

Paper Presentation**INFLUENCE OF LEARNING STYLES AND PERSONALITY ON DISTANCE LEARNING****Susan A. Santo**

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Abstract

A learning style is an individual's preferred way of learning. How individual students respond to a distance course may depend in part on their learning styles. This paper will identify several types of learning styles and explain how they might apply to distance education students. A personality model will also be described. Teachers will learn three approaches to learning styles, how to recognize styles in distance students, and what they can do to help meet learning styles.

Introduction

Many factors influence the success of a distance student. These include the instructional design of the course, the amount of interactivity, and the appropriate use of media. How individual students respond to a distance course may also depend in part on their learning styles. A learning style is an individual's preferred way of learning. There is no generally accepted theory of learning styles; for this very reason, the concept of learning style is controversial. For example, Price (2004) comments that "there is no consensus on the use of terminology; hence a coherent comparison of results is difficult" (p. 683). In addition, Price notes that some researchers claim that styles are relatively consistent, while others have found styles may change over time. Although no one agrees on what learning styles are, many different learning style models have been identified. This paper will describe the characteristics of several learning styles, how to recognize these styles in distance students, and what teachers can do to meet learning styles.

There are three approaches to learning styles. The first is to identify a student's learning style and then adapt instruction toward that person's preferences. The second approach is to identify style and then give instruction aimed toward the opposite preference in order to strengthen that student's weaknesses. For example, suppose that you decide to pair two students with opposite preferences for an assignment. If they are made aware of each other's styles, they may be able to see each other's differences as an advantage. Without this awareness, it is likely to lead to conflict. The third approach does not attempt to identify style, but tries to represent all learners and include as many different methods and media as possible. Although this approach is the most practical, when students are having difficulty it can be helpful to determine if learning style is an issue.

Types of StylesField Independence

Field independence deals with visual perception and the way in which individuals process information. It can be measured by Witkin's Group Embedded Figures Test, which looks at how well individuals can separate geometrical figures from their background (Witkin et al., 1971). This instrument asks learners to find simple figures within complex geometrical figures. Field independent learners do well at this, while field dependent learners have difficulty. Childress and Overbaugh (2001) note that field dependent students prefer teacher interaction and high structure, while field independent students are more comfortable working alone and being allowed to structure their own learning activities. These researchers looked at the relationship between field independence and achievement in a one-way video, two-way audio computer literacy course for preservice teachers. Students who were field independent received significantly higher scores on the final exam, but not on the final course grade. The researchers suggest that final exam may not be the best indicator of knowledge.

Chen (2002) reviewed research conducted on students navigating through non-linear hypermedia, e.g., websites that offers links through different paths. Although her summary did not focus specifically on distance students, websites are commonly used in distance education. Field dependent students have trouble navigating through non-linear sites and seem to become confused deciding which way to go. Field independent students, on the other hand, enjoy being able to choose their own paths. She suggests that field dependent students need more guidance, but also that hypermedia may not be an appropriate method of learning for all students. Price (2004) expected field independent students to do better in an Internet-based course in

introductory computing skills. However, she found no significant differences in terms of learning. A study by Angeli and Valanides (2004) looked at the ability to use dynamic system modeling software to learn about immigration policies. Field independent students did better on problem solving when both text and smaller visual diagrams were used to explain cause and effect relationships contained in a complex diagram than when text alone was used. There was no benefit to field dependent students. Table 1 provides indicators of field independence/ dependence and some suggestions for instructors.

Table 1.
Observing Field Independence/Dependence in Distance Students

Field Independence	Indicators	Tips for Instructors
Field Independent	<ul style="list-style-type: none"> • Prefers self-paced learning. Prefers little interaction with others. • Enjoys problem-solving. Good at interpreting visual illustrations and diagrams. • Sees details. 	<ul style="list-style-type: none"> • Allow students to work independently. • Provide visual illustrations and animation.
Field Dependent	<ul style="list-style-type: none"> • Prefers structured learning with positive feedback. • Prefers social learning. • Difficulty interpreting visual diagrams and cues. • Sees the “whole picture.” 	<ul style="list-style-type: none"> • Provide more assistance. • Use verbal information to explain visual aids. Include group activities. • Show learner different views of same image.

Grasha-Riechmann styles

The Grasha-Riechmann Student Learning Styles Scale (GRSLSS) measures the preferences of college students in interacting with teachers and other students (Grasha, 1996). Students with an independent style prefer to work on their own and are able to figure out what to do, while students with a dependent style want a lot of help from the instructor. Students with a participant style are eager to learn, while those with an avoidant style avoid taking part in course activities. Students with a collaborative style like to work with others, while those with a competitive style like to compete with them. These styles may vary depending on the subject matter. Diaz and Carnal (1999) examined these learning styles for community college students taking either an online version or a face-to-face version of a health education course. The students chose which version of the course they would take.

