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Open and Closed Mode of Online Discussion - Does It Matter?

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ABSTRACT

This paper addresses some issues concerning online task type. Using categories, namely, Scaffolding, Feedback on Performance, Cognitive Structuring, Modelling, Contingency Management, Instructing and Questioning to analyze message transactions, or means of assistance in CMC 'Discussion Board', this study involved a total of 48 participants consisting of 36 students and 12 tutors in a Masters programme. Here, the CMC was used as a communication tool, extending face-to-face (or classroom) discussion. CMC was used in an adjunct mode. It was found that open tasks are more likely to generate more open modes of discussion. When there is 'assistance seeking', 'assistance giving' should always follow. In addition, open mode discussions also seemed to offer the students more opportunities to raise their concerns about their learning compared to the closed mode. Using these findings, a simple approach to distinguish discussion modes is proposed.

Keywords: Computer Mediated Communication (CMC), online discussion, task type, assisted performance

INTRODUCTION

It is quite rare to find research which specifically explains the nature of online tasks, especially in studies of online discussion. Discussion-oriented contexts are still the dominant form of communication with tutor-students and student-students interactions in online learning environments (Goodyear, 2001). Even though considerable research reports on the outcome or behaviour of a particular task, it is not clear if those findings are associated to the nature of the task itself. Through our experience, it is important in any research into online learning that the research question should indicate whether the nature of the task under study could possibly influence the research findings. It is also important to make the distinction whether the discussion is conducted for co-operative, collaborative or group work. As suggested by Goodyear, 'what is important, however, is to be clear about the nature of the tasks you set and about their implications for collaboration or co-operation' (2001, p. 79). This explanation is needed because such understanding regarding the nature of the task will inform the *situatedness* of the event or activities. In other words, it is a matter of context. As Goodyear states:

Part of the complexity of the problem may stem from assuming an identity between task and activity. Partly it may stem from having too global a view of an innovative educational intervention, failing to distinguish

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the contribution of its component parts or failing to use an appropriately wide range of outcome measures (Goodyear, 2001, p.49).

There are various terms used to refer to tasks in activities which use CMC in different areas of research, such as collaborative writing (Bonk and King, 1998), project-based learning, problem solving, assigned reading, class discussions, (Kirkley, Savery and Grabner-Hagen, 1998), computer conferencing (Henri, 1992), student role-play (Sugar and Bonk, 1998), and electronic collaboration (Kang, 1998). The orientations of these tasks are mainly discussion-based. The characteristics of the tasks which are used in different modes of online learning, especially collaboration through discussions, need to be differentiated, understood, enhanced, and integrated properly. Online learning promises non-hierarchal opportunities for participation. Students would have the same chances to start and conduct the discussion according to their desire of satisfying the task. However, how much do we know about the implications of different tasks' orientation (or mode) on the nature of tutor-student and student-student engagement, including giving assistance through discussions?

Part of this study works to understand the interaction in the online environment at the college or university level in different natures of task. It could be obtained by going back to the understanding of the interaction in the 'traditional' environment in the context of working co-operatively or collaboratively. Underwood and Underwood (1998) have distinguished types of tasks according to whether the students have to work co-operatively or collaboratively. Where the task is more problem-solving in nature, the students need to participate actively, as they will gain success through sharing their plans and ideas. Where the task is non-problem solving in nature, the students only need to agree on the task behaviour for task completion to take place, i.e. they need to co-operate, but not necessarily to collaborate (cited in Underwood and Underwood, 1998). The study was aimed at identifying the characteristics of co-operative and collaborative working in order to predict performance. The question they posed was: What kinds of discussion are associated with enhanced performance? The study was a controlled intervention in a school environment, and analysed the dialogue between children in order to establish the level of co-operation or collaboration between them when they were working with and around the computer.

Even though the study explored the students' group work tasks at the school level (i.e. when they were learning with or around the computer), it was clearly not in an online learning environment, but the information gained from the outcome of the study gives insight into the perspective of 'working together', which might be applicable to the college or university level. As argued by Pea (1993), some uses of technology 'enhance' education by making the achievement of 'traditional' objectives more efficient (as cited in Underwood and Underwood, 1998).

