

# **Online Learning – Learning Styles in a Virtual World Addressing student learning styles in a virtual class focusing on the ability to enhance the learning experience for students in the online learning environment**

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## **Abstract**

*Distance learning is growing at an increasing rate, and instructors of online courses need to be aware of the significance of online courses in the overall learning environment and how the growth of online programs provides increasing educational access to all learners. Online course providers face major challenges in determining the most effective method for constructing and delivering their online course materials. These challenges can be difficult to overcome and can lead to course variation and inconsistency that may have a negative effect on the overall learning experience for the distance learner. Exploring and understanding different methodologies for effectively constructing an online course can help lead to creating a successful learning experience for learners.*

*This paper provides a model for structuring the course materials so that students' learning styles are met. Examples of materials, assignments, projects, and course delivery modes are provided.*

## **Introduction**

With the availability of Internet access, distance learning is growing at an increasing rate. Online educators need to be aware of the significance of online courses in the overall learning environment and how the growth of online programs provides increasing educational access to all learners. Educators are faced with major challenges such as determining the most effective method for constructing and delivering their online course materials. Overcoming these challenges can be difficult and can lead to course variation and inconsistency that may have a negative effect on the overall learning experience for the distance learner. Exploring and understanding different methodologies for effectively constructing an online course can help lead to creating a successful learning experience for learners.

Critical factors that need to be taken into consideration and used effectively are the learning challenges created by the four learning styles. These learning styles can be taken advantage of in such a manner that a positive learning experience can be generated through balancing the use of these four learning styles.

Educators are now challenged to incorporate course content that is reflective of the four learning styles in such a way that all learners receive a positive learning experience and each of the four learning styles is effectively represented. The four personality styles that exist among all individuals at different levels also come into play as the online students move forward with their learning experiences and these personality styles present a challenging opportunity to provide an extensively positive learning experience for all learners. The four learning styles are Visual, Auditory, Read/Write, and Kinesthetic (VARK) which has expanded from the original three learning styles which did not include Read/Write. The Read/Write expands on these styles in such a manner that it benefits the overall learning experience of a student.

Therefore, this paper provides a model for structuring the course materials so that students' learning styles are met. The discussion includes how to take advantage of these styles when planning, preparing, and delivering an online course in today's world of distance learning. These four styles can also be a mixture within an individual student and the course preparation process should take this into consideration. Course delivery can be enhanced by ensuring that each of the learning styles has been addressed in the course structuring and within the course materials in such a way that the overall learning experience is totally beneficial to each and every student. Included are examples of materials, assignments, projects, and course delivery modes.

## **Identification of Activities and Assignments Relevant to Learning Styles**

The need for online learning (e-learning, distance learning, virtual learning) is increasing tremendously and the ability to offer an effective learning experience in the world of online learning is becoming more and more challenging. The challenges extend from the various learning styles which are affected by the various personality styles that are part of each and every one of us.

Felder and Brent (2005) stated that students' learning styles affect how they acquire information and how they process that information. Students' personality styles affect how they deal with the results of their learning experiences as well as how they approach the initial learning process. Also, when teachers' teaching styles are aligned with students' learning styles, learning is enhanced; however, the best model would be a balanced one. One that aligns with the students' learning styles, and one that challenges the students' learning styles.

The learning styles can be referred to as Visual, Auditory, and Kinesthetic (VAK) which was the most popular because it is the easiest and simplest to define. It is quite often referred to as VAKT - Visual, Auditory, Kinesthetic, and Tactile. (Businessballs, 2016) However, one of the most common and widely used categorizations is Neil D. Fleming's (Fleming, 2006) VARK model [Visual learners; Auditory learners; Reading-writing preference learners; Kinesthetic learners or Tactile learners] which began in 1987. The personality styles include Sensor, Feeler, Thinker, and Intuitor as defined in the Meyers-Briggs Type Indicator (MBTI). Carl Jung originally developed the theory of psychological type in 1921 which is

the fundamental foundation for the MBTI which was originally created in 1942. (Manning, Ahearne & Reece, 2015)

There are two contrasting pairs of cognitive functions relating to the Meyers-Briggs Type Indicator (1) the “rational” (judging) functions; *Thinking and Feeling*, and (2) the “irrational” (perceiving) functions; *Sensation and Intuition*. These cognitive functions should be considered when creating a course for online learning as well as the fact that the four personality styles have varying levels of dominance in individuals which includes the students in the online learning environment. This leads to making sure that the online course contains elements that will inspire learning for all students that are involved in the class. Presenting information in various forms will ensure that each student is motivated to take advantage of the overall learning experience presented by the course provider. (Jung, 1971)

