Taking Assistance in Online Learning Activities Seriously – What Counts?

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ABSTRACT

Researching online offers endless possibilities for educators regardless of how the environment needs to be understood and analysed. The emergence of the Internet creates accessibility and opportunities for asynchronous and synchronous communication. Despite its advantages, research on online teaching and learning does represent problems in terms of observing the activities as far as meaningful learning is concerned. The activities of teaching and learning often vary and are sometimes misunderstood. Teachers should no longer be viewed as the main source of knowledge. Likewise, students should no longer be seen as individuals who only absorb what is taught. Through discussion, students mutually learn from each other. This study investigates 'teaching' behaviour evidenced in activities involving a group of university students using the Learning Management System (LMS) as a tool for discussion. Taking a socio-cultural perspective, an argument is offered for the theorisation of peer-to-peer learning as a variety of "assisted performance". Using this theoretical lens, an analysis of the nature and occurrences of online exchanges between students and the tutors was conducted. Assisted performance categories were used to analyse the message transactions. Analysis reveals the problems in researching online learning tasks in the aspects of methodology which is in trying to find what is most significant for evidence of meaningful postings. Instead of looking at the number of messages or number of assistances, researchers have found the solutions by taking "proportions" of assisted performance in the learning performance. Teaching behaviour could be occurring in peer learning in students' interactions that were evidenced in online learning tasks in this study.

INTRODUCTION

Educators are often challenged by the ongoing debate on learning design (Ravenscroft and Cook, 2007; Beetman, 2007; Masterman and Vogel, 2007) for online learning especially when initiating tasks to get the utmost involvement from students. With the advent of technologies in the form of the Internet, the possibilities of asynchronous and synchronous practices become inevitable, both presenting its own challenges.
Various studies have documented how online learning; a form of network-based teaching and learning that links learners using Internet-mediated communication tools, can be used as a face-to-face session alternative for meeting a range of pedagogical goals (Beauvois, 1998; Toyoda and Harrison, 2002 and Kelm, 1996). Jones (2007) and Beetham (2007) emphasise that 'activities' and 'tasks' are distinguishable in which "tasks are required of learners by the demands of the curriculum. Meanwhile, activities are engaged in by learners in response to the demands of a task" (Beetham, 2007: 26). Attention has recently turned to look at evidences of both learning activities and tasks taking place in an online learning environment (Conole, 2007; Masterman and Vogel, 2007; Vogel, 2007).

Researching online offers endless possibilities for educators regardless of how the environment needs to be understood and analysed. The emergence of the Internet creates accessibility and opportunities for asynchronous and synchronous communication. Despite its advantages, research on online teaching and learning does represent problems in terms of observing the activities as meaningful learning is concerned. The activities of teaching and learning often vary and are sometimes misunderstood. Teachers should no longer be viewed as the main source of knowledge. Likewise, students should no longer be seen as individuals who only absorb what is taught. Through discussion, students mutually learn from each other (peer-learning). However, the key problem identified in this research methodology is in trying to look at the evidence of learning activities in the records of online learning tasks.

The study was intended to investigate the occurrences of "teaching" behaviour in peer learning in online discussion and how they are different to tutors' behaviours, and how these roles are enacted within tasks. Having defined teaching as assisted performance (Tharp and Gallimore, 1988), the strategy for the study was to look at the occurrence and nature of assisted performance in LMS in higher education courses (that used LMS to extend the face-to-face discussion). However, for the purpose of this paper, two main problems are highlighted here, with proposed solutions, that is: (1) determining evidence; and proceeding to the next step (2) what should be counted?

