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Supporting Diverse Online Learners

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Introduction

Learner support is the critical link in online education. A learner support system is comprised of human and non-human resources that contribute to the learning process of an online course and should be designed as an integral part of the course. For example, if the online course requires students to access library resources to complete a research paper, then, easy access to library resources must be provided as part of the learner support system for that course. Learner support for online learners will differ based on the context, learner characteristics such as needs, expectations, prior learning experiences, etc., and the learning process. Online learners are not homogeneous. They differ in age, gender, culture, education, language, social and economic background, family and employment commitments, goals, objectives, needs and desires. Each individual has his or her own needs that have to be met.

In an online environment, in addition to geographical distance, there are different types of distance that needs to be bridged to support the learner, such as the distance between (a) the learner and teacher/tutor, (b) the learner and other learners, (c) the learner and access to technology, and (d) the learner and the institution. Moreover, there may exist psychological distance (for example, feelings of isolation), sociocultural distance (for example, power distance and differences in social class and culture), and technical distance (for example, lack of necessary technical skills). The challenge then is to determine how to design a learner support system that narrows these types of distance to support diverse learners in a technology-mediated learning environment.

This chapter explores aspects of diversity that need to be considered when designing a learner support system to bridge different types of distance in an online environment, and presents a framework for addressing diverse needs of online learners, and offers examples to guide the design and integration of learner support into online learning.

Aspects of Diversity

Educational expectations

Different cultures have different attitudes toward education and its purpose. In a review of studies on questions of culture, Uzuner (2009) concludes that the diverse cultural assumptions students bring to online learning concerning how teaching and learning should be done bring about conflicts, disagreements, and frustrations. What then are some of these diverse cultural assumptions?

Li (2012) provides insight into how educational expectations are influenced by different beliefs about learning, and from her research with college students comparing European-American and Chinese learning models, shows how these beliefs differ in terms of the purpose of learning, agentic process of learning, kinds of achievement, and affect. For example, in the European-American model three main purposes of learning emerged: (1) cultivating the mind/understanding the world, (2) developing one's ability/skill, and (3) reaching personal goals, whereas in the Chinese learning model, the three main purposes were: (1) perfecting oneself morally/socially, (2) acquiring knowledge/skills for self, and (3) contributing to society. Whereas the second purpose is similar in both societies, Chinese respondents stressed mastery of knowledge while European-Americans emphasized developing ability. Li then shows how the Chinese purposes of learning are inherently related and have been part of Confucian values regarding learning. One needs to engage in personal skill learning and moral development before one can meaningfully contribute to society.

Turkey's culture of patronage which fosters values of obedience, honor, and respect for authority, and oral traditions have emphasized the sacredness of the text, honored the responsibility of the professor to interpret the text, and expected students to memorize the professor's words (Gursoy, 2005). In an oral tradition, the inability to interact with an esteemed professor is a challenge that should be accounted for in designing a learner support system. On the other hand, Murphy (1991) points out that Turkish culture itself fosters interaction among learners through their work sites, in face-to-face classes and in outside (supplementary) classes. The need for affiliation is critical for distance learners who tend to be isolated, and for Turks in particular, who share values of group ethos, and close kingship ties. The outside classes offer more than just the skills and knowledge that students sought; they also provide the possibility of developing bonds with fellow classmates and with their instructor. Both forms of bonding are integral aspects of educational patronage. Turkish students tend to find substitutes for teachers (patrons) among their classmates showing the importance of developing online peer support networks as well as face-to-face sessions for these learners.

The cultural values of individualism, secularism, and feminism are not recognized as desirable in many cultures that place higher value on religion, group efforts, and well defined gender roles (McIsaac, 1993). Most Western learners and instructors believe that each learner is a distinct individual, controls his or her behavior, is responsible for outcomes of behavior, is oriented toward personal achievement, and frequently believes group membership compromises goal achievement (Nisbett, 2003). Many learners from Asian countries on the other hand, believe success is a group goal as well as a national goal. Attaining group goals is tied to maintaining harmonious social relations.

To address diverse cultural assumptions and expectations, an early step is to make the criteria and expectations of an online course obvious. In the course syllabus, specific explanations on the

teaching learning philosophy and the hidden culture of the course, specific communication protocols detailing formats and expectations for communication online, and clear guidelines for individual and group responsibilities, collaborative process, and evaluation criteria in group activities need to be included to address the learners' diverse expectations.

