

## Active Teaching and Learning Systems for Multicultural Educational Environments

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### Abstract

While multicultural classrooms have the potential to improve students' educational experiences, they may also provide difficulties for educators due to cultural differences in students' perspectives on how they should study and how they should interact with classroom materials and other people. The purpose of this article is to provide the findings of a research that aimed to determine whether or not the cultural backgrounds of English students affected their usage of and satisfaction with technology-supported active learning systems. Indian universities sent out questionnaires to their postgraduate English students. The utilisation and satisfaction with active learning in and out of the classroom were examined through the lens of Hofstede's three cultural orientation factors . The findings revealed that the levels of satisfaction with and the use of resources for an active learning activity varied across students of North and South cultural backgrounds.

**Keyword:** multicultural, orientation, determine,satisfaction ,satisfaction.

### Introduction

The use of technology in schools of higher learning has increased dramatically during the last two decades. Technology is used to provide wider access to education, offering flexible and convenient ways of learning and teaching through the provision of online resources, activities, and courses. Another important use of technology in education is to enhance learning experiences through the development of innovative and engaging activities and resources. The opportunities afforded by these technologies have also supported new pedagogical approaches. A recent trend has seen an emphasis on *active learning* approaches that are grounded firmly in the learner-centered and constructivist education philosophies. There are many studies of active learning in English courses that indicate active learning can provide interesting and engaging experiences for English students working in and out of the classroom. However, there are also indications that not all students benefit from active learning approaches. Students may not be motivated by or feel comfortable with active learning leading to less effective learning and less than satisfactory teaching experiences for educators. It's not uncommon for students working in virtual classrooms to experience mental blocks, loneliness, and stress .

There are a number of reasons for different responses to active learning. These may relate to the students, teachers, or the environment. Students' cultural origins, upbringings, and learning styles all have a role in how they approach and process information in the classroom . Cultural differences in how pupils react to classroom activities is another factor. For instance, compared to their Northern states, students from states South look less proactive in their pursuit of knowledge. According to Balta , “the cultural norms of a nation have an impact on Peer Teaching.It is essential to understand how students from different cultures respond to active learning resources and approaches to enable educators to employ these approaches most effectively”.

This study aims to examine and compare the cultural differences in students' utilisation of and satisfaction with active learning methods. Since that research has indicated that students from

Northern and Southern cultures respond differently to surveys and need different kinds of academic help, we conduct a comparative analysis of the answers we get from students from both regions. Southern nations including Telangana, Andhra Pradesh, Karnataka, Tamil Nadu and Kerala cultural values have been impacted by Southern ones, are collectively referred to as "Northern" for the sake of this research. In this context, "Northern" refers to the group of state whose cultural values are most heavily affected by Hindi.

### **Incorporating Learning Activity into the College Curriculum**

Active learning is a broadly used term; however, drawing from a review of active learning research, define active learning as having two key elements: students actively undertake an activity and they have the opportunity to think and/or reflect about their learning as part of the process, for example, flipped, problem-based, cooperative, collaborative, and peer learning. Peer interaction is a method of students learning from each other. It is an active learning method used to help students understand the core concepts of a topic and promote deep understanding. Peer Instruction involves students in collaborative problem-solving activities. It is one of the most extensive methods used in active learning in many countries with various cultural backgrounds. The aim is to engage students in explaining core concepts as they collectively attempt to solve problems. Students in a Peer Instruction class are given a pre-lecture exam once they have completed the necessary preparation for it. Discussion and multiple-choice quizzes replace or supplement the traditional lecture format. The purpose of these questions is to promote critical thinking and collaborative problem solving amongst students.

### **Culture**

In our study, we explored the cultural influences on students' use of technology-supported active learning resources and activities. The study of how technology is used in classrooms requires consideration of cultural differences. A number of studies have shown that cultural background can influence the adoption and use of technology.