Another study has distinguished types of task according to learning objectives or goals. A study by Murthy and Kerr (2003) investigated the differences between communication process goals and communication modes by using teams (mix of teams using CMC and teams meeting face-to-face) with a shared history, performing two tasks: idea-generation and problem-solving. Idea-generation requires the conveyance of information while problem-solving requires convergence on the best solution. When the goal of the communication process was conveyance of information, CMC teams and face-to-face teams were found to perform equally well. However, when the communication process goal involved convergence, face-to-face communication resulted in a better performance compared to CMC (Murthy and Kerr, 2003). Results from this research revealed a significant connection between communication mode and communication process goals. In particular, tasks, which involved idea-generation, are suited to CMC as it allows conveyance of information through discussion. However, the question is: in what form of deliberations of tasks promote activities for idea-generation amongst students? And how can it be distinguished?

From the previous discussion, it can be generally concluded that the nature of has an impact on students' learning in online environments. One straightforward example is a study by Sorensen and Takle (2005), which explores knowledge building through students' self-reflection and suggests that the design element (task nature) is the key role of multiple opportunities for self-reflection by learners as 'it allows instructor and students to 'step outside themselves' and stand together to view the landscape of activities that has occurred' (Sorensen and Tackle, 2005, p.58). This finding shows that it is crucial to ensure the kind of task which will promote meaningful 'online dialogue'. Next, interactions between tutor-students and students-student have been also been focused on and studied. In particular, the method of analysis which explores the patterns of interactions in online discussions is put forward.

HOW TASKS WERE OBSERVED

The main way of categorising the tasks during the early stages of this study was heavily influenced by the VLE studies literature of how the practitioners developed and practiced 'activities' in this environment. However, despite the use of such categorisation, some additional characteristics emerged during this study as: 'The development of the research strategy grows gradually with the process of learning about the research setting' (Holliday, 2002, p. 64). As the characteristics of 'open' and 'closed' emerged, this category was used to differentiate various types of task. However, the primacy of the first categorisation of the task type is questionable as each task is dynamic. There is always an overlap of definitions and practices. Therefore, another way of identifying or classifying the task type will benefit, sharpen, and hone our understanding. Although there is no literature on the concepts of 'openness' and 'closedness' in the field of VLEs they have been used in many language learning and science learning studies. For instance, these concepts are used to verify mode of questions in language learning assessments. The practitioners in language learning admitted that the consequences of the outcome of these variations (open and closed questions) impact the way the students construct their answers. In addition, 'openness' and 'closedness' were successfully used in research on schools' science work outside the classroom in the United Kingdom.

An 'open' task might refer to activities which were literally 'open-ended', in that there were a number of acceptable end-points (Jones *et al*., 1992). Through the OPENS Project, Jones and his colleagues (1992) described what might be a helpful way of considering open work, i.e. to think of the activities (in their project, science activities) as having different degrees of openness. In the study, the openness and closedness of goals, processes, and outcomes of the activities were plotted in a framework with respect to degree. This is visualised in *Fig.1*.

Goal is where the participants are 'defining the problem' and the *processes* are where they are 'choosing a method', while the *outcomes* are where they are 'arriving at solutions'. However, as compared to the OPENS Project framework, *process* (choosing a method) and *outcome* (arriving at solutions) are not applicable for this study. In this study, a simple dualism of the terms *open* and *closed* are chosen as there is no way to distinguish the characters from one another and to plot the texts of my research along the spectrum. Our definitions of *open* and *closed* for this study are as follows:

Open task: Any activities in the learning which have no specific focus or specific instructions, where participants are free to contribute responses in any form, and afterwards having either an end product or none.

Examples:

1. A tutor invites students to post their ideas on any issue related to the subject content.
2. A student posts his concern about his understanding of the subject content and invites any response from other participants. A friend may throw an idea and some others may post useful hyperlink sources.