When preparing and presenting an online course, we must consider several factors in order to present the course material in a manner that can be easily and successfully interpreted by each student regardless of that student’s dominant personality style and dominant learning style. By adjusting the course presentation and taking into consideration the students’ learning styles, the students’ personality styles should adjust accordingly when the student experiences the course content and materials. There are several variations in course presentation that can be combined to influence this and research has shown that this will lead to an effective learning experience for the student. (Lynch, 2001; Kihlstrom, 2011)

The variations available for presenting an online course in the virtual classroom include the following: Visual elements, images and colors; Auditory elements, sound and music; Kinesthetic elements, touching and physical activity [VAK]. (Barbe & Burke, 1979) They can also be expanded to include the following: Solitary self-study or group learning. Logical reasoning. Verbal elements including speech, words, and writing. These variations and expansions will be discussed throughout this paper leading to a conclusion that should result in offering a method for constructing an effective online course in the virtual classroom. (Fleming, 2006)

## **The Effectiveness of Using Learning Style Variations**

Ongoing studies have shown that students in an online environment can benefit from having the course material presented using a mixture of the predominant learning styles. These learning styles are referred to by the acronym VAK. (Barbe & Burke, 1979) The VAK learning style refers to the three main sensory receivers: Visual, Auditory, and Kinesthetic. This learning style acronym was expanded to VARK which refers to Visual, Auditory, Read/Write, and Kinesthetic. These are considered sensory modalities that are used for learning information. VARK began in 1987 and the publication that launched VARK was published in 1992 as developed by Neil D. Fleming and Coleen Mills both at the Lincoln University, Canterbury, New Zealand. These four modalities take into consideration the learning experience on the part of the student and can be enhanced by the teaching style on the part of the course provider. The read/write element was added as a sub-category of visual to help distinguish between the viewing of charts, photos, and graphics versus the usage of discussion boards, reading articles, and taking notes. (Fleming & Mills, 1992) All of these factors should be considered and implemented into the online learning experience in order to assist in providing an exceptional learning experience for the student. Studies have also shown that

60% of the population falls into the visual category, 15% of the population falls into the kinesthetic category, and 25% of the population falls into the auditory classification. (Marsh, 2013) When taking this into consideration one should emphasize the visual portions of the learning experience while including the Auditory and Kinesthetic portions to help emphasize the subject matter and the specific topic throughout the course.

Research has determined that even though students possess individual dominance in the various learning styles there can be an overlap when the student is involved in the learning experience. Because of this when constructing an online course each of the learning styles should be considered and included in the course material to ensure a beneficial learning experience leading to future use of the course material when moving forward into the career world. To enable this to happen it is imperative that there is an understanding of how each of the learning styles has an effect upon the student and how the student deals with the material presented. This can be enabled by breaking down each learning style to ensure it is included as a learning tool for the student. To enable this to happen the learning styles need to be interpreted in an effectual manner keeping in mind a multimodal environment and the fact that there are no hard and fast boundaries. (Fleming & Baume, 2006) The VARK learning styles can be described as follows:

**Visual:** When the Visual learning style is the dominant style the learners tend to learn more through seeing. They have a tendency to like written instructions and seem to lean toward taking notes when listening to or when viewing presentations. This student also has a tendency to like a quiet environment in which to study and a quiet environment while “attending” an online course. They also like to use colorful markers to help highlight key points and help them remember important subject matter. They also tend to remember visual details and prefer to see what they are learning. They prefer the depiction of information in maps, spider diagrams, charts, graphs, flow charts, labelled diagrams, and all the symbolic arrows, circles, hierarchies and other devices that people use to represent what could have been presented in words. This does NOT include still pictures or photographs of reality, movies, videos, or PowerPoint slides. (Fleming & Mills, 1992)

**Auditory:** When the Auditory learning style is the dominant style the learners tend to learn more through listening and their preferred source of information is “heard or spoken.” They tend to have a more effective learning experience from lectures, group discussions, radio, email, using mobile phones, speaking, web-chat and talking things through. (Fleming & Mills, 1992) They have a tendency to prefer listening to music while studying and like to read out loud and will often talk to themselves to help create a more lasting impression when learning new material and to help when learning complex subjects such as spreadsheets, computer programming, and financial or accounting topics. They also like to have things explained vocally rather than having them only in a written format.

**Read/Write:** When the Read/Write learning style is present there is a preference for information that is presented as words in a written format. Studies have shown that many students and many course providers

have a strong preference for this element of the learning styles. It has also been determined that being able to read and write in an effective manner is very much in demand by the prospective employers of graduating students. This preference emphasizes text-based input and output – reading and writing in all its forms but especially manuals, reports, essays and assignments. (Fleming & Mills, 1992) Students that are strong in this learning style have a tendency to prefer viewing PowerPoint presentations, accessing the Internet and GOOGLE, along with often using information sources such as Wikipedia. These preferences are based upon the fact that these information sources very seldom use auditory enhancement and simply present their information using visual symbols.

***Kinesthetic:*** When the Kinesthetic learning style is the dominant style the learners tend to learn more through moving, doing and touching. They like to move around while talking or listening and like to take frequent study breaks. They also like to be active participants in the learning process and are more comfortable standing than sitting when experiencing the learning of something new. Although this learning experience may invoke the other learning styles the people who prefer this style are connected to reality, “either through concrete personal experiences, examples, practice or simulation.” (Fleming & Mills, 1992) They tend to benefit more from experiencing demonstrations, simulations, videos and movies. They also learn more effectively by performing activities that are related to the subject matter of the material presented. In other words, they tend to be reality based and can grasp the course material through actual performance of the activities rather than simply reading and viewing presentations.

***Mixtures:*** While referring to the four-part VARK model take into consideration that people seldom use only one of the four learning styles and some people do not have what is considered a primary or predominant learning style. People that fall into this category can be referred to as having a multi-level learning style and these people tend to fall into one of two categories. The first category includes people that have a tendency to switch from style to style depending upon the learning environment or their learning task. These people tend to have two, three, or four almost equal preferences for learning styles and have a tendency to switch freely and rapidly from one to the other. The second category includes people that may take longer to gather information in each learning style and may be looked at as being slow learners, procrastinators, or people that need to gather all of the information prior to acting or making decisions. (Fleming & Baum, 2006)

## **The Course Preparation**

Creating an inviting, interactive course conducive and appealing to the student learners takes time and preparation. The course structure, student expectations, and opportunities for occurrence of student learning much be considered.

***Establish Course Structure.*** To effectively prepare and construct an online course that provides a positive learning experience for the students, the VARK model can be utilized throughout the course preparation process. With this in mind consider how, according to D. A. Kolb (1984), effective learning involves four

phases: (a) getting involved in concrete experiences; (b) reflective listening and observations; (c) creating and idea with an abstract conceptualization; and (d) making decisions through active experimentations. (Kolb, 1984) This can also be extended one step further by utilizing the R2D2 method (read, reflect, display and do) which was introduced by Curtis Bonk and Ke Zhang (2006) and was then considered a new model for designing and delivering distance learning. (Bonk & Zhang, 2006) The R2D2 model was broken down into four quadrants that effectively lined up with the VARK learning styles taking advantage of the four learning phases (Kolb, 1984) and therefore led to overall enhancement of the learning process. These new ways for presenting the online learning experience to a diverse community of distance learners has offered overall enrichment for the learners and has led to transforming the student into a valuable “product” for the world of business and industry. These four quadrants (Bonk & Zhang, 2006) are as follows.

**(1) Reading:** Reading, listening and knowledge acquisition for verbal or auditory oriented students who prefer words either spoken or written that provide explanations. Learning activities should include offering reading materials either online or offline, and the exploration of resources for information either online or offline along with listening to online lectures or audio enhanced PowerPoint slide shows in place of on line lectures. Online discussion activities involving individual responses or group responses such as Discussion Forums or Discussion Boards related to ongoing course objectives are of extreme value along with lectures posted on the Web or offered through the general course material (Bonk & Zhang, 2006).

**(2) Reflection:** Reflective and observational learners preferences are to reflect, observe, view, and watch throughout the learning experience. These students tend to make careful judgements and also tend to view things from different perspectives. Learning activities should include posted interviews regarding occupation, internships, and field placements along with online role playing in various relevant activities. These students should also be provided with the opportunity to write papers regarding field trends, reflections regarding discussions with experts, and to provide feedback on papers. They should also be directed to watch and observe expert performances online as well as online modeling with archived exemplary performance data. (Bonk & Zhang, 2006)

**(3) Displaying:** This is for visual learners. These students tend to prefer diagrams, flowcharts, timelines, pictures, films, and demonstrations. Learning activities should include searching video libraries of concepts, case studies, and expert contributions as well as being encouraged to generate graphic representations of knowledge structure leading to the creation of task timelines. They should become involved in interactive visuals utilizing online chat and be directed to use draw tools, flash visuals and animations within their assignments. They should also take virtual tours, and post team project activity results in a gallery or virtual tour. (Bonk & Zhang, 2006)

**(4) Doing:** For tactile/kinesthetic learners. These students prefer learning by active doing, experiencing, hands-on, and often group work. Learning activities should include interactive project based learning activities taking advantage of the use of dynamic online databases. There should also be case simulations

and hands-on manipulation to encourage case-based learning. Posting oral histories and conducting online survey research are also extremely beneficial activities along with digital movie-making based on reflective writing. They should also be encouraged to participate in online galleries to help demonstrate current, past and future learning outcomes and online personal performances. (Bonk & Zhang, 2006)

**Setting Student Expectations.** There has been a tremendous growth of online courses in higher education over the past several years. Because of this, more and more students are selecting online courses and more and more universities are offering degree programs that are accomplishable in the online environment. Unfortunately, however, studies have shown that online student retention is one of the greatest weaknesses in the online environment (O'Brian, 2002; Carr, 2000). A student in higher education can select taking an online course for various reasons. The student may have the desire to attend a university that is not located near where the student lives. The student may find a required course not available in a classroom setting during a timeframe needed to take that course. The student may be a non-traditional student that is in the "working world" and is unable to attend classroom classes on a regular basis. The student may not be able to attend class or may simply prefer not to be in a classroom setting for one of several reasons. Whatever the reason for taking the class online the student needs to be made aware of what is expected in order to pass the class and move on to the next opportunity. In order to accomplish this there needs to be a set of guidelines that clearly expresses what is expected from the student and what the student needs to accomplish and the timing for successfully completing the course assignments, activities, quizzes and exams.

**Create Opportunities for Student Interaction.** Two critical skill sets for distance learners are their reading and writing abilities (McVay, 2000) which should be taken into consideration when offering online course activities. Beginning with email communications can initiate expectations on the part of the student as well as help the course instructor understand each of the students learning styles and level of interest (Lynch, 2001).

The course instructor should then require Discussion Board or Discussion Forum activities on an ongoing basis throughout the course timeframe to help provide an essential learning opportunity for all students. The Discussions should be configured to require an initial response communicating the student's level of understanding regarding the specific topic and then should require interactive participation with other students in the class to help provide feedback regarding each of the students learning experiences at that point in time. This level of activity will lead to building a foundation for learning advancement and provide feedback to other students regarding their level of accomplishment. These activities should help the students, as well as the course instructor, identify their learning styles and psychological types thus helping them build plans for an adaptation to the online environment. (McVay, 2000)

The next step is for the students to discover the importance of social processes in learning which includes the interaction during the interactive Discussion activities as well as creating and submitting a

“role-playing” activity such as a video recording of that student conducting a formal presentation of his/her major assignment or final project which should include the essential factors discussed and learned throughout the course. (McVay, 2000) For examples: A student in a “Salesmanship” or “Personal Selling” course could provide a video recording of a sales presentation presenting a product to a specific “customer.” A student in a “Marketing” course could provide a video recording of a Marketing Plan presentation to a “corporate executive.” A student in a “Business Administration” course could provide a video recording of a business plan presentation to a “potential business financier.” These types of assignments provide activities for the student that enhance the learning process as well as communicate the student’s overall learning accomplishments to the course instructor which is essential in providing information that the instructor can use throughout the student evaluation and feedback process.

## **Conclusion**

The online learning environment is growing at a tremendous rate and studies have indicated that it will continue to grow. Because of this it is essential that online instructors are placed in a position to provide an excellent learning experience for current as well as future online students. Taking into consideration the variations in learning styles (VARK) as well as the differences in personality styles the online instructors need to construct and deliver each and every online course in such a manner that each of the students, regardless of the style variations, receives a positive overall learning experience. Combining visual, auditory, read/write, and kinesthetic content into each of the course topics can ensure that the students will receive a learning experience that will benefit each and every one of them.

When preparing an online course the instructor should consider offering written descriptions of course expectations as well as written descriptions of the assignments and projects. The Instructor should also provide audio enhancement content in each of the written descriptions by taking advantage of the “tools” now available through the various document preparation applications. The instructor could also provide video recordings of lectures as well as audio enhanced PowerPoint presentations that help enhance the ability to communicate the topic content. While continuing to update these activities the instructor should also communicate with each student via responses to Discussions as well as providing Course Announcements on a regular basis and email communication also on a regular basis. Studies have shown that students that are offered a variety of course material presentation methods have a tendency to experience a stronger learning experience which is extremely beneficial. Additional research is in process to help determine the effectiveness of adjusting teaching styles to help enhance the four learning styles and surveys are being conducted to determine the student level of participation and the effectiveness of adjusting teaching styles. The overall objective is for each student to move forward and take advantage of his/her learning experience in a future career that will help society as well as the business community and the world of education move forward in a positive and rewarding manner.



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