Instruction for the online class involved the use of a website, e-mail, PowerPoint slides, and lecture notes. The assignments were independent activities. Online students had higher independent styles and lower dependent styles than the face-to-face class. The authors recommend that online courses should emphasize more independent learning opportunities, as students with these preferences may self-select into online courses. In a study by Grasha and Yangarber-Hicks (2000) of 50 online courses, independent learners did better. Dependent learners were also avoidant learners. In a study of an online college composition course, Santo (2001) found that students with an avoidant style consistently had trouble getting assignments done, while students with a dependent style needed a lot of help. Table 2 provides indicators of the Grasha-Riechmann styles and some suggestions for instructors.

Table 2.
Observing Grasha-Riechmann Styles in Distance Students

Grasha-Riechmann Learning Styles	Indicators	Tips for Instructors
Independent	<ul style="list-style-type: none"> • Makes few requests for help. • Solves technology problems by self. • Offers ideas in online discussions, but rarely responds to others. • Expresses dislike of group 	<ul style="list-style-type: none"> • Allow students to work independently; make group work optional. • During threaded discussions, address them directly: “What do you think about the comments just made?” • Require students to respond to others.

	assignments.	
Dependent	<ul style="list-style-type: none"> • Asks for very detailed instructions and lots of help. • Asks “What are we supposed to be doing? Where is the syllabus?” • Panics when experiencing technology problems. 	<ul style="list-style-type: none"> • Provide detailed instructions. • Post a course map to show where they will find various components of the course. • Reassure them.
Participant	<ul style="list-style-type: none"> • Does optional work or asks about additional learning opportunities. • Posts frequently online, even early in the course. • Asks questions related to course content. • Completes assignments early. 	Enjoy these learners!
Avoidant	<ul style="list-style-type: none"> • Does as little work as possible. • Delays the completion of work until the last minute. • Rarely posts online. • Takes little part in group work. 	<ul style="list-style-type: none"> • Remind them of how this will affect their grade. • Find out what their interests are; relate course to interests. • Send reminders.
Collaborative	<ul style="list-style-type: none"> • Works well with peers. • Provides feedback to others. • Expresses desire for more group work. 	<ul style="list-style-type: none"> • Allow opportunities for discussion. • Have students share work with each other. • Include group assignments.
Competitive	<ul style="list-style-type: none"> • Tries to out-perform others in class. • Expresses desire to earn an “A” in the course. 	<ul style="list-style-type: none"> • Develop learning games, or have students develop one based on course content. • Tell them what they need to do to earn that A!

Dunn and Dunn styles

Dunn and Dunn styles represent a broad definition of learning styles. They include sociological preferences, physiological preferences (e.g., visual/auditory/haptic), environmental preferences, emotional preferences, and psychological preferences. See http://www.learningstyles.net/2004/l_ls_model.html for a detailed description of each. The Productivity Environmental Preference Survey (PEPS), an inventory for college students, is based on these styles. According to Svenson and Dunn (2001), students learn more easily if the learning environment is geared toward their styles. They recommend using the PEPS to identify learning styles and then giving students individualized study outlines and assignments. Barbour and Cooze (2003) found that students with visual learning styles performed better than those with auditory or haptic styles. Their distance courses contained text and images, with little multimedia. Table 3 provides indicators of Dunn and Dunn styles and some suggestions for instructors.

Table 3.
Observing Dunn and Dunn Styles in Distance Students

Dunn & Dunn Styles	Indicators	Tips for Instructor
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Sociological preferences	<ul style="list-style-type: none"> • Learning by self vs. learning with others. • Learning with an authority figure vs. learning without one. 	<ul style="list-style-type: none"> • Provide a mix of independent work and group work. • In addition to the general discussion board, set up a secure discussion area for each small group in which they can communicate without the instructor.
Physiological preferences	<ul style="list-style-type: none"> • Visual, auditory, or kinesthetic preferences. • Mobility • Time of day 	<ul style="list-style-type: none"> • Accompany PowerPoint slides with pictures and sound. Use video clips. Have students build a website. • If in a chatroom or videoconferencing, allow breaks so students can get up and move around. • Be open to negotiating time for chat sessions.
Environmental preferences	<ul style="list-style-type: none"> • Bright light vs. low • Loud vs. quiet • Cold vs. warm • Room design 	In an online course, the student has complete control over these variables!
Emotional preferences	<ul style="list-style-type: none"> • Motivation (intrinsic or extrinsic) and persistence • Need for structure 	<ul style="list-style-type: none"> • If students seem unmotivated or falling behind, providing extra feedback can help. • Consider contests or games to peak interest. • Provide a structure, but allow some room for exploration (e.g., through hyperlinks or alternative activities).
Psychological preferences	<ul style="list-style-type: none"> • Global vs. analytic • Impulsive vs. reflective 	<ul style="list-style-type: none"> • Ask questions that cover both the “whole picture” and the details. • Consider that while asynchronous discussions encourage reflective thinking, chatrooms may unintentionally reward impulsive thinkers.