ASSISTED PERFORMANCE IN LEARNING INTERACTION

Existing research predominantly acknowledges the need for support in order to achieve productive interactions in online learning environments. Littleton (1999) said that "Underpinning many of the contributors' interest in understanding productive interaction is that through the study of collaborative interactions we can come to understand how better to support learners' joint endeavours". An alternative concept to support is offered by Rogoff (1990) in the form of guided participation. The crucial factor of this concept is

that it emphasises participation, which has important implications for" how children gain knowledge from social interaction" as stressed here:

> *The notion of guided participations is intended to stress shared activity with communication that includes words as well as actions, and to encompass the routine, tacit activities and arrangements of children and their companions (Rogoff, 1990: 17)*

Communication between children and their caregivers involves two focal processes: **creating bridges**, and **structuring the children's participation**. This process shows how learners could be assisted: first, by developing an engaging atmosphere for participation between learner and the other parties; and second, by monitoring and managing the learner's participation. However, the concept of "guided participation" is different for a study that involved more than one learner participating in the learning activities together. In terms of scope of observation: "The concept of guided participation is used in an attempt to keep individual, interpersonal, and cultural processes simultaneously in focus, representing inseparable aspects of whole events in which children and communities develop" (Rogoff *et al.*, 1993: 5). The question here is whether this notion of assistance can persist in an online environment when all the other non-textual manifestations are absent. Furthermore, it could be argued, students still may be able to learn in online learning contexts, without participating or communicating with other group members. Indeed there is a question of whether contributors to an online forum do, in fact, represent a community of practice rather than a group who choose to share an affinity space (Gee, 2007).

The term "scaffolding" has been generally attributed to Wood, Bruner, and Ross (1976: 90) who describe it as a "process that enables a child or a novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts". The term is used as a metaphor for the situation in which an adult assists a child to carry out a task beyond the child's capability. This metaphor is parallel to the concept of the Zone of Proximal Development (ZPD), developed by Vygotsky. The term "scaffold", like the term "support", has been used more widely in the literature as, generally, the concept of scaffolding has been accepted and applied in educational settings (Salmon, 2000; Oliver and Herrington, 2001; Masters and Yelland, 2002; Yelland and Masters, 2005; Choi et al., 2005; Jeong and Joung, 2005; and De Laat, 2006). Compared to "support", "scaffolding" is seen as more theoretical and therefore there were efforts by educational practitioners to re-conceptualise the term. However, assistance goes beyond scaffolding and Tharp and Gallimore (1988) put forward reasons why the "scaffold" metaphor needs more refinement:

> *The field has advanced to the point that a more differentiated concept can be developed. For example, scaffolding suggests that the principle variations in adult actions are matters of quantity – how high the scaffold stand, how many levels it supports, how long it is kept in place. But many of the acts of the adult in assisting the child are qualitatively different from one another. (Tharp and Gallimore, 1988: 4).*

Given the above discussion, this paper highlights the importance of "assistance" rather than "support", "guided construction" and "scaffolding". The reason for using "assistance" rather than "support' is to humanise this particular action. Similarly, "guided construction" is not used as it does not stress the assistance provided by the person or

persons around the learner and the word "construction" emphasises the processes only on the learner side. As to the data availability factor (which is obtained through messages only, the full process of the activities that took place could not be captured hence, the concept of "guided participation" was not reflected in this study. The "scaffolding" concept is important for understanding how "help" could be given through interactions. However, the terms/assumptions presented above imply intent on the part of the provider, which is not always the case. Someone might assist another person's performance just simply by stating what s/he thinks, or by asking a question the reader had not thought of. Therefore, "assisted performance" and the categories developed from this notion were seen as suitable for the study described here, which intends to identify meaningful peer supported learning interactions, through seeking for evidence of assistance provision. The following categories developed by Gallimore and Tharp (1990) adapted in Kirkley et al. (1998) were used to analyse the message transactions, or means of assistance, in CMC Discussion Board. They are: Scaffolding, Feedback on Performance, Cognitive Structuring, Modelling, Contingency Management, Instructing and Questioning. Details of the categories are provided in Table 1 below:

