Distance Learning: Thinking Style Influence on Learning Functions in Technological-Virtual Environment/

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Abstract

Distance learning based on Internet advanced technologies is a well-known learning method nowadays. In recent years it has turned into a central feature in the education systems in general, and in institutes of higher education particular. The advent of the usage of the Internet in education has led to new phrases entering the education, instruction and training lexicon. "E-Learning", "Virtual Courses" and "Decentralization Learning" are few examples of the new terminology that describe new learning environments. On demand or by need technological-virtual learning environments are fulfilling as an alternative for classes learning activities.

The Internet and its variety attendant technologies for learning create a number of important effects. It broadens the horizons of research. It presents the education system with new challenges that force it to adjust to our technological life environment at this era. It influences pedagogies and didactics methods. And it also influences the structure of the community in that it offers new alternative to the traditional location based learning. On-line distance learning is a natural evolution and generalization of distance learning method; it allows the teacher, the students and content to be flexible both temporally and geographically. This enables teaching and learning from anywhere any time using synchronous and asynchronous communication and multimedia.

This research examines the relationship between thinking styles and learning activities on B.A. students at Bar Ilan University taking the "Quantitative Research Part I" course taught by Dr. Rachel Sagi. This is a compulsory course for all undergraduates at the School of Education and is taught in the first semester on their first year. It is taught via "High Learn" system an asynchronous virtual environment.

Aims of research:

Analysis the relationship between thinking styles and learning activities in first year undergraduates taking a course which is taught in asynchronous virtual environment by the Internet. Examination the relationships between personal characteristics, experience and previous knowledge of the students and their function activities on E-Learning course, and ways of coping with the problems caused by this type of learning. In addition, reviewing development of terminology and taxonomy of types, methods and models of distance learning, with emphasis on aspects of constructive learning at technological-virtual learning environments.

Research Questions:

- What are the preferred thinking styles on a virtual course?
- How satisfied are the students on a virtual course?
- What are the students' attitudes on asynchronous virtual environment learning?
- Is an on-line course "student centered learning"?

Research Hypotheses:

- There will be a connection between thinking styles and achievement on the virtual course.
- There will be a connection between thinking styles and satisfaction on the virtual course.
- There will be a connection between thinking styles and attitudes on asynchronous virtual learning environment.
- There will be a connection between thinking styles and time spent per week on the course, amount of use the course book and attendance at the practice session.
- There will be a connection between previous computing and Internet knowledge and the grade of the course.
- There will be a connection between previous computing and Internet knowledge and attitudes and satisfaction from the course.
- There will be gender differences in thinking styles, attitudes and satisfaction from the virtual course.

Methodology:

There is consensus in the social science literature that a combination of quantitative and qualitative methods are recommended in order to research any field subject comprehensively. In view of this, in order to understand the processes, causes and influences, this research used a mixture of quantitative and interpretation analysis. There were 188 participants in the quantitative research (slightly more than half of the course participants) and 19 participants (10%) from this group interviewed in the qualitative research. Each of the 188 participants received two questionnaires: one examines six thinking styles and the other knowledge and previous experience, attitudes and satisfaction with distance learning using computers communication technology. A structured interview was held with each of the 19 participants in the qualitative research.

Results of the Quantitative Research:

Analysis of the results revealed that for some of the dependant variables there was a significant difference in function activities, attitudes and satisfaction between students with and without a certain thinking style. There were also significant differences in achievement, attitudes and satisfaction between those students with knowledge and experience in computer applications, multimedia courses and Internet skills and those without knowledge and previous experience. In addition, significant differences were found between men and women on grades achievements, in attitudes and satisfaction with learning in asynchronous technological-virtual environment.

