teacher as coach). The teachers had to garner information about their learners in order to design a personalised IT-rich lesson, yet it appears that unsuccessful attempts were made in getting the learners to recognise the pedagogical value of the interactions. This could be overcome by teachers setting targets (Ferdig & Roehler, 2004) but then the notion of independent learning is questioned; the learners themselves should be setting personal learning goals which incorporate targets.

The results also indicate that some learners were more autonomous than others, thereby taking charge of the opportunities to communicate with the

teachers. This in turn led to opportunities to express viewpoints, be critical, make decisions, and explore new ideas.

Finally, Teachers Should Share in the Development of a Bank of Digital Resources and Seek Support from Colleagues. The BBS was considered an ideal medium to encourage teachers and learners to share information and resources. The BBS was transparent so that any student could access and contribute to any discussion thread. However, participants had to log in with their real names, the BBS was also password protected to avoid unwanted spamming and flaming, and the Chinese fonts had been disabled. The instructor also disallowed any teacher – learner personal communication via e-mail or CHAT as there was a desire to keep the discussions transparent and beneficial to all participants.

Despite both teachers and learners being on the same campus they never physically met. This may be due to the age difference and/ or the social or professional status of the participants. This may explain why teachers rarely questioned the learners beyond asking for information about general skills such as listening or speaking. One would expect follow-up questions to determine more specific problems such as elision, catenation, pronunciation, stress, rhythm, etc.

Finally, the submission of the teachers' final assignments was on disks. This provided an opportunity for the teachers to digitally share their work. However, no teachers volunteered to collate the digital resources and were quite content simply to submit individual work. Their action was in stark contrast to the content of the justification essays which, on most occasions, mentioned sharing and collaboration as espoused in the coursebook (Towndrow & Vallance, 2004). Moreover, the instructor noted that, without fail, all teachers worked independently on their projects (the design and production of digital resources) in class despite being encouraged to cooperate together. This may be due to the unfamiliarity of Chinese students working cooperatively as the emphasis in Chinese education appears to be that of competition and not collaboration (Towndrow, 2004b). Although the course attempted to facilitate change in teachers, and despite the benefits of 'informed' IT

integration in language classrooms being written in essays, in reality, there was little evidence of progress in the teachers' implementation.

CONCLUSION

The paper has provided an opportunity to examine the perspectives of Chinese teachers and students using IT when facilitated by authentic, experiential learning. The most significant outcome of this study is the evidence that displays a large disparity of what the teachers thought they taught and what the learners stated they learned. It appears that the learners gained much more cognitive value from a BBS interaction and the digital resources provided. Also, teachers underestimated their effect on the students' learning.

Additionally, Chinese teachers integrating IT in their teaching are fully aware of the need to change their roles as experts and transmitters of knowledge (Towndrow, 2004a). However, the results reveal that the communication between Chinese teachers and students will need to change to expect any level of using IT in an informed way to meet the needs of English language learners that are becoming increasingly IT literate. The course, Instructional Technology, facilitated this change but it remains to be seen if teachers transfer this authentic experience to their teaching in China.

Finally, through the interactions, all teachers and learners were considered to have participated in knowledge-building discourse (Scardamalia & Bereiter, 1996). It is anticipated that further opportunities for online interaction will lead to a better understanding of the English language for both groups of students. It is thus recommended that a future BBS project involving teachers and learners of English include, early on, an explicit focus on communication skills and associated functional language exponents. This will set the tone and expectations for good language use and effective communication strategies.

THE AUTHOR

Michael Vallance is a language educator and teacher trainer specialising in educational technologies. He has a Degree in Mechanical Engineering and a Masters in Computer Assisted Language Learning. He has held various supervisory positions in Britain, Japan and Singapore. He is currently the Singapore Technologies Director of Asia TEFL. His research interests include the impact of synchronous inter-networked teacher training in ICT integration. (Website: <http://homepage.mac.com/mvallance>)

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APPENDIX

Student Questionnaire Adapted from Knipe & Lee (2002)

STUDENT NAME:

Select YES or NO

ACTIVITIES			
ABBREVIATION	FURTHER EXPLANATION	YES	NO
INFO	Were you provided with new English words or information about better speaking, reading, writing or listening by the PRC teacher?		
EXPLAN	Did the teacher go beyond factual knowledge to describe learning theories? In other words, how to learn?		
INSTRUCT	Were you told how to complete a task?		