Table 1: Means of Assistance Categories

Scaffolding	Refers to the help, guidance, assistance, suggestions, recommendations, advice, opinions, and comments that the tutor or peer provides to help the learner master the materials and move to a higher level of understanding.
Feedback on Performance	It is used when the tutor or students provide information (positive or negative) on specific acts, performance, or situations or acknowledge a contribution in reference to a given standard or set of criteria. Often it includes grades.
Cognitive Structuring	It is a means of assistance whereby the tutor provides a structure for thinking and acting that helps the learner organise "raw" experience.
Modelling	This occurs when a tutor or more knowledgeable peer offers behaviour for imitation.
Contingency Management	It is used by the tutor to reward desired behaviours through praise/encouragement, or to control undesirable behaviours through punishment in the form of reprimand/censure.
Instructing	This occurs when the tutor give explicit information on specific acts (e.g., assignments, task, group processes, etc.) It is usually embedded in other means of assistance but is often identified when the teacher reassumes responsibility for learning.
Questioning	It calls for an active linguistic and cognitive response and is used as a prompt, to stimulate thinking and to provoke creations by the student. If the question is meant to provide assistance to the reader, then it is in this category.

Adapted from Kirkley *et al.* (1998)

If teaching is defined as assisted performance (Tharp and Gallimore, 1988), the categories of assisted performance suggest that teaching behaviour can also be seen in the students' contributions. For example, assistance in the form of questioning and modelling may be serendipitously delivered by anyone participating in online discussions. Assisted performances provided by the participants in online discussion are therefore the evidences of occurrences of opportunities for learning through social interactions (Ab Jalil *et. al*, 2004a; Ab Jalil *et. al*, 2004b). .

If assisted performance is indeed a useful theorisation of peer-to-peer learning, the questions that arise are, what would it look like in an online discussion, and is there any evidence to support this interpretation of online interaction? To understand the nature of assisted performance in online discussions, the following research questions were developed:

1. Do students offer assisted performance within online discussion threads and how are they different to tutors?
2. What types of assistances are provided by students compared to tutors?

METHODOLOGY

Participants

This study involved a total of 48 participants consisting of 36 students and 12 tutors. The 36 students represented two groups of 19 and 23 students respectively. Both groups consisted of tutors and students in a Masters programme. The programme ran on a one-year basis for full-time students and up to five years for part-time students. It consists of eight taught units and a dissertation. Six of 10 part-time students in the first group were also enrolled in the second group. Even though there were two series of year group used, entire units were not included in the study. Seven out of eight units in the first year and six out of eight units in the second year were chosen for this study. Some units were not included in the study because they had used the LMS too little or not at all. In this study, the first group is labelled Year 1 and the second group is labelled Year 2. Most of the findings are presented according to year groups, (i.e., Year 1 and Year 2) to get an overview of the pattern of assistance.

Procedures

Assistance offering and giving, captured in the messages, are evidence of teaching in this context. Content analysis was one method used to investigate the circumstance of assistance through discussion. All circumstances of assistance, such as the total number of assistance and types of assistance by group (units), role and different task types were counted and diagnosed. Content analysis was performed on all the messages in the Forum for all courses selected. Quantitative analysis of the data, through regularities or frequencies, showed the nature of assistance in tutor-student/s and student-student interaction.

The steps for analysis were as follows:

Step 1: Messages were printed on paper for intensive reading. The Discussion Board gives certain facilities (in form of pull-down buttons) to view the messages threads sorted by Date (time of posting), Author, Subject and Default. However, when all the messages were collected by selecting the COLLECT button, all the messages were actually sorted according to time posted. To understand the flow of the conversation, the messages were transferred to Microsoft Word and rearranged according to the sequence in the Default setting, which is the order of responses based on the sequence of threads posted.

Step 2: The transcripts were then anonymised as far as possible for ethical reasons.

Step 3: The text was read intensively for deep understanding. The transcripts were then coded according to the type of assistance given in each message, and each category was highlighted in a different colour.

Samples of coding from the transcripts from three of the units were checked by two other researchers to see whether the coding was applied appropriately according to the categories constructed.

Step 4: The number for each category was counted.
Procedures from Step 1 to Step 4 were performed with all the units.

Step 5: The whole transcripts were then given to inter rater(s) to check on the reliability.