Canfield styles

Canfield learning styles look at the types of learning experiences that students most prefer (Canfield, 1988). Students learn best if the instructor’s preferences are similar to theirs. The Canfield Learning Styles Inventory (LSI) measures the following styles:

- Social – prefers discussion and group work
- Independent – prefers working alone
- Applied – prefers practical experience
- Conceptual – prefers organized verbal approaches
- Neutral – has no clear style
- Mixed styles

A study conducted by Gee (cited in Diaz & Carnal, 1999) looked at student achievement in a teleconferencing course. Students with an independent or conceptual style had the highest test scores, while in a parallel face-to-face class, students with a social or applied style had the highest scores. The LSI also looks at student expectations for course grade. A study by Coggins (1988) found that completers of a course in a distance college degree program had significantly higher expectations that they would get an A than non-completers. Non-completers had higher social styles. Table 4 provides indicators of Canfield styles and some suggestions for instructors.

Table 4.
Observing Canfield Styles in Distance Students

Canfield Learning Styles	Indicators	Tips for Instructors
Social	<ul style="list-style-type: none"> • Participates in course discussions. • Prefers group assignments. 	Online discussions, small group projects, debates, games, role plays.
Independent	Prefers to work independently.	Self-paced work, papers, journals, tutorials, individual projects.
Applied	<ul style="list-style-type: none"> • Expresses impatience with concepts. • Asks for applications to the “real world.” 	Field experiences at each site, simulations, problem-solving exercises.
Conceptual	Enjoys reading.	Readings, lecture notes, critiques, guest speakers by chat or through videoconferencing.
Neutral	May seem uninvolved.	<ul style="list-style-type: none"> • Keep in touch with student. • Probe for student interests.

Five-factor personality model

Personality may also have an influence on learning. The five-factor personality model looks at personality as divided into small pieces or traits. The NEO Five-Factor Inventory (NEO-FFI), developed by Costa, Jr. and McCrae (1991), measures five major traits: neuroticism (low neuroticism is emotional stability), extraversion (low extraversion is introversion), openness (students with low openness are traditional in their outlook), agreeableness, and conscientiousness. Students who are introverted seem more likely to prefer and participate in online learning than those who are extraverted (Moore & Kearsley, 2005; Taylor, 1998). Kemp (2002) found that students with high resilience (emotional stability) were more likely to persist in online courses, while those with low resilience were likely to drop out. A study by Santo (2001), which used qualitative interviews and NEO-FFI scores of college students in an online writing course, noted considerable differences in student perception of the course. Students with low conscientiousness procrastinated or failed the course. Openness was associated with final course grade for business students but not humanities students, who had higher openness to begin with. Table 4 provides indicators of personality traits and some suggestions for instructors.

Table 5.
Observing Five-Factor Personality Traits in Distance Students

Personality Traits	Indicators for students scoring high in these traits....	Tips for Instructors
Neuroticism	<ul style="list-style-type: none"> • Exhibits high anxiety. Expresses frustration or complaining (e.g., about the technology). • Asks for frequent reassurance. 	<ul style="list-style-type: none"> • Provide encouragement • Arrange for Help Desk support. • Have students help each other (buddy system).
Extraversion	<ul style="list-style-type: none"> • Expresses desire for face-to-face communication. • Reluctance to participate in online discussions. 	<ul style="list-style-type: none"> • Have “get-acquainted” activities during the first weeks of the course to get them comfortable online. • Post photos of students with their

		permission.
Openness to experience	<ul style="list-style-type: none"> • Expresses positive opinions about distance learning. • Expresses unconventional ideas and accepting others' ideas. 	Encourage new ideas through positive reinforcement.
Conscientiousness	<ul style="list-style-type: none"> • Completes assignments on time. • Does a thorough job on assignments. • In small groups, carries out responsibilities. • Does more than is necessary. 	<ul style="list-style-type: none"> • For students with high conscientiousness, check to make sure the scope of planned papers/ projects is not too large. • Keep in touch with students with low conscientiousness. You may need to prod them.
Agreeableness	<ul style="list-style-type: none"> • Offers help to others. • Thanks others. • Does more than their share in group assignments. • Students with low agreeableness may engage in "flaming." 	<ul style="list-style-type: none"> • Model good manners online. • Ask for documentation on who did what for group projects. • Post discussion rules at beginning of course. Send e-mail reminding flammers privately of rules.

Conclusion

Although researchers disagree about the definition and importance of learning styles, meeting student styles should result in more satisfied students. In the case of students who are having trouble succeeding, consider whether learning style might be an issue. In addition, as the instructor, consider your own learning style and whether there is a mismatch with that of the learner. If so, consider whether you can modify your instruction to accommodate the learner.

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