GUIDE	Were you guided as you completed a task?		
NOTES	Did you write notes from the BBS?		
NOTES	Did you work through the lesson notes or information on the BBS?		
READ	Were you asked to read or study materials independently?		
QUESTION	Did you and the teacher engage in question and answer sessions on the BBS for the past 6 weeks?		
GROUPS	Did you discuss topics in pairs or groups?		
EXERCISE	Did you complete set tasks, e.g. problem solving, worksheets, translations?		
PLAN	Did you and the teacher together plan a task (e.g. homework or essay) using the BBS?		
IT	Did you work with IT?		
PRESENT	Did you present your work to other students for comment and feedback?		
REVISE	Did you go over previously learned material?		

Tick the best box.

Measured? *Not at all* 0 to 5 *To a very large extent*

COGNITIVE OUTCOMES		0	1	2	3	4	5
ABBREVIATION	FURTHER EXPLANATION						
TERMS	Did you learn new vocabulary?						
MEMORY	Did you learn to memorise and order information?						
UNDERSTAND	Did you try to understand grammar or analyse ideas and arguments?						
VIEWPOINTS	Did you learn about alternative points of view on the same subject?						
CONSOLIDATE	Did you consolidate previously learned materials?						
NEW IDEAS	Did you generate and combine new ideas through questions, discussion and brainstorming?						
CRITICAL	Did you learn to be critical?						
OWN EXPLAN	Did you learn to construct your own explanations?						
PROBLEM	Did you develop learning to learn techniques?						

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SPECIFIC SKILLS	Did you practice and master specific skills such as better speaking, reading, writing or speaking?						
CORE SKILLS	Did you learn how to use a BBS?						
DECISIONS	Did you learn about decision making when using the BBS?						
APPLIC	Were you able to link the knowledge provided by the PRC teacher to your own experience in the PRC English Bridging course?						
CONNECTIONS	Did you see a link of your BBS experiences with your everyday life experiences such as using a computer in your free time?						

Teacher questionnaire adapted from Knipe & Lee (2002)

NAME:

Tick the YES or NO box

ACTIVITIES			
ABBREVIATION	FURTHER EXPLANATION	YES	NO
INFO	Either on the BBS or in the assignment with the PRC students did you provide information where the emphasis was on terminology?		
EXPLAN	Either on the BBS or in the assignment did you go beyond factual knowledge to describe theories?		
INSTRUCT	Did you tell students how to complete a task either on the BBS or in the assignment?		
GUIDE	Either on the BBS or in the assignment did you guide students as they completed a task?		
NOTES	Either on the BBS or in the assignment did you expect the students to take notes?		
NOTES	Either on the BBS or in the assignment did you expect students to work through handouts?		
READ	Either on the BBS or in the assignment did you expect students to read or study materials independently?		
QUESTION	In the BBS did students engage in prolonged question and answer sessions with you?		
GROUPS	Either on the BBS or in the assignment did students discuss topic in pairs or groups?		

EXERCISE	Either on the BBS or in the assignment did you expect students to complete set tasks, e.g. problem solving, worksheets?		
PLAN	Either on the BBS or in the assignment did you, the teacher, and the student plan a task (e.g. homework, essay, project) together?		
IT	Did students work with IT?		
PRESENT	Either on the BBS or in the assignment did you expect students to present their work to other students for comment and feedback?		
REVISE	Either on the BBS or in the assignment did you go over previously learned material?		

Tick the best box.

Measured? *Not at all* 0 to 5 *To a very large extent*

COGNITIVE OUTCOMES		0	1	2	3	4	5
ABBREVIATION	FURTHER EXPLANATION						
TERMS	Did you teach new terminology (e.g. grammar, speaking phrases)?						
MEMORY	Did you teach how to structure or memorise information						
UNDERSTAND	Did you teach how to interpret grammar or analyse arguments?						
VIEWPOINTS	Did you teach about alternative points of view on the same subject?						
CONSOLIDATE	Did you consolidate previously learned materials?						
NEW IDEAS	Did you generate new ideas through questions and discussion?						
CRITICAL	Did you teach PRC students how to be critical?						
OWN EXPLAN	Did you teach students to construct their own explanations to the grammar or English skill taught in the assignment?						
PROBLEM	Did you teach strategies for solving problems?						
CORE SKILLS	Did you teach with IT?						
DECISIONS	Did you encourage decision making?						
APPLIC	Did your BBS communication or your assignment relate theoretical knowledge to the PRC students' own experiences?						