

Distributed Learning/Instructional Management System Projects – Learning Styles and Multiple Intelligences

a report by

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Business education should be a priority on every company's agenda, and there is great emphasis on how Internet education can make a real difference to an organisation. Problems can, however, arise when people misunderstand the concept of 'e-learning', which is not so much what can be done with the technology, but how it can be used to help educate employees. Making the wrong decision here can mean the difference between a costly, ineffective project that could backfire, or a world-class learning strategy that develops a smarter workforce. This article discusses briefly some of the leaning styles and multiple intelligences in distributed learning, and discusses the real business driver behind technology, which is education.

Instructional Management System

New methods of delivering education at a distance are emerging rapidly. One of the most promising is the Instructional Management System (IMS). It is based on international standards, entirely Web-based and supports distributed learning. This is the first generation system that changes instructional design to move into learning objects and Internet-learning environments in a sustainable non-linear way. A number of top firms are developing software applications to support IMS. One of the brightest points is that IMS provides the pathway to easy preparation and presentation of materials to students' multiple intelligences and learning styles. It truly provides the software to readily individualise education and training materials for the learner.

The basis of IMS is that learning materials can be broken down to their simplest elements. If a learning object was thought of as a 'chunk' of learning content, it would likely never comprise the entire programme or module – a group of learning objects would make up a programme or module.

Learning objects can take the form of any type of medium that can be digitised and transmitted via the Internet. This opens up a wide range of materials to the instructional designer – video, print, textbooks, magazines, slides, QuickTime movies, case studies,

collaborative activities, e-mail, Web pages, telephone and any other medium that has yet to be developed. Each learning object will have a meta-data tag that defines its properties. For example, the tag would contain the name of the learning object, the creator, type of file, interactivity of the content, grade level, cost, copyright information and appropriateness for types of learning styles, in addition to other information that the author may provide.

The meta-data tagging system becomes a sophisticated search tool that will significantly increase the ability to quickly find materials on the Internet, with large libraries of materials being available for searching.

IMS Advantages

There are a number of advantages to IMS:

- cost-effective – previously produced materials can be re-used by any number of users;
- IMS libraries – searchable and viewable libraries of content materials will be collected;
- multiple software platforms;
- international standards – IMS is based on internationally accepted standards;
- individualise materials for students;
- Web-based;
- it promotes self-directed and collaborative learning; and
- it promotes the use of facilitated learning by faculty.

New Methods to Meet New Learning Needs

For hundreds of years, most teachers and trainers have presented information to learners in one format – a lecture to a whole class. That model has been identified as objectivist and is based on Skinner's behaviourist learning theories where the teacher sets

the pace, selects the textbook and resources and controls the classroom.

Sitting in seats and being the target of that broadcast by the objectivist theories of learning and the linguistic teaching style is the teacher-centred learning model. For any organisation teaching in this way, recent research has shown that many learners not only prefer, but need, non-lecture styles to learn efficiently and effectively. They need styles with relevant interpersonal interaction, significant hands-on opportunities, well-executed visual-spatial content and with more self-direction of the pace and path of learning for each style of delivery. This is called constructivist at the K-12 level, and Andragogy at the adult level. In this model, the instructor facilitates the learning, identifies potential resources and encourages the students to set their own rules, goals and objectives. Learning contracts may be used to set the scope of work and assignments rather than a typical syllabus. This model is student/learner-centred.

Gardner's Multiple Intelligences

The theory of multiple intelligences was first defined by Howard Gardner as “an ability, or set of abilities, that allow a person to solve a problem or fashion a product that is valued in one or more cultures”. His most current research indicates that there are eight distinct forms of intelligence – linguistic, logical-mathematical, spatial, kinesthetic, musical, interpersonal, intrapersonal and the naturalist. He suggests that different intelligences may be independent abilities – a person can be low in one domain area but high in another. All individuals possess the intelligences, but in varying degrees of strength and skill.

Intelligence-quotient (IQ) theory (based solely on the linguistic and logical-mathematical intelligences) assumes that a person's intellectual potential is a fixed, genetically determined trait that can be measured early in life and will determine an individual's potential. Gardner's definition suggests a broad view of cognitive functioning and is in sharp contrast to intelligence as defined by IQ. In other words, Gardner's multiple intelligences model broadens the perceptions of what is meant to be intelligent. Until Gardner's arrival, this model of intelligence was perceived as the norm throughout most of the world. In short, the theory of multiple intelligences continues to open the minds of educators, psychologists, learners and parents as to how learning and education can be changed so that all persons may be guided to achieve their maximum potential.