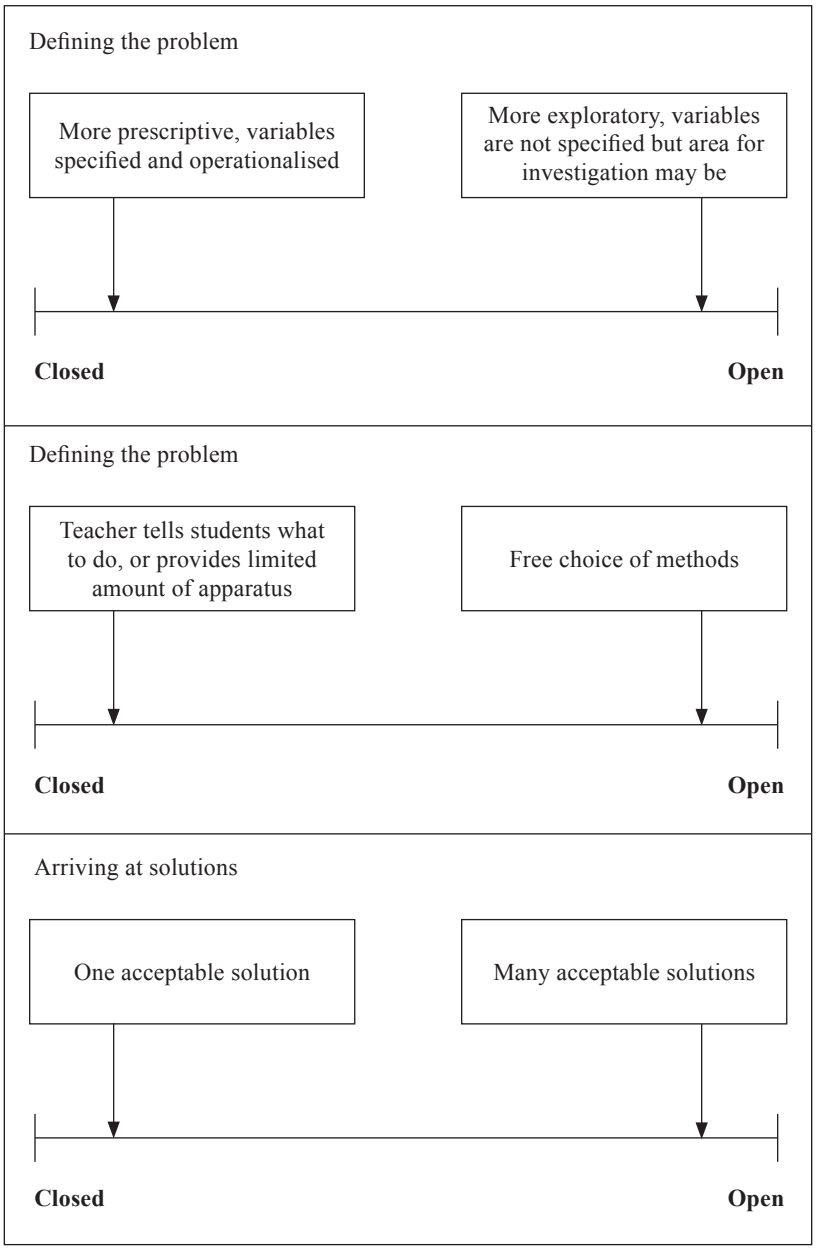

Fig. 1: Framework of open and closed work used in OPENS Project (1992) (adapted from Jones et al., 1992)

Closed task: Any activities in the learning which have specific focus (or scope) or specific instructions, which participants are expected to contribute responses in some form (individually or in group) and to some extent producing some kind of end product (individually or in group).

Examples:

1. A tutor posts a list of questions on a specific reading and asks his or her students to answer in a specific context.
2. A tutor invites students to post their concerns relating to specific theory or to their assignment in group of two.

METHODOLOGY

The authors used the following categories to analyse the message transactions, or means of assistance, in LMS 'Discussion Board' developed by Gallimore and Tharp (1990) and adapted in Kirkley *et al*. (1998). They are Scaffolding, Feedback on Performance, Cognitive Structuring, Modelling, Contingency Management, Instructing and Questioning. Details of the categories are as given in Table 1 below.

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 comprised of tutors and students in a Masters programme. The programme ran on a one-year basis for the full-time students and up to five years for the part-time students. It consisted of eight taught units and a dissertation. Six of ten part-time

TABLE 1
Means of assistance categories (adapted from Kirkley *et al.*, 1998)

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 organize "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 praises/ encouragements, or to control undesirable behaviours through punishment in the form of reprimand/censure.
Instructing	This occurs when the tutor gives 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 students. If the question is meant to provide assistance to the reader, then it is in this category.

students in the first group were also enrolled in the second group. Even though there were two series of year group used, the 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 CMC too little or not using it 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. The focus is on the participants who used CMC in the Blackboard Online Learning System in the context of a Masters in Education programme at one of the universities in South West England. Here, the CMC was used as a communication tool, extending face-to-face (or classroom) discussion and CMC was used in an adjunct mode[1].