Step 6: The difference between the two phases of coding was noted. The original coding was compared to the coding made by the inter rater(s). The Cohen's Kappa (□) was calculated for reliability.

For the first year group, a Cohen's Kappa of 0.764 was established and the SPSS output is shown as follows:

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.764	.041	16.767	.000
N of Valid Cases		140			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

In this SPSS output, N is 140, which is more than 25% of the whole number of assistance instances in Year 1. As 0.764 was achieved, we then proceeded with the coding for the rest of the messages. This value was high enough for us to have confidence in proceeding with the coding.

While in the second year group, a Cohen's Kappa of 0.706 was established. The details of SPSS output is as follows:

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.706	.043	17.446	.000
N of Valid Cases		141			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Again, in this SPSS output, N is 141, which is more than 35% of the whole number of assistance instances in Year 2. As 0.706 was achieved, we again proceeded with the coding for the rest of the messages as this value was high enough for us to have confidence in proceeding with the coding.

Methodological issues

The texts gathered from the research for analysis are what Hodder (1988) called "mute evidence".

> *'mute evidence'… "endures physically and thus can be separated across space and time from its author, producer, or user. Material traces thus often have to be interpreted without the benefit of indigenous commentary. There is often no possibility of interaction with spoken emic 'insider' as opposed to etic 'outsider' perspectives. Even when such interaction is possible, actors often seem curiously inarticulate about the reasons they dress in a particular way…" (Hodder, 1998, p.110)*

It is inevitable that the data is something that will be left behind by the participants. There is no link between the researcher and them at the time the text was written and the activities of learning that took place. The place (also referred to as "space") and activities involved were absent by the time it was observed. Therefore, "participation" or "activities" of learning is nothing more than a left behind of historical evidence of something that had happened before. The study was limited where availability of description is comparatively greater than interpretation. As the researchers were not involved in the communication under study, to make direct interpretation of what is going on in that context would be invalid. However, by using established categories for data coding, interpretations can be made after employing description of the data available.

As mentioned above, research pertaining to online tasks of this nature refered to things that have been completed, and in the study, the activities taught as part of the programme were over and after consensus were sought, only then, the 'data' could be viewed. The idea was not to interrupt the learning by "being" there but more importantly it was to ensure that the data will be less contrived and artificial. The problems arise as the event cannot be observed; making the process of putting pieces of evidences most difficult. Analogically speaking, it is almost like piecing together small pieces of dinosaur bones and trying to figure out what the dinosaur would look like.

Hence, if the research is intended to find the "evidence", investigating perceptions or motive would be pointless. With all this in mind, one should think about how far the evidence gathered could be of use to research. And by saying this, a more distinct methodology should be considered in such an investigation. The evidence of assistances needs to be put in a certain perspective, relative to the contributions for learning in the learning context under study. In other words, it would be less meaningful by just looking at the assistance on its own. The following part explains how assistance or any other motive of learning could be seen in a more meaningful and thoughtful way.

3.1 Number of messages, number of assistance or the portion of the messages?

It should be noted that analysing information regarding the number of messages is rather conventional. Regardless of how conventional this type of analysis is, the total number of messages per se has little significance. Rather, this study clearly exhibits that the key variable is the number of incidences of assistance provision in the messages. Accordingly, the number of assistance on its own is still less meaningful as it is dependable to the number of messages. An alternative term might be: the "proportion" of assistance. The proportion of assistance can be obtained with the following equation of:

Proportion= number of assistances ÷ number of messages x 100

This equation helps to answer the question; in any given message, what is the probability of an instance of assistance? It is very important to keep in mind that "assistance" throughout the analysis refers to instances of assistance, rather than occurrences of messages because one sent message could contain more than one instance of assistance.