Hofstede defined six cultural values dimensions that he used to distinguish different cultures. He proposed that these dimensions describe characteristics that have a significant impact on work style and workplace values. Hofstede's cultural values dimensions are helpful for gaining insight into someone's underlying worldview. Three of the six dimensions of cultural values were selected for this study. These factors were most relevant to the classroom setting and had the greatest bearing on students' study habits (Aparicio, 2016). The dimensions we used were:

- **power distance**, a measure of how widely people in a society accept unequal distributions of power within institutions and organisations. Students in a high-power distance society look up to their instructors and treat them with the utmost respect, both in and out of the classroom.
- how much people in a society value certainty and take steps to prevent it by adopting more rigid norms and valuing and/or seeking out expert guidance. Learners in today's high-uncertainty world want more regimented classroom environments. Students have high hopes that their instructors would know the correct solutions and are eager to learn them;
- to what extent individuals are integrated into basic groupings, such as families and organisations, and to what extent their connections are founded on loose social frameworks as opposed to collectivism. Individualism and collectivism are reflected in the learning styles of students. In individualistic societies, students are more likely to feel free to speak in class and are encouraged to think independently. In collectivism societies, students are not encouraged to express opinions and are expected to remember and recall what they have been told.

### **Methodology**

The students' cultural and educational backgrounds, their perspectives on active learning, and their usage of support activities and resources were gathered using a survey questionnaire for this study. The study was conducted in an Introduction to Databases course for Masters level students at an Indian university. All Masters level students are required to take this course if they have no prior

study in English.

The Database course applied active learning with Peer Instruction used in lectures. In addition, various online resources were provided to encourage active learning both in and out of class. Students are better able to participate in active learning tasks like reading, discussing, and writing thanks to the supplemental resources they have access to outside of class. The study's overarching goal is to investigate if and how cultural factors influence students' reactions to active learning. Culture-specific learning styles of graduate students in an active-learning-based database introduction course are investigated.

**Participants**

The participants were postgraduate students enrolled in Masters programs in MA English .Four hundred students participated in the poll because they were interested in the topic.

**Procedure**

Pupils' confidentiality was guaranteed, and their signed agreement to participate was required. Questionnaires were distributed to the students who agreed to participate during their tutorial classes. There were three parts to the survey. The purpose of Section 1 was to collect information on the respondent's identity and their educational history. In the second part of the survey, students were asked about their experiences with active learning and the kinds of supplementary materials and programmes they had accessed. Since students' engagement in learning is often influenced by their prior cultural educational experiences, Section 3 was utilised to gauge the student's cultural background. Hofstede's research connecting cultural factors to school cultures bolsters this claim. The present study used a modified version of Hofstede's Culture Questionnaire to explore the relationships between the three cultural dimensions of power distance, uncertainty avoidance, and individualism (Hofstede, 2011). In parts 2 and 3, you were asked to choose your preferred option on a 5-point Likert scale (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree). Utilised the non-parametric Mann-Whitney U test to compare Northern and Southern students' replies since the questions relied on ordinal scales for their ratings.

**Results and Discussion**

The results of the survey data analysis are shown below.

**Demographic profile**

The vast majority of respondents (93%), including 58.5% who identified as Chinese, were located in the Northern time zone. The Southern students (7%) included 3.3 percent who were Indian. Details of the ethnic background of respondents are summarized in Table 1.

Table 1. Ethnic background of respondents

Ethnic background	Number of respondents	Percent(%)
Northern		
Madya Pradesh	234	58.5
Utter Pradesh	107	26.8
Maharastra	6	1.5
Chhattisgarh	5	1.3
Jammu Kasmear	3	0.8
Panjab	3	0.8
Goa	3	0.8
Rajastan	3	0.8
Other Northern	9	2.4
Southern		
Indian	13	3.3

The majority of students (90.6%) were aged between 22 and 25 with 80 percent aged between 22 and 25 years and 10.6 percent between 26 and 29 years. In terms of sex, 64.8% were male and 35.2%

were female. Eighty-seven percent of those polled were unemployed while 13 percent were working part-time. Almost all (94%) of the pupils were from outside the country.