The quantitative examination in the research showed that there were significant differences between students who are defined as being "liberal tinkers" and those who were not. Students with a tendency towards liberal thinking tended towards lower satisfaction level and they also invested more time learning on the course per week. In addition, significant differences were found between students with an introverted way of thinking and those who did not have this style of thinking in two out of the ten variables. Students with an introverted way of thinking were more likely to be satisfied with the teaching process and to have positive attitudes of learning in asynchronous virtual environment. A significant difference was also found between students with a local or conservative way of thinking compared to those without in one out of the ten variables. Students with a local or conservative way of thinking

were more likely to be satisfied with the course assessment method. The Analysis shows there was no statistically significant connection between thinking styles and achievements on the course, and there were also no significant differences in the thinking styles between the sexes.

Furthermore, there was clear significant connection between previous computer experience and computer virtual courses and course examination grade. Students with greater previous experience tended to be more satisfied both with the course and with the assessment method. The students with more Internet experience had more positive attitudes towards learning in asynchronous virtual environment and higher satisfaction from the technological system of the course. Differences between the two groups were found to be statistically significant. We found that women expressed more positive attitudes about learning in asynchronous virtual environment than men, they were also more satisfied with the teaching process and the assessment methods and that their grade average was higher. We also found in our research that students preferred that half the course be in the form of traditional lectures and the other half be in the form of distance learning.

Results of the Qualitative research:

At the end of the interview stage the interviewees formed two groups almost equal. The first group, comprising ten participants, were succeeded in distance learning. The second group, comprising nine participants, found distance learning very difficult. The students who were successful in the course expressed positive attitudes towards the course specifically and towards distance learning. These attitudes were principally due to convenience from the point of view of time, interest and range of learning. Positive attitudes were expressed about the process of learning on the course, principally that it was more interesting, more challenging and more novel. In contrast, the students who found the course difficult expressed negative attitudes towards the method of learning, principally because of uneasiness with learning via the internet, difficulty in coping with lesson content, even resulting in non-comprehension of the coursework. In addition, negative attitudes were also expressed towards the process of learning, primarily uneasiness learning via the computer, concentration difficulties and difficulties in accessing the drillers. Participants of the successful group stated that they would take further courses taught in this learning style and would

recommend to their friends on this method. Participants of the other group stated that they would not take another course taught in this style and would not recommend it to their friends to learn this way.

Most of the students that succeeded in the course stated that they had previous computer and Internet experience as compared to the students who found it difficult and admitted having a little or no previous computer experience at all. Participants from both groups stated that achievement in the course did not reflect energy investment; some students stated that they had invested energy in the course but did not succeed, whilst others stated that they succeeded in the course despite the little energy invested. Only students from the successful group said that there achievements were reflect the investment of energy in the course.

Recommendations:

- We recommend either a compulsory course in computer applications including the Internet, or that participation in a course of this type should be dependant on good computing skills as condition (tested by exam).
- Because of the objections of students worried about this type of learning we recommend training workshops for distance learning, to enable developing independent & responsible learner, as well as positive attitudes towards learning in technological-virtual environment.
- Like with every change, it is recommended that combination of new computers communication technology will be done gradually, in order to adjust the change and emphasize the advantages of this learning.
- Consideration students learning & thinking style deference's, while design learning activities and choosing estimation methods for virtual courses.
- The learning process in virtual learning technologies opens new ways for assessment. These ways are based on computerised monitoring, surveillance of visits to web sites, returns and others.
- Technological learning environment enables ongoing assessment of the students' achievements with almost instantaneous feedback to student and lecturer alike. Using these tools advances a way of learning tailored to the individual students' personal requirements.

- The purpose of evaluation is continual improvement of teaching and learning with the identification of problems. Effective evaluation is performed continually as well as summarized. We recommend using both evaluation students in virtual courses.
- It is recommended that educational establishments in general and universities in particular should allow students the maximum amount to choose between distance learning courses and face-to-face courses. That is to say, we recommend that distance learning courses should be an option and not compulsory.
- In order to encourage and entice students to learn this way, education establishments should reduce the fees for virtual courses.
- In order to cater for the requirements of the different learning styles, technological tools, including their computerised presentation, should be used to the maximum.
- Maximum utilisation of Internet technology and communications – combination between synchronous and asynchronous learning on the net.

System No.

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