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Adaptation of Learning Skills and Styles for Active Learner's in Higher Education

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Abstract
The advent of computer technologies in education, promoted the establishment and development of new methods. Accomplishing the learning styles in adaptive educational systems represents to provide an individualized instruction style. This paper implies the importance of learning style in an educational system. Each students have different rules for learning. In this paper focuses the learning style of the students and individual learning style is very much related to educational experience. The purpose of this study is to determine the learning style preferences among the students and also determine the academic achievement levels of student's skill in learning style. This study reveals that, teachers have a complete analysis of every student's learning style and can be measured against a consistent scale among secondary school students.

Keywords: Information and communication technologies (ICT), learning skill and learning style

Introduction
The important aspect in Information Technology (IT) is mining of heterogeneous data. Developing classroom materials and teaching based upon the learner's perspective are highly interactive method [1]. Learning style is developed according to a set of learning objectives and is delivered using different media elements such as text, graphics, audio and video. