

Learning Style, Culture, and Delivery Mode in Online Distance Education

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Abstract — Most research shows that learning style has little impact on learning outcomes in online education. Nevertheless, students with different learning styles prefer different learning formats, so the issue is critical for competitiveness. Students who have particular learning styles are unlikely to choose a mode which does not fit their styles well, and likely to prefer ways of learning that fit their learning styles. Thus, adapting online courses to learning style important for competitiveness where students choice.

Keywords — culture, delivery mode, learning style, online courses

I. INTRODUCTION

Much online distance education (DE) is oriented toward individualistic and low-context cultures, mainly because that is where online education developed first. Often, online DE is built around asynchronous discussion board. However, different learning styles may prefer other modes of interaction. Further, different cultures may be more oriented toward particular learning styles.

This is not mainly an issue of how much students learn. Most research shows that learning style has little impact on learning outcomes in online education, regardless of how learning style is measured. Santo's recent review [1] of learning style research shows a wide variety of terms, little agreement on the exact conceptual content of the terms, and little agreement on exactly what concepts constitute learning style. This

results, of course, in many learning style instruments.

II. LEARNING STYLE SCHEMA

Nevertheless, however it is exactly conceptualized, students clearly do have different ways of learning. Following an old schema which continues to be used, Santo categorizes learning style into three layers, thus providing some coherence to the wide range of models. The inner layer is about personality, "an underlying relatively stable dimension that controls learning behavior" [1, p. 74]. The middle layer is about cognitive style and focuses on how learners process information.

The outer layer is about the environment in which students prefer to learn, including the nature of interaction with the instructor or other students. This third layer is probably most malleable. The descriptions of learning styles in all models and at all levels suggest elements of Hall's high/low context cultural characteristics [2], as well as Hofstede's schema [3], notably uncertainty avoidance & individualism / collectivism.

Santo's extensive review [1] of research shows that learning style has almost no impact on online learning outcomes at any of the three levels. The malleability in her outer layer of interaction in the learning environment is probably the basis for such consistent results. Whatever their individual learning styles at the middle and inner layer, or individual preferences in the outer layer, students can adapt to different delivery and interaction modes and do well in them, when necessary.

However, in a competitive environment, it is not always necessary. Students can choose the mode they like. Santo does cite research showing that learning styles relate to enjoyment of the course, satisfaction, or likelihood to take an online course. For example, in one study using the inner layer in her schema, reflective learners were more likely to enroll than active learners, and global learners were less likely to complete the course than sequential learners. In another study at this inner level, global learners preferred student-content and student-student interactions relatively more than did sequential learners, but liked student-instructor interactions less.

A study that used a middle layer instrument in Santo's schema said that students in different learning style categories enjoyed (or did not enjoy) an online course to strongly different degrees. Santo also notes a study using an outer layer instrument which showed course developers constructed a course around visual, applied, spatial, social, and creative styles, although many students preferred non-spatial and conceptual styles.

These examples, from all three levels in Santo's schema, suggest that whatever the details of its conceptualization and measurement, learning style does have some impact on attitudes toward online classes. Thus, one could ask how culture might play a role in these attitudes. The ways students communicate and interact (with peers, instructors, content) is common across measurement of most of these learning styles. A substantial part of how cultures are distinguished concerns how people relate to and interact with each other. Cultural patterns are reflected in learning style, and affect attitudes toward and preferences for specific modes of online education.

III. CULTURE

Hofstede [2] and Hall [3] provide the two cultural schema most commonly used in many fields. Hofstede's schema consisted of four dimensions originally: power distance,

individualism-collectivism, masculine-feminine, and uncertainty avoidance; long-term orientation was added later. Hall's schema categorizes into high- and low-context cultures, based on the extent to which communication is carried by words or is embedded in the context in which people use the words. How communication works in various cultures is particularly important in examining interaction in online classes.

For example, the "sage on the stage" traditional style of teaching is likely to be more broadly accepted in high power distance cultures; uncertainty avoiding cultures are likely to prefer more structure to classes and learning tasks, and collectivist cultures are more oriented toward various forms of group work and interpersonal interaction. Tu [4] makes such points for the case of Chinese university students in online classes, and also notes elements of high-context communication style in examining participation in online class discussion.

Native students in North America generally learn in ways characterized by visual styles in some of the learning style categorizations [5]. They tie learning strongly into context, seeing things holistically, rather than in analytical sequence.

This sounds very much like Asian high-context culture, and, in fact, Redpath & Nielsen [6] explicitly argue that Native culture is quite similar to Asian culture on Hofstede's cultural dimensions. Purely cognitive based approaches do not work as well among Australian and North American indigenous / native adult learners as do dialogic approaches including collaborative work and knowledge sharing [7]. Among other things, learners need multiple channels of communication.

Communication in high-context cultures has difficulty overcoming the lack of face-to-face (f2f) contact in DE modes which rely mainly on the written word. F2f provides contextual and social cues for meaning, as well as allows rich non-verbal language such

as voice, posture, gesture, body language, facial expression, and periods of silence. For example, Chinese students use more social context cues in communication, which may be difficult to deliver in computer mediated communication [4].

This need for context and relationships in many cultures is a critical issue in online education; Often online education is particularly oriented toward individualistic and low-context cultures [8]. There may be little opportunity for social interaction, which reduces communication for students from collectivist and/or high-context cultures.

“Online education appears to reflect the English speaking world’s view of design” [9, p. 419]. Large-sample research of an Australian international online program shows that international students were significantly less positive about course organization and about the technology. About half of the students felt that they did not have “good communication with students from other cultural backgrounds” [9, p. 429].

In an online graduate class with students from widely diverse cultures,

“high-context participants lamented the inability to meet with counterparts, to form social relationships, and to ‘get to know’ the others in the course both as a learning and a social challenge. Not one of the low context participants mentioned this as giving either a positive or negative impact on their learning ability. Consistent with the objective data, this result highlights the cultural differences in learning patterns which are impacted by the shift from a face-to-face environment to a computer-mediated communication system” [10, p. 49].

Nevertheless, students from both high- and low-context cultures found the learning environment more effective than a f2f seminar, although for somewhat different reasons [10]. This seems consistent with Santo’s conclusion [1] that learning style does not affect outcomes much. It does,

however, seem to affect satisfaction with the course and perceptions of how well students have been able to interact with classmates.

IV. ONLINE TECHNOLOGIES

Careful instructional design should be able to at least substantially overcome cultural differences. Online instructional design must incorporate material and methods appropriate to the cultures of students who will be learning in the courses [10]. Rogers et al [11] see too much focus purely on content development, not enough on needs assessment, and a lack of evaluation in real-world application, especially in a cross-cultural context. They suggest steps to bring knowledge of cultural differences into account in setting up online courses.

One important aspect is simply the nature of activities in the class. Collaborative learning involves the use of teams [12], which may be more appealing to students from collectivist cultures. Collaborative approaches to online learning are more culturally responsive than some traditional distance education based on individual effort in isolation [13].

Online courses can develop a very strong sense of community; but one of the mechanisms sometimes noted is occasional f2f meetings [14]. Asynchronous discussion board interaction can give some feeling of immediacy (psychological “nearness”), as students use written forms to compensate for the lack of verbal immediacy available in f2f [15]. On the other hand, high-context students still often feel substantially less social connection using mainly written interaction on discussion board [10]. Technology, while allowing extensive interaction, may channel the interaction into certain modes [16].

Online participants (including instructor, students, and tutors) can create their own “culture”, and override national cultural differences in communication style [17], [18]. Data in one study of two courses with similar multicultural makeup show markedly

different participation patterns depending on how well this shared “culture” is fostered [17].

The key issue in these considerations is how to best facilitate interaction. Participation in asynchronous discussion depends on instructor organization and presence. Real interaction drops off when there is little instructor presence [19].