**Cultures and histories of education**

The results of the poll highlighted many key ways in which Northern and Southern students' approaches to education diverge from one another. Most Northern students (90.3%) indicated that the education tradition in their culture was teacher-centered and only a few (7.5%) claimed their tradition was learner-centered. In contrast, the Southern students were equally divided with almost half (46.2%) claiming their tradition was teacher-centered and almost half claiming their tradition was learner-centered (refer to Table 2).

Table 2. Educational traditions of Northern and Southern cultures

<b>Educational tradition</b>	<b>Northern )%(</b>	<b>South )%(</b>
Teacher-centered	90.3	46.2
Learner-centered	7.5	46.2
Other	2.1	7.7

Seventy-seven percent of Northern students said that rote learning typified the educational heritage in their culture, but only 38.5 percent of Southern students said the same about their culture. Table 3 shows the details of the educational traditions of Northern and Southern cultures.

Table 3. Characteristics of the education traditions

<b>Characteristic</b>	<b>Northern )%(</b>	<b>South )%(</b>
Rote learning	76.7	30.8
State your opinion	11.0	23.1
Critical discussion	7.2	38.5
Other	5.1	7.7

According to the results shown in Table 4, in situations when the students do not understand something in class, most of the Northern students prefer to ask their classmates (83.1%) while asking their tutor was the most popular strategy with Southern students (69.2%).

Table 4. Students' strategies for seeking help

<b>What do students do if they don't understand?</b>	<b>Northern )%(</b>	<b>South )%(</b>
Ask your classmates	83.1	57.7
Ask your tutor	66.2	69.2
Ask the lecturer after class	60.6	53.8
Write an e-mail to the lecturer	40.5	23.1
Ask the lecturer in class	38.9	38.5
Post a question to the class forum	19.8	23.1
Face-to-face meeting	16.6	11.5
Post a question to an online forum	11.5	3.8
Contact via social media	2.7	3.8
Telephone the lecturer	1.9	0.0

**Cultural Background**

Several sets of questions were used to probe each of the three cultural dimensions: power distance, uncertainty avoidance, and individualism. The findings are shown in Tables 5, 6, and 7. Total percentages of agree (A) and strongly agree (SA) answers, as well as disagree (D) and severely disagree (SD) answers, are shown for each survey item. The responses to each question for Northern and Southern students were compared using Mann-Whitney Utests.

For the power distance items shown in Table 5, the differences in items 2, 3, and 6 indicate that Northern

students felt unequal to their lecturers when compared to Southern students and preferred their classes to be conducted in a formal manner. For the uncertainty avoidance dimensions shown in Table 6, Northern students saw their lecturers as having responsibility for ensuring that an assignment is completed satisfactorily. Northern students expect well-defined instructions from their lecturer in contrast to Southern students who are more comfortable with less direction. They also believed that academic success brought respect and honour into the home whereas academic failure brought dishonour. The dimension of individualism/collectivism is shown in Table 7 which indicates that in a high collectivist society, students hesitate to speak up in larger groups. Southern students value autonomy and individuality equally, while Northern students place greater value on belonging to a group, therefore they are more likely to choose a technique that protects their anonymity, such as peer education.

Table 5. Students' ratings of the characteristics of the power distance cultural dimension

Power distance	Northern		South		U-Test	Sig (2-tailed)
	SA/A	D/SD	SA/A	D/SD		
1. I typically consider my lecturers to have wisdom.	85.6	2.1	76.9	0.0	4053	.121
2. I usually have a great deal of respect for my lecturers.	91.2	0.8	88.5	0.0	3788	.038*
3. I feel my lecturers and I are essentially equal.		7.2	34.6	26.9	2767	.000*
4. I think there should be		4.1	53.9	15.3	4247	.259
5. I expect my lecturer to be recognized experts in the field in which they teach.	86.6	1.9	73.1	0.0	4294	.287
6. I am more comfortable when my lecturer conducts a class in a formal manner rather than informally.	53.7	13.6	30.7	34.6	3426	.009*
7. I think the quality of learning depends on the excellence of lecturers.	73.7	4.2	77.0	7.7	4604	.647

\*Indicates difference is significant at  $p < 0.05$

Table 6. Students' ratings of the characteristics of the uncertainty avoidance cultural dimension