Procedures

It is important to note that assistance offering and giving, captured in the messages, are evidence of teaching in this context. Meanwhile, content analysis was one method used to investigate the circumstance of assistance through discussion. All the circumstances of assistance, such as the total number of assistance and the types of assistance by group (units), role, and different task types were counted and diagnosed. The content analysis was performed on all the messages in the 'Discussion Board' for all the courses selected. Quantitative analysis of the data, through regularities or frequencies, showed the nature of assistance in both the tutor-student/s and student-student interactions.

The content analysis was performed on all the 'Discussion Board' messages for all the courses selected. The quantitative analysis of the data, through regularities or frequencies, was performed to answer the following questions:

- Who gave more or less assistance (in open and closed mode)? In this context, 'who' refers to either tutor/students.
- What type of assistance more or less was given? And by whom? (Refer to the group in the previous question).

The data were divided into two groups. The first data group included the messages posted by all the participants in the first year and the second data group comprised the messages posted in the following year. Each group of data was collected at the end of the final term. Two interraters (working together) were used for the first year group while only one interrater was used for the second year group. The difference for the number of interrater(s) is due to their availability.

TABLE 2
Example of the comparison in coding between me and the interraters

Unit	Coder 1	Coder 2
Case 1	A	A
Case 2	C	D
Case 3		E
Case 4	C	C
Case 5	C	C
Case …	C	B

Coder 1 was me and Coder 2 was the interrater(s). A=Scaffolding, B=Feedback, C=Cognitive Structuring, D=Contingency management, E=Instructing and F=Questioning

[1] An adjunct mode (as in this study), occurs when students in a course use CMC through an online delivery system as an optional rather than a compulsory learning activity (Harasim *et al*., 1999)

Interrater agreements were achieved by employing Cohen's Kappa (κ) in the SPSS programme. Approximately more than 20% of the data were used for this purpose as a huge number of messages from the collective data were already. If the value of κ is .7 or above, it is significant enough to proceed with the coding and analysis (Krippendorff, 2003).

These sequences were placed in the SPSS Data View to calculate Cohen's Kappa (κ). 'Case x' is the instances of seven different types of assistance. 'Case' is used as it is possible to have more than one 'case' in one particular sentence in one particular posting. The table above is an example of the coding which takes place in the SPSS Data View. In Case 1, the interrater and the authors perceived that there was an instance of Scaffolding in the sentence. Meanwhile in Case 2, we perceived that there was a Cognitive Structuring in the sentence, but the interrater perceived it differently, i.e. as Contingency Management. In Case 3, the authors perceived that there was no assistance in the sentence; on the contrary, the interrater thought that the question in the sentence was somehow a way of assisting.

A Cohen's Kappa of 0.764 was established for the first year group and 0.706 for the second year group.

RESULTS AND DISCUSSION

Table 3 shows the pattern of assistance provision by the participants according to the mode of the tasks initiated by the tutor (i.e. open and closed tasks). The first column in the table above indicates that more messages were posted in closed tasks. However, in terms of quality, more messages posted in the open tasks contained assistance as shown in the second column. The third column corroborates the assertion that the instances of assistance were more frequent in the open task discussions.

It can be concluded that, in Year 1, the open task discussions promote more instances of assistance compared to the closed task discussions even though the number of messages in the closed task discussions is higher than in the open task discussions.

Column one in Table 4 indicates that the total number of messages in Year 2 for the open task discussion is higher than the closed task mode. Meanwhile, the pattern is different compared to Year 1, where there is also a higher number of messages in the open discussion (210) compared to the closed discussion (96). (In Year 1, open discussions had a total of 233 messages while the closed discussions had 293). However, just as in the previous year group, the open task discussions contained more messages with assistance, than did the closed task discussions

TABLE 3
Comparison of the instances of assistance in the messages posted in the open and closed tasks in Year 1

Mode of task used to initiate discussion[2]	No. of messages	No. of messages with any assistance	No. of instances of assistance	Proportion of the whole (%)
Open	233	119	313	134.3
Closed	293	93	219	74.7
Total	526	212	532	

[2] The number of units in open task is the same as in the closed task. Therefore they are comparatively balance

TABLE 4
Comparison of the instances of assistance in the messages posted in open and closed task in Year 2

Mode of task used to initiate discussion	No. of messages	No. of messages with any assistance	No. of instances of assistance	Proportion of the whole (%)
Open	210	136	321	152.9
Closed	96	42	72	75
Total	306	178	393	

(as shown in column 2). Furthermore, as shown in the third column, there were more instances of assistance in the open task discussions as compared to the closed task discussions.