It is tempting to equate learning styles and intelligences because there are similarities, but, until there is a much better understanding of both, it is best to avoid mixing the following models:

- linguistic intelligence – using words effectively;
- logical-mathematical intelligence – reasoning, calculating;
- visual-spatial intelligence – thinking in terms of physical space;
- musical intelligence – show sensitivity to rhythm and sound;
- bodily-kinesthetic intelligence – use the body effectively;
- intrapersonal intelligence – understanding one's own interests and goals;
- interpersonal intelligence – understanding, interacting with others; and
- naturalist intelligence – demonstrates expertise in the recognition and classification of numerous species – the flora and fauna – of the environment.

Canfield Learning Styles

Everybody has multiple learning styles, for which Dr Albert Canfield created a learning-styles inventory, as most people do not know what their best learning styles are, or that their styles differ from others. There is no single correct, or best, learning style. Styles of learning, if accommodated, can result in improved attitudes towards learning and an increase in productivity, academic achievement and creativity. Some styles are used when learning, but we tend to prefer a small number of instructional methods. Evidence indicates that an individual can learn better, smarter, faster and retain more information when material is presented in one's preferred learning style/multiple intelligence. However, research does not support that there will be one definitive method of teaching.

Humans learn in a variety of ways and it is likely that there are ways that have yet to be discovered along with the instructional methods to meet them. Presenting information to students in only one learning style does not meet all of the student's needs. For example, a student might have roughly the same preference for learning content using visual and hands-on materials. If the content is presented only to the visual preference, the student would not learn as completely as he/she would if the content was presented via hands-on methods, since all students learn differently due to a dominant or preferred learning style.

The Canfield Learning Style instrument is easy to use and self-scoring. It provides students with knowledge about their individual learning styles and how they

differ from others. The instrument is paper-based and takes about 30 minutes to complete. It can be submitted before the class begins, or the institution may keep the learning styles of all students on record and make them available to instructors. The instrument helps determine preferred learning conditions, areas of interests, modes of learning and course expectations.

Conditions

- peer;
- goal setting;
- competition;
- instructor;
- detail;
- independence; and
- authority.

Content

- numeric;
- qualitative;
- inanimate; and
- people.

Mode

- listening;
- reading;
- iconic;
- direct experience; and
- expectancy score.

Theory of Learning Styles

Litzinger and Osif

Litzinger and Osif look at learning styles in a different light and describe learning styles as “the different ways in which children and adults think and learn.” They see that each individual develops a preferred and consistent set of behaviours or approaches to learning. They separate the learning process into three segments – cognition, conceptualisation and affective.

Kolb

A number of people have tried to ‘catalogue’ the ranges of learning styles in more detail than this. Kolb is perhaps one of the best known. Kolb showed that learning styles could be seen on a continuum running from concrete experience to reflective observation to abstract conceptualisation to active experimentation.

Although Kolb thought of these learning styles as a continuum that one moves through over time, usually people come to prefer, and rely on, one style above the others. It is these main styles of which instructors need to be aware when creating instructional materials.

Implications for Instruction

There are probably as many ways to teach as there are to learn. People do not see, hear or experience the world in exactly the same way as each other. They have very different preferences for how, when, where and how often to learn.

Using multiple types of media (video, audio, data) ensures that all learning styles are met and that significant methods for interaction are provided. This mix of media is available now. With it, all learning styles can be reached. It also includes a component that enables students to become self-directed learners and reduce their sense of isolation.

The synergy of technologies available through multimedia and the Internet creates new learning opportunities for adapting learning-to-learning styles. Annual growth in Web-based training, as projected by International Data Corporation, is to be 150% per annum, compared with 8% for instructor-led training. Unfortunately, this effective use of technology is not happening. Of the 23 sites offering interactive Web-based training from software/hardware developers or training developers, none personalise training or education by preferred learning style, nor was that criteria even contemplated as a quality measure in the research.

We have arrived at a place where we need to rethink and reinvent how learning styles and multiple intelligences are used to teach effectively, using technology.

Most assessments are pencil-and-paper-based and, as such, are not authentic assessments. They do not assess the learner in the act of doing something, but instead ask the learner to make a choice about what they might do in a given situation, which is not ideal.

The important thing is to recognise that not everybody is comfortable and productive within the same learning style mould. To engage and better instruct learners, one must first determine the individual’s predominant and secondary learning styles, and then use technology to adapt learning to learning styles. ■

A longer version of this article, containing references, graphics and additional information about “IMS Advantages”, “Gardner’s Multiple Intelligences”, “Canfield Learning Styles” (Conditions, Content, Mode and Variance in One Class), “Theory of Learning Styles” and “Personal Learning Model (PLM) and Personal Learning Profile (PLP)” can be found on the Reference Library of the CD-ROM accompanying this business briefing.