Uncertainty avoidance	Northern		South		U-Test	Sig (2-tailed)
	SA/A	D/SD	SA/A	D/SD		
8. It is the lecturer's responsibility to choose the topic of any	62.2	5.7	46.2	3.8	4484	.491

projector assignment.						
9. I expect the lecturer to know the answers to any questions and topics in the unit.	70.5	6.5	73.1	7.7	4817	.952
10. It is the lecturer's responsibility to ensure an assignment is completed satisfactorily.	67.0	8.5	46.1	38.4	3576	.018*
11. There are different views on truth. Something may appear true to you but not true to others.	79.1	1.6	73.1	7.7	4403	.397
12. High achievement in learning brings honor and prestige to the family, failure brings shame.	57.1	16.6	30.7	38.5	3288	.004*
13. It tends to over-rate my own performance.	42.1	18.2	26.9	42.3	3497	.013*

\*Indicates difference is significant at  $p < 0.05$

Table 7. Students' ratings of the characteristics of the individualism/collectivism cultural dimension

Individualism/collectivism	Northern		South		U-Test	Sig (2-tailed)
	SA/A	D/SD	SA/A	D/SD		
14. Having friends and being liked by them is more essential than having your own thing going on.	54.9	12.1	23.1	15.4	3366	.006*
15. In this context, group accomplishment is prioritised above individual achievement.	51.7	12.3	30.8	7.7	4007	.119
16. Having collective loyalty is more vital than seeking personal benefit.	61.1	10.1	53.8	3.8	4641	.700

\*Indicates difference is significant at  $p < 0.05$

**Active learning activities**

In this section, we report students' satisfaction with Peer Instruction (an active learning system utilized in lectures) and their use of resources and activities outside class to support active learning. Table 8 shows that the majority of students felt that using Peer Teaching to reinforce what they learned in class improved their retention of course material. Peer Instruction involves students in collaborative problem-solving activities and most students agreed that the discussions helped them understand difficult concepts. Mann-Whitney the findings of the U test indicated that there were no statistically significant variations in the levels of satisfaction with utilising Peer Teaching between Northern and Southern pupils. This indicates that both groups felt that Peer Instruction was useful for their study. However, more Northern students claimed that they would like to have Peer Instruction in other units and the difference was significant. Table 8 shows the detailed results.

The results in Table 9 show the frequency of use of online resources to support active learning. These show that online lecture slides and tutorial exercises were the most used resources for Northern students. The Northern students also claimed these were the most useful resources for their learning. On the other hand, Southern students used online tutorial exercises most often and claimed the exercises and online lecture recordings were most valuable for their study. The least used resource was social media. This is perhaps not surprising as it was not central to their learning in this

course.

Table 8. Students' satisfaction with peer instruction

Item	Norther		South		U Value	Sig (2-tailed)
	n SA/A	D/SD	SA/A	D/SD		
1. Peer instruction helps me understand the concepts of the lectures.	78.0	2.4	76.9	0.0	4419	.418
2. Quiz questions help confirm my understanding of concepts that are introduced in pre-lecture reading.	84.0	3.5	84.6	3.8	4583	.608
3. Discussing questions in groups in class helps me understand the more difficult concepts.	78.0	3.0	92.3	0.0	4585	.608
4. The group vote helps me easily participate in classroom.	61.2	4.8	65.4	7.7	4670	.737
5. I would like to have peer instruction in other units.	75.6	2.9	50.0	7.7	3299	.003*

\*Indicates difference is significant at  $p < 0.05$

Table 9. The frequency of using online resources to support active learning

How often do you use these resources?	Northern		South		U Value	Sig (2-tailed)
	ET/AET	AN/N	ET/AET	AN/N		
Online lecture slides	85.0	0.5	61.6	0.0	3835	.051
Online tutorial exercises	75.0	2.7	92.3	3.8	3417	.007*
Online textbook	69.5	4.5	69.2	11.5	4789	.912
Lecture recordings	50.4	7.8	46.2	7.7	4791	.914
Online forum for discussion	33.2	20.9	38.4	30.8	4677	.749
Social media e.g. Facebook	15.3	56.8	15.4	69.3	3787	.053