It is possible to argue, therefore, that the instances of assistance in both year groups show similar patterns, i.e. that open task discussions promote more instances of assistance.

This analysis attempted to identify the division of type of assistance in different modes of tasks in Year 1.

In Year 1, the number of messages sent in the closed discussions was 293, as indicated in Table 3, which is greater than in the open discussions (233). However, but the assistance offered is more frequently found in the open mode discussions (i.e. 314 out of 532 or 59.0%). Scaffolding is the most seen of all the types of assistance in the open and closed discussions. Scaffolding (126 or 64%) and Instructing (105 or 41.4%) are more often seen in open discussions, while Feedback (48 or 63.2%) is more often given in the closed discussions. Modelling and Contingency Management are rare overall. Cognitive Structuring is almost absent in both the open and closed discussions.

Next is the division of type of assistance in the different task modes in Year 2.

The number of messages posted in the open discussions is greater than in the closed discussions (*see* Table 4). Correspondingly, assistance is offered more frequently in the open mode (321) compared to the closed mode (72). In particular, scaffolding remains the type of assistance seen most often in both the open and closed discussions. Instructing and Questioning in the closed discussion in Year 2 showed a dramatically low rate of occurrence as opposed to Year 1. In the open discussion, however, the number of Instructing and Questioning instances is different between the groups. In Year 1, Instructing was found almost twice as much as Questioning, while in Year 2, it was the reverse. There was a slight increment in

TABLE 5
Number of instances of assistance for different type of assistance in open and closed task in Year 1

Assistance	Open (%)	Closed (%)	Total	(%)
Scaffolding	125 (39.9)	72 (32.9)	197	37.0
Feedback	28 (8.9)	49 (22.4)	77	14.3
Cognitive Structuring	1 (0.3)	1 (0.5)	2	0.4
Modelling	4 (1.3)	6 (2.7)	10	1.9
Contingency management	5 (1.6)	4 (1.8)	9	1.7
Instructing	105 (33.5)	41 (18.7)	146	27.6
Questioning	45 (14.4)	46 (21.0)	91	17.1
Total	313	219	532	100.0

TABLE 6
Number of instances of assistance for different type of assistance in open and closed task in Year 2

Assistance	Open	Closed	Total	(%)
Scaffolding	150 (46.7)	51 (70.8)	201	51.1
Feedback	39 (12.1)	10 (13.9)	49	12.5
Cognitive structuring	13 (4.0)	1 (1.4)	14	3.6
Modelling	9 (2.8)	0	9	2.3
Contingency management	7 (2.2)	1 (1.4)	8	2.0
Instructing	34 (10.6)	3 (4.2)	37	9.4
Questioning	69 (21.5)	6 (8.3)	75	19.1
Total	321	72	393	100.0

TABLE 7
Comparison of assistance provision by different role of participants in open and closed task (distribution is by unit) in Year 1

	Unit	Assistance from tutor	Assistance from student
Open	1-1	165	32
	2-1a[3]	2	28
	3-1	23	10
	4-1	27	26
	Total	217	96
Closed	2-1b (small group)	1	23
	5-1	25	4
	6-1	7	9
	7-1 (small group)	117	33
	Total	150	69

the number of less frequently used assistances from the previous year, i.e. Modelling and Contingency Management and especially Cognitive Structuring.

This analysis shows that there are differences in the patterns of assistance types from Year 1 to Year 2. This change is true for both the open and closed tasks.

As shown in the previous analyses, there is no overall specific pattern indicating that assistance, either from the tutors or from the students, is connected to the type of task. However, does tutor assistance affect students' assistance? If so, is this relationship stable in both the open and closed tasks? This analysis looks at the pattern of assistance by the students relative to the tutors' in different task types in Year 1.

As presented in the Table 7, the tutors in Unit 1-1 (in open mode) gave much more assistance than the tutors in other units. This was then followed by Unit 7-1 (in closed mode). However, the number of assistance instances from the students in both units is similar. If

[3] Unit 2-1 is divided into two types according to discussion mode, where Unit 2-1a in general discussion to all participants (open mode) while Unit 2-1b is work group and in a closed mode of discussion

TABLE 8
Comparison of assistance by different roles of participants in open and closed tasks (distribution is by unit) in Year 2

	Unit	Assistance from tutor	Assistance from student
Open	1-2	101	37
	2-2	15	37
	4-2	56	75
	Total	172	149
Closed	3-2	17	4
	5-2	10	9
	8-2 (small group)	0	32
	Total	27	45

we look at Unit 2-1a in the open task and Unit 2-1b in the closed task, the tutor gave the least amount of assistance, but the students' assistance was found to be varied. Therefore, it cannot be concluded that the students' assistance relied on the number of assistances given by the tutor in either open or closed tasks.

As for Year 2, the analysis is as shown in Table 8.

In the Table 8, in Unit 1-2, the tutor (the same tutor as in Unit 1-1) continued to give a large amount of assistance compared to the other tutors in other units. The tutor in Unit 2-2 (the same tutor in Unit 2-1a and 2-1b) gave an increasing number of assistances as compared to the first year group. However, the number of assistance by the students is not much different between the groups. Student assistance continues to be independent of the assistance by the tutors in both the open and closed tasks.

Based on these results, it is clear that open tasks do evoke more assistance giving, even when fewer messages are posted. Whilst the number of assistance from the tutors and the students are different in both the year groups, whether for the open and closed tasks, the type of tasks does not affect the participants' role in providing assistance. In other words, either tutors or students are able to provide assistance in any mode of task – open or closed. Students' assistance is independent of tutor's assistance in both the open and closed tasks.

CONCLUSIONS

In this study, different nature of tasks was found to lead to different patterns of responses and participation. The patterns, however, are not straightforward as they are also dependent on certain other factors or conditions. One way that we can distinguish between the different natures of task is through its degree of 'openness and closedness'. Such differences as defined here seem to lead to a different nature of responses and how the participants carried out the related discussion task. Therefore, the authors could not simply give instruction to carry out the task to the students without thinking about the implication of either the openness or closedness of the task to their behaviour.

Open tasks are more likely to generate more open modes of discussion. The students are free to start the forum and choose the direction of the conversation. This situation is an opportunity for the students to pin down their understanding and check whether their understanding is moving in the right or appropriate direction. When there is 'assistance seeking', 'assistance giving' should always follow. This situation might be one of the reasons why there were more evidences of assistance in the open tasks as compared to the closed tasks.

In addition, if the students are not working in groups, i.e. when they are all participating in course discussions, it is clear from the findings of this study that more assistance can be found

in the open tasks compared to the closed tasks. This is similar to working in groups, where open mode discussions offer the students more opportunities to raise their concerns about their learning compared to the closed mode. In this composition of participants (i.e. whole class work not group work), the number of assistance from the students does not rely on the number of assistance provided by the tutors, either in the open or closed tasks. Consequently, whether the tutors were actively involved in providing assistance or not, any mode of discussion (open or closed), did not hinder the students' efforts in doing so. This study has thus proposed a simple approach to distinguish the discussion modes in an online environment.

Therefore, one should consider how students can work together when designing an adjunct course, particularly if they can work collaboratively or cooperatively. When a task in an online discussion is open in nature, the group shall benefits in terms of there shall be more room for them to post their concern as anyone is free to post his/her concerns. As the students' concern in a bigger group could be verity (scope) and the amount could be enormous, therefore, more peers' responses are needed in order to overcome the problem or assisted performance from the peer.

If the tutor plans to have smaller groups (two to three members), and the task is planned to be carried out in a closed mode – the task should have a specific goal, process and outcome. Students should have a clear idea of what to do, can arrange responsibility amongst group members and understand the expected product. As the task is more certain, concerns which may emerge from students are also more specific as compared to those of a larger group. Furthermore, the topics are more familiar among the group members and therefore assistances are easier to be given. Initiating small groups in closed tasks is good if the purpose is to obtain high student participation in the online discussion. As in a bigger group, there will be a possibility of students who just 'lay back', as compared to the smaller group where this passivity can be reduced. The course would be more manageable if it was to be conducted by more than one tutor where more assistance could be enhanced by both the tutor and the students.

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