Other ways of designing appropriate learner support is to offer options to meet the diverse educational expectations of the learners. Some online courses have tried to accommodate this demand for traditional teacher centered instructional methods by offering video lectures online and on demand, so learners can continue to "see and hear" their instructors. Eye movement, gestures, gaze, and the human voice provide the contextual information learners from high-context cultures rely upon to interpret meaning. Thus online learning is sustaining rather than challenging traditional ways of teaching by focusing the design on teacher centered instructional methods. When diverse learners and diverse educational expectations are present in an online class, it is prudent to offer options, and having recorded video or podcasts that students can review at their own pace are worthwhile forms of learner support.

Learner preferences

Learning styles describe learner preferences for different types of learning and instructional activities. These styles are generally measured by instruments that ask individuals how they think they prefer to learn rather than observing an individual's learning process in a learning task, which would be a better gauge of learning preferences. Chapter 2 discusses the impact of culture on learning styles. In our study using nine instruments to analyze Hispanic learning styles (Sanchez & Gunawardena, 1998), we found that Hispanic adult learners in a Northern New Mexico community college showed a preference for collaborative over competitive activities; reflectivity in task engagement; and a preference for an action-based, active approach to learning. Based on this finding, we recommended a learner support system to facilitate real world problem solving or case-based reasoning in asynchronous learning environments that provide opportunities for reflection and active collaborative learning. While the value of learning styles instruments lies in understanding the various learning styles represented in a group of learners as in our study, it is a given that a variety of learning styles will be present in an online class, and therefore, in designing learner support we need to look beyond learning styles, to understand how culture impacts the learning environment and the teaching and learning process online. In this regard, The Cultural Dimensions of Learning Framework (CDLF), developed by Parrish and Linder-VanBerschot (2010) is a more useful tool to understand the spectrum of cultural differences that impact the teaching and learning process online.

Another aspect in which individual learners differ is in the prior knowledge, skills and experience that they bring to a learning environment. Prior knowledge or what the student already knows can be a predictor of how well a student will learn in a new situation. Students from different cultures may have varying levels of prior knowledge and experience even though they have studied the same subject matter. Designing peer mentoring networks that match those who have less prior knowledge and experience, with those who have more, is a worthwhile form of learner support in this instance.

As we design learner support, it is important to consider that within cultural groups, individuals

differ significantly from each other, and therefore, it is equally important to identify and respond to an individual's learning preference. While matching teaching and learning styles may yield higher achievement in test scores, providing learners with activities that require them to broaden their repertoire of preferred learning styles and approaches more fully prepares them to function in our diverse and global society. There is a need to provide a delicate balance of activities that give opportunities to learn in preferred ways and activities that challenge the learner to learn in new or less preferred ways.

Online interaction and knowledge construction

Online teachers and tutors play a key role in supporting interaction and knowledge construction among diverse learners. Chapter 7 discussed the cultural issues that impact knowledge construction online. Studies have reported differences in the way diverse learners engage and participate in online discussions. In a comparative analysis of teacher and student interactions in two distance teaching universities, Shanghai TV University, China and Wawasan Open University in Malaysia, Wu and Teoh (2008) reveal that learners from higher power distance societies were often concerned with fewer face-to-face contacts and found it hard to adapt to interaction in an online environment. Also, learners from higher uncertainty avoidance societies needed to be constantly motivated and assured of their progress. In order to support these learners, the authors suggest that tutors use motivational strategies by setting out clear objectives for online communication. Whereas tutors in more individualistic societies can adopt an approach of allowing students to voice their opinions, tutors in more collectivist societies need to constantly invite students to participate in discussions.

Rourke and Coleman (2010) show the need to provide scaffolding to support knowledge construction in digital environments and discuss a case study where they used a pedagogical model for online collaborative learning (OCL) and computer mediated peer review (CMPR) to provide scaffolds for knowledge construction in a graduate level class. Results show that students actively participated in the learning processes and engaged in both self and peer review and the scaffolds encouraged the use of multiple modes of representation and self-awareness during the knowledge construction process. The authors note that OCL and CMPR as a scaffolded process has allowed the students to become more autonomous and independent in their learning as they gradually have this support system removed to allow them to stand on their own feet.

In a mixed method study of 28 online courses to examine interaction and participation across different ethnic and age groups, Ke and Kwak (2013) found that minority students (predominantly Hispanic and Navajo) were less satisfied with online education in general, and felt less confident and comfortable about taking courses online compared with their Anglo counterparts, even though they were more positive about instructor support. The minority students also voiced a need for social presence and a long-term "bond" (i.e., learning partnership) that is developed through a cohort group or program that should last beyond a single course. These findings help to explain why minority students, have expressed less satisfaction with overall web-based distance education. According to Ke and Kwak the findings provide empirical evidence that online learning environments should be adaptive or inclusive to support diverse ethnic/cultural groups of learners, and they suggest balancing high-context and low-

context culture norms, and particularly, encouraging long-term learning interactions among learners (e.g., via cohort groups and a program curriculum that highlights the interconnection among courses). Ke and Kwak also reveal that online learners of different age groups valued inter -generational interactions thus showing the importance of developing inter-generational peer support networks for online classes.

Van Rosmalen, et al. (2008) encourage the use of peer tutoring as a learner support system after they developed and tested a model of peer tutoring to determine how to help students answer content-related questions in online classes via interactions with their peers. In this model, a small group of students is created, which consists of the student who asks the question and peers who should be able to answer it. Criteria used to compose the group are the content of the question in relation to the knowledge and skills of the peers. A specially designed software embedded in the Moodle Learning Management System, exposes students to a Learning Network, its Activity Nodes and a Question module (named AskCQ) that organizes and structures the question-answering process. The eight-week experiment with two groups of approximately 50 students showed that students resolved a substantial number of questions using the peer tutoring model and positively valued the model. In another study, Kelly and Stevens (2009) show how different types of e-learner support; e-messages, strengthening subject identity, community, and discussions through ICT can support diverse learner needs online. These studies provide direction for the kinds of software development and ICT utilization that are necessary to customize learning for students with different levels of knowledge in online learning environments.

Gender

In a study of gender differences in a self-regulated online environment in Turkey, Yukselturk and Bulut (2009) found that there was no significant difference in achievement with respect to gender other than test anxiety. Test anxiety caused a significant amount of variance in female students' achievement. Female students with higher levels of anxiety received lower grades in the online programming course. Reasons for this finding in the Turkish sociocultural context should be explored further as students' prior experience in the subject matter of the course, and/or the educational preparation of female students in general may have had an impact on the findings. One of the suggestions made by the authors to reduce this test anxiety is to include alternative assessment techniques.

On the other hand, a study by Price (2006) showed that women studying the online version of a social science course at The Open University in the UK scored significantly higher than men on assessments as well as on the examination and were more academically engaged, self-confident, and willing to learn from other students. In this instance, the results contradict the belief that women are disadvantaged by technology in education and show that women are confident independent learners who are academically engaged and may outperform their male counterparts online. Both studies point to the need to understand the needs of both men and women online learners as we design learner support systems.

Language and second language speakers

Although English is increasingly recognized as the international "lingua franca", it puts non-native learners at a disadvantage. Often English is a learner's second, third or fourth language with little opportunity to actually use English daily. English as a Second Language (ESL) learners need additional time for reading and referring to dictionaries, and content provided in a variety of formats such as written lectures, audio recordings, and concept maps.

When computer users from different cultures communicate with each other they may not be aware of each other's discourse conventions or genres that are culturally appropriate for interactions. Kramsch and Thorne (2002) offer a good example of how miscommunication in an intercultural asynchronous online dialogue between American and French students was caused, not so much by deficient individual linguistic styles, or code (French or English), but mostly by a lack of understanding "cultural genres" in each other's discourse.

Smith (2005) reveals that a lack of awareness of cultural differences and generalizations about others who use English as a second language may prompt learners from dominant cultures to unknowingly deauthorize group members with group coping strategies that, although well intended, limit opportunities for discussion. Groups assigned minimal responsibilities to their non-native English-speaking members because they felt these learners face unusual challenges of adapting to the US culture and completing their studies. These non-native English speakers then felt uncomfortable and unproductive. This crystallized the recognition of difference among group members; non-native speakers were perceived as "others" and treated as a threat to the group in ways that mirror hierarchical structures within a larger society, creating unsafe learning spaces (Smith, 2005).

The discussion above shows that as online learning cultures develop, students and facilitators have to adjust to new modes of communication and interaction. Developing communication protocols that serve as a guide for communication online, and providing guidelines for teamwork with group members who are non-native speakers of the language are needed forms of learner support.

Learners with disabilities

Glazatov (2012) identifies several challenges faced by students with disabilities when exploring how online designers are complying with the Americans with Disabilities Act (ADA). These included: inaccessibility of the website, technical difficulties, being misunderstood which led to students not requesting accommodations, needing to work harder than others, and not seeking legally mandated accommodations that could ease their workload. In a survey of online students in five highly ranked US colleges, Jodi, Laura, and Jason (2011) found that the majority of students chose not to disclose their disabilities and ask for accommodations. Students perceived their disabilities as negative factors to be academically successful, and identified special technologies in order to work effectively in an online environment such as technologies to magnify or enlarge on-screen text, larger monitors, speech-recognition software, oversized keyboards, special mouse technologies, and screen readers. Developing courses based on the Universal Design of Learning (UDL) principles can allow for inclusion of different media and learning preferences for instructional activities that are beneficial to students with and without disabilities (Glazatov, 2012).

Crow (2008) discusses four types of disabilities (visual impairments, hearing impairments, motor impairments, and cognitive impairments) and suggests strategies that designers can use to support students with such disabilities. Students with visual impairments should be provided with meaningful alternate or long descriptions for each non-text element on the webpage, while minimizing the use of layout tables, as the screen- reading device typically reads from top-left to bottom-right. It is also prudent to avoid the use of background images to convey meaningful information, use a san-serif font, and avoid the use of any information that relies exclusively on the use of color or color recognition. Students with hearing impairments can be helped if designers provide real-time text captioning for all audio, video, and multi-media presentations in online courses, and provide the text transcripts of the audio content. Limiting the use of synchronous (real-time) chat –based assignments, use of games, and simulation activities that require high degrees of motor dexterity can help students with motor impairments. Incorporating some practical and cost-effective universal design practices can make the online course more accessible to learners who have cognitive impairments.

In discussing a framework for supporting online learners with psychiatric disabilities, Grabinger (2010) shows how designers can support metacognition by including examples of prior work, focusing on multiple versions of content presentations with a variety of multimedia, highly structured directions, and open, well-organized screens. Giving time to students in the first week and in subsequent weeks to form relationships and learn about each other and encouraging students to use visual and aural media are other methods of supporting these learners online. As implied in our discussion, disability is a type of diversity that designers need to pay attention to in order to support online learning.

Designing Learner Support for Diverse Learners

Framework

Dillon and Blanchard (1991, p.3) proposed a learner support system for distance learners that takes into account four types of support that is relevant even today as we design learner supports for diverse online learners. These four types of support are:
1) Learner support that address learner needs (such as cultural background, expectations, learning styles, motivation, confidence, self-concept, self-efficacy, belonging, and financial needs),
2) Learner support that address needs of the content (such as support for learning activities and laboratory experiences),
3) Learner support related to the institutional context (such as enrollment, library access, use of facilities), and
4) Learner support related to technology and communication (such as orientation programs in the use of technology and communication protocols).

All four types of support are necessary in the online context. Orientation programs prior to offering a course that orients the learner to the technical interface, types of communication, learning how to learn skills, course expectations and requirements will put the learner at ease and encourage participation in interactive learning activities.

Based on experience with inter-university online collaborations, McIsaac (1993) observes that a number of issues need to be addressed when the electronic classroom cuts across national boundaries. These issues relate to: 1) pedagogy – to determine that educational assumptions are mutually agreeable, 2) motivation – to determine differences in online participation between students in various cultures, 3) access to computer facilities, 4) technical difficulties such as frequent power outages, and malfunctioning equipment, and 5) language – when communication takes place in writing in a second or third language without any non-verbal signals. These issues need to be considered when designing support systems for diverse learners.

Taking into consideration the various types of support discussed so far, I provide below a framework (Table 8.1) for designing a learner support system to address diverse learner needs in an online course from pre-entry to final assessment. For the five stages listed, types of learner support are distinguished as course specific support and general learning environment support. Designers can add to, or delete from, this framework to create a learner support system for the diverse learners they expect to have in their online courses.

Table 8.1. *Framework for Addressing Diverse Learner Needs in An Online Course* (Created by Chulantha Kulasekera, Shantha Fernando, and Charlotte N. Gunawardena in the Moodle Learning Management System for the Online Tutor Mentor Development Program in Sri Lanka, and used with their permission)

Stage	Course Specific	Learning Environment
Pre-Entry to course	Information on: • Course - e.g. course description, expectations • Teaching & Learning Philosophy, culture of course • Synchronous & asynchronous sessions • Entry requirements • Registration procedures • Advisement on available course options and related job skills • How special needs will be met • Advice to international and second language students	Information on: • Alternative options to a course or degree • Advice to Special Needs students • Counseling for those who return to academics after being away from it.
Entry, Prerequisites, and Orientation	• Course requirements • How to access instructors/tutors • Institutional regulations & procedures (e.g. incompletes, withdrawals) • Assignment submission deadlines	• Orientation to course • Technical system • Technical skills • How to solve technical problems • Navigation and structure of interface

	• Time management • How to access library resources and databases	• Support for students with disabilities • Communication protocols/netiquette • Learning how to learn skills • Collaboration and team building • Writing support/labs • Mobile support • 24 hour access
During the course	• Alternative learning activities • Instructor support • Mentor support • Peer support • Guidelines for collaborative learning and knowledge construction • Advice on group projects • Synchronous sessions to discuss course content and issues • Support at study centers if available • Individual mobile phone support	• Dealing with problems between tutor and learner, and learner and learner • How to address isolation • Peer support networks (consider intergenerational networks) • Networks of support for female students • How to address changes in life circumstances, economic, financial, political difficulties • Counseling on personal difficulties
Assessment (Exams/Group Projects/Alternative Forms of Assessment)	Information on: • Alternative assessment options • Time, place, procedures related to exams • Advice on: taking exams, how to manage stress, dealing with group problems	Information about: • Special support available for exams • Extra time for learners with disabilities, older learners • Exam anxiety counseling • Group problem solving
Motivation for further studies	• How to maximize on strengths • Career paths and future study • Types of jobs	• Career guidance • Counseling for learners who failed

Examples

In this section, two examples of learner support systems designed for two different sociocultural contexts are discussed to illustrate how learner support systems can be integrated into online course design taking into consideration diverse learner needs in each context. Figure 8.1 shows the learner support system I designed for a faculty development program in Sri Lanka using Moodle to train online tutors and mentors for the National Online Distance Education Service

(NODES) of the Ministry of Higher Education. Figure 8.2 shows the learner support system I designed in WebCT Vista for a graduate level course on Culture and Global eLearning (OLIT 537) at the University of New Mexico in the US. Comparison of these figures will show the similarities and differences in the two systems with one of the main differences being the availability of Regional Access Centers in the Sri Lankan system to serve the needs of remote learners who do not have access to the Internet in their homes and who will need to use the Centers to access tutors and course related resources. The support system for the US course is designed based on the assumption that students have easy access to the Internet so that the course could be conducted entirely online.
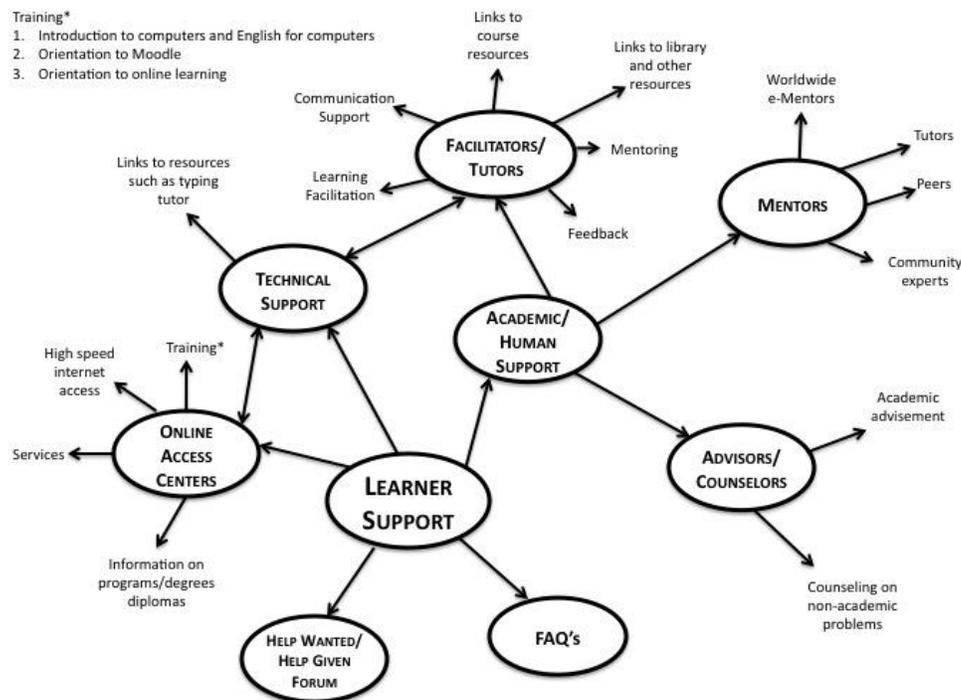

Figure 8.1. Learner support system for the Online Tutor Mentor Development Program in Sri Lanka
(Created by Chulantha Kulasekera and Charlotte N. Gunawardena in the Moodle Learning Management System for the Online Tutor Mentor Development Program in Sri Lanka, and used with their permission)
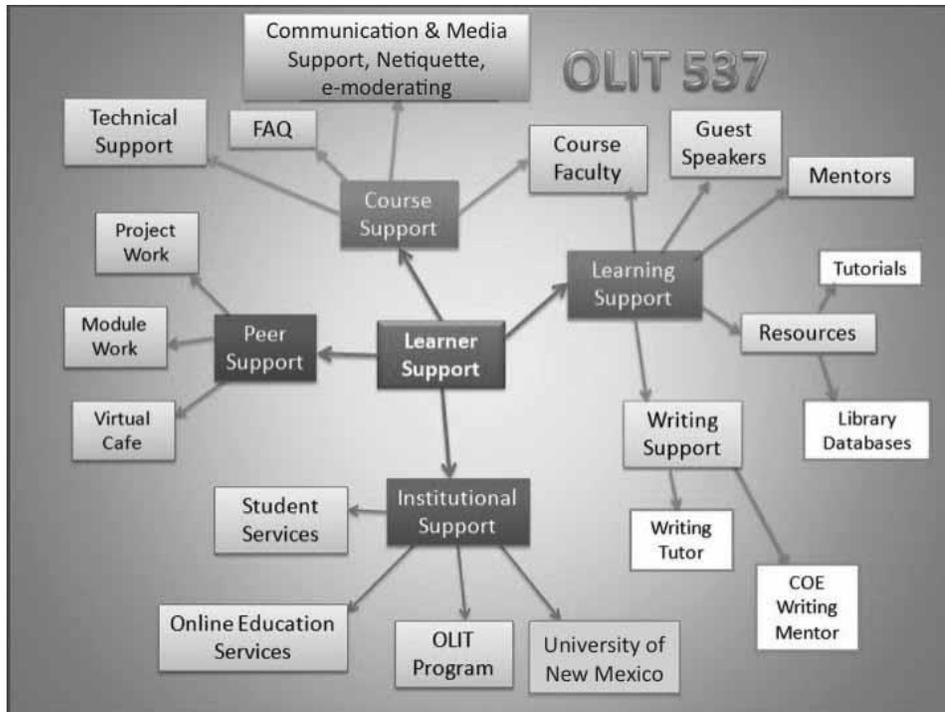
Figure 8.2. Learner support system for the online graduate level course, OLIT 537 (Created by Charlotte N. Gunawardena and Jane Erlandson, and used with their permission)

When considering support for diverse learners in the online environment, it is best to design alternative activities to reach the same objective and give students the option of selecting activities which best meet their culturally adapted ways of learning.

Conclusions

This chapter pointed out the critical need to integrate learner support into online course design to assist diverse learners. To design a learner support system for online learning, we need to understand the online learner in context and in relation to the course, instructors, peer groups, workplace, family, culture and society. As we look ahead, our challenge as online educators is to consider how diversity and context can become partners in the design of online learning, and how online technologies can be employed to customize learner support for diverse learners.

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