On the other hand, some technologies can facilitate more interpersonal interaction at a distance. Synchronous modes, particularly those with audio-visual capabilities, may offer a way to gain more of the feel in f2f interaction. Some synchronous distance modes, in fact, are widely used in Asian cultures. Satellite and TV-based distance education networks seem to fit the traditional “group-based, teacher-dominated, centrally organized pedagogical culture” [20, p. 302]

The synchronous satellite mode has some disadvantages for many low-context students. They may not participate in satellite tutorials, and among those who do, many do not actually interact with the tutor during class.

“Those who preferred the synchronous mode were significantly higher in their belief in the positive aspects of interactions (factor 3) and significantly lower on learning autonomy (factor 1) and the need to “possess” all the materials (factor 2)” [21, p. 259].

This, of course, is a version of different preferences for mode depending on learning style. The style that seems to prefer synchronous satellite is more characteristic of high-context cultures. Synchronous satellite is not very popular with low-context students compared to asynchronous web-based courses.

Synchronous capabilities on the class website seem better oriented toward student-student interaction than the older synchronous technologies represented by satellite. Synchronous internet classes can

overcome problems such as feelings of isolation and feelings of being overwhelmed by the responsibility inherent in the high autonomy of an asynchronous course [22].

Synchronous communication can be used “to explicitly support rapid formation of community at social level,” although there is “little evidence of deep learning” [23, p. 168]. This warning is irrelevant in a well constructed course, because the deep learning comes from other activities. The role of synchronous communication is to foster community. The “use of conferencing technologies to create knowledge building community” is one practice showing a “high degree of cultural inclusivity” [13, p. 22].

Students who want synchronous interaction will come up with their own additional communications methods (including synchronous telephone) if the capabilities are not provided in the website [24]. Thus, it is better to build synchronous audio-visual modes into the class site so that they can become a planned part of the class. Clearly, such modes allow for much more of the non-verbal content and context upon which communication in high-context cultures depends.

A final problem, however, is that requiring synchronous components is likely to limit the appeal.

“People differ in their preferences regarding learning/teaching styles. Some prefer autonomy and control of learning over synchronous interaction, others have opposite preferences” [21, p. 259].

The best solution seems to be a platform based on asynchronous forms, which maximizes access, with the ability to engage in synchronous interaction via multiple modes (written, audio-visual) for students who find it useful. Some do, particularly if they come from cultures where good communication requires some attention to context.

V. CONCLUSION

We have argued here that purely asynchronous online modes, with interaction based on written discussion board, is a format attractive mainly to students from low-context cultures. Such interaction lacks the context necessary for relationship establishment among high-context students, and therefore inhibits real communication. Some research shows that high-context students are more likely to feel dissatisfied with the lack of social relationships in purely asynchronous discussion board interaction. Careful course design and skillful instructor participation can somewhat reduce this problem. However, synchronous audio-visual technologies can provide much more intimate interaction, similar to f2f, for high-context students. When integrated into a class site based on asynchronous discussion board, multiple technologies offer interaction modes which appeal to students from either high- or low-context cultures.

This recommendation that multiple modes be made available to students is not really new. Most specific technologies are strong at some particular task within particular learning styles, but poor when looked at from another learning style / cultural perspective. Many distance education discussions note that multiple modes foster the broadest acceptance by students with different learning styles.

“... it is the combination of different media within a single technology (multimedia) that gives technology its strength in teaching and learning” [25, p. 59].

Design of the class web site can influence modes of communication, styles of learning, and participation. So can the nature of learning tasks – e.g., true student-student dialog and interaction can be critical in collectivist cultures, whereas students in individualistic cultures may not care. To attract students from a range of cultures, instructional design must accommodate preferences in learning style, which can be

related to cultural dimensions. For broad access to multi-cultural markets, multiple technologies offer multiple interaction modes which would appeal to students from a range of cultures.

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