\*ET = Every Time, AET = Almost Every Time, AN = Almost Never, N = Never

**Conclusions**

Higher education computer courses benefit greatly from the use of active learning strategies, since they encourage student participation and foster an atmosphere conducive to effective learning. In this study, we investigated how three cultural orientation variables affect students' enjoyment of active learning strategies in and out of the classroom. Although we did find substantial disparities in cultural characteristics and educational practices between Northern and Southern pupils, we did not find any differences in how effective active learning activities were seen to be by students from either region. We did find, however, that Northern students had more preference for Peer Instruction in other courses. Moreover, we discovered cultural factors associated with how students ask for clarification when they are confused in class. The high percentage of Northern students who prefer to ask their classmates shows their dependence on each other and perhaps indicates that they value being members of a group. This is well aligned with the collectivist cultural characteristics of Northern students.

Both Northern and Southern students claimed that online tutorial exercises were the most effective way to learn. However, differences were found in the resources students used to learn outside of class, with Northern students using lecture slides and Southern students preferring lecture recordings. This suggests that in a multicultural environment, it is helpful to provide learning resources in multiple formats. Our findings provide valuable implications for applying active learning tools suitable for students who come from different cultural backgrounds.

**References**

1. Aparicio, M., Bacao, F., & Oliveira, T. (2016). Cultural impacts on e-learning systems' success. *Internet and Higher Education*, 31, 58-70.
2. Au, K.H. (1993). *Literacy instruction in multicultural settings*. Orlando, FL: Harcourt Brace College Publishers.
3. Baptista, G. & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behavior*, 50, 418-430.
4. Boud, D., Cohen, R., & Sampson, J. (1999). Peer learning and assessment. *Assessment and Evaluation in Higher Education*, 24(4), 413-426.
5. Elliot, R. (2014). Do students like the flipped classroom? An investigation of student reaction to a flipped undergraduate IT course (FIE'14). *IEEE*, 1-7.
6. Färnqvist, T., Heintz, F., Lambrix, P., Mannila, L., & Wang, C. (2016). Supporting Active Learning by Introducing an Interactive Teaching Tool in a Data Structures and Algorithms Course (SIGCSE'16). *ACM, New York, NY, USA.*, 663-668.
7. Freeman, S., Eddy, S.L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & M.P. Wenderoth. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proc. Natl. Acad. Sci. USA* 111, 23, 8410-8415.
8. Hayashi, Y., Fukamachi, K., & Komatsugawa, H. (2015). Collaborative Learning in Computer Programming Courses That Adopted the Flipped Classroom (LaTiCE'15). *IEEE*, 209-212.
9. Hofstede, G. (1980). *Culture's consequences International differences in work-related values*. Beverly Hills, CA: Sage.
10. Hofstede, G. (1986). Cultural Differences in Teaching and Learning. *International Journal of Intercultural Relations*, 10(3), 301-320. [http://dx.doi.org/10.1016/0147-1767\(86\)90015-5](http://dx.doi.org/10.1016/0147-1767(86)90015-5)
11. Morice, J., Michinov, N., Delaval, M., Sideridou, A., & Ferrières, V. (2015). Comparing the effectiveness of Peer Instruction to individual learning during a chromatography course. *Journal of Computer Assisted Learning*, 31(6), 722-733.
12. Ni, A.Y. (2013). Comparing the effectiveness of classroom and online learning: Teaching research methods. *Journal of Public Affairs Education*, 19(2), 199-215.
13. Ratan, R., Ucha, C., Lei, Y., Lim, C., Triwibowo, W., Yelon, S., Sheahan, A., Lamb, B., Deni, B., & Chen, V.H.H. (2022). How do social presence and active learning in synchronous and asynchronous online classes relate to students' perceived course gains? *Computers & Education*, 1-15.
14. Renshaw, P.D. & Volet, S. E. (1995). South-east Southern students at Indian universities: A reappraisal of their tutorial participation and approaches to study, *The Indian Educational Researcher*, 22(2), 85-106.