Table 2: Overall Number of Messages Posted by the Participants in Each Unit

Unit in Year 1	1-1	2-1	3-1	4-1	5-1	6-1	7-1	8-1	**Total**
Total messages	124	88	18	73	16	75	132	-	**526**
Unit in Year 2	1-2	2-2	3-2	4-2	5-2	6-2	7-2	8-2	**Total**
Total messages	88	26	37	96	14	-	-	45	**306**

As an example, this sub-section identifies the pattern of assistance provision (assistance given by the tutor and the students) across the units in each year group. Numbers of messages posted according to units in each year group are as follows:

Table 3: Overall Number of Assistance Given by the Participants in Each Unit

Unit in Year 1	1-1	2-1	3-1	4-1	5-1	6-1	7-1	8-1	**Total**
Total assistance	197	54	33	53	29	16	150	-	**532**
Unit in Year 2	1-2	2-2	3-2	4-2	5-2	6-2	7-2	8-2	**Total**
Total assistance	138	52	21	131	19	-	-	32	**393**

The total number of messages in both groups is unequal and there is no specific pattern for the number of messages posted. This inequality is partly because there were more units in Year 1 that had active discussion groups. Moreover, the number of participants in each year varies. As mentioned earlier, the total number of messages per se is not what is significant here; rather, it is the number of incidences of assistance provision that is the key variable in this study. Therefore, the information on number of assistance provision instances is as follows:

To get the exact proportion of assistance in the messages posted in each unit, the number of assistance is divided by the number of messages and multiplied by a hundred. The outcomes are as follows:

Table 4: Overall Proportion of Assistance in Each Unit

Unit in Year 1	1-1	2-1	3-1	4-1	5-1	6-1	7-1	8-1
Instances of assistance	158.9	61.4	183.3	72.6	181.2	21.3	113.6	-
Unit in Year 2	1-2	2-2	3-2	4-2	5-2	6-2	7-2	8-2
Instances of assistance	156.8	200	56.8	136.5	135.7	-	-	71.1

In both year groups, it is clear that the pattern of assistance does not follow the frequency of posting. For example, in Unit 2-2, the number of assistance is twice the number of messages posted; in Unit 3-2, it is as low as only 56.8 % of the messages could possibly contain a single assistance.

FINDINGS

Table 5: The Number of Occurrence Assistance and Percentage of Type of Assistance Overall by Tutor and Students in Year 1 and Year 2 According to Type of Assistance

Assistance	**Group Year 1**				**Group Year 2**			
	S_1	**%**	**T_1**	**%**	**S_2**	**%**	**T_2**	**%**
Scaffolding	112	21.1	85	16	132	33.6	69	17.6
Feedback	17	3.2	59	11.1	9	2.3	40	10.2
Cognitive Structuring	0	0	2	0.4	5	1.3	9	2.3
Modelling	4	0.8	6	1.1	8	2.0	1	0.3
Contingency Management	0	0	9	1.7	1	0.3	7	1.8
Instructing	7	1.3	140	26.3	4	1.0	33	8.4
Questioning	25	4.7	66	12.4	35	8.9	40	10.2
Total	***165***	***31***	***367***	***69***	***194***	***49.4***	***199***	***50.6***

S_1: by students in Year 1; S_2: by students in Year 2; T_1: by tutors in Year 1; T_2: by Tutors in Year 2; %: percentage of assistance according to type of assistance overall.

The Table above identifies the number of occurrences of each form of assistance in Year 1 and Year 2. The Table above shows that in Year 1, more assistance is from the tutors even though the students posted more messages than the tutors (tutors provided 367 assistances in Year 1 compared to 165 from students). In Year 2, however, there is

no significant difference in terms of total number of instances of assistance from the tutors (199) or students (194). Compared to the number of messages sent in this year group (75 from the tutors and 231 from the students) and since there are far fewer tutors than students, it seems that assistance is more still likely to be provided by an individual tutor than a student.

In Year 1, Scaffolding at 37% is the type of assistance most commonly found in the units' discussion compared to the other types of assistance. Cognitive Structuring is the type of assistance that is least commonly found (0.4%). Feedback (14.3%), Instructing (27.6%) and Questioning (17.1%) are quite common types of assistance found between the two end points, suggesting that these types of assistance have significant roles in such interactions.

In terms of which type of assistance is most prevalent in the tutor or students' postings, it shows that in Year 1, most of the instances of Scaffolding (as the most popular type of assistance) were from the students. This is followed by Instructing, although most of these were from the tutors. Questioning and Feedback were less used and mostly by the tutors. The least common form of assistance given by the students were Instructing, Modelling, Contingency Management and Cognitive Structuring. From the Table, it can be seen that assistance was more frequently given by the tutors than the students for all types of assistance except for Scaffolding, where 112 (56.9%) out of 197 incidents of assistance were given by the students.

The finding also indicates that the number of assistance occurrences is not related to the number of messages posted, but to the participants' role. Students were more likely to provide a simple form of assistance such as Scaffolding. Even though the tutors sent the least number of messages overall, they remain the main source of support. They used most of the opportunities in their posting to give assistance while students did otherwise.

In Year 2, the total number of assistance from both tutors and students are almost equivalent, which illustrates an increase of students' role in giving assistance, in contrast to Year 1. Compared to Year 1, Year 2 shows a higher percentage in type of assistance used that were the least used in Year 1. These types of assistance are Cognitive Structuring, Modelling and Contingency Management.

In Year 2, the most common form of assistance given is still Scaffolding (51.1%) and mostly (two-thirds) from the students. This is followed by Questioning (19.1%), Feedback (12.5%) and Instructing (9.4%). The least common forms of assistance given by the students are still Cognitive Structuring (3.6%), Modelling (2.3%) and Contingency Management (2.0%). From the Table, it can be seen that while the students posted more messages, the total number of assistance given by the tutors and students is fairly equal (199 and 194 respectively). This instance shows the consistent contribution of tutors' assistance throughout the courses/units. Assistance is given more frequently by the tutors for all types of assistance except for Scaffolding and Modelling. From these results, tutors have shown a larger contribution in their role of giving Feedback and Instructing compared to students. These analyses of assistance suggest that assistance is more likely to be found in tutors' postings compared to the students. The balance of most type of assistance to be given by either role (tutor and student) in both year groups shows a similar pattern, i.e., students are most likely to provide assistance through Scaffolding and tutors through Feedback and Instructing.

CONCLUSION

This paper set out to investigate the behaviour of "teaching" in online discussions for higher education learning. We also extend the conceptualisation of teaching as assisted performance which included people not necessarily assumed to demonstrate such behaviour. This paper proposes that assisted performance fulfils a pragmatic vacuum with regards to the conceptualisation of "teaching" in the online discussion context. Informed by a redefinition of teaching in the socio-cultural perspective and the need for such redefinition and practice in online learning, this study confirms and proposes that "teaching can be usefully redefined as assisted performance" in the students online discussion in the adjunct mode. However, not all means of assisted performance could be delivered in such environment which might be due to the medium itself and the fact that the online mode may contribute to such deficiencies. As online discussions are conducted in the text form, more complex means of assistance such as cognitive structuring are difficult to provide. As this study is in the adjunct mode, more complex means of assistance may have been provided elsewhere.

Other important aspect in this paper is the methodological choices related to problems occurring in researching online learning task. Some main considerations for this study are as follows:

- Some of the messages may not appear to display any sign of participants' interaction of learning, for example "isolated" postings. However, in trying to find the evidence of assistances and to put them into a particular perspective, these messages are included in the total numbers of messages as they have, to some extent, "contributed" to the learning as a whole. As the messages might have been read by someone or someone could have learnt something from reading them, interactions are no longer important here but the evidence of assistances.
- As this research involved with trying to find for evidences, natural conversations in the online learning activities setting must be used for such kind of research.

Even though the findings show the conventional role of the tutors in providing assistances, assisted performance still can become a useful tool in judging a meaningful posting for learning activities in the online environment. Teaching behaviour could be occurring in peer learning interactions evidenced in online learning tasks in this study. As teaching in peer learning situation is conceptualised as assisted performance, the methodology proposed in this study is to look at the "proportions" of assistance (i.e., counting the frequencies of assistance relative to the number of messages) to commensurately understand the learning evidence in such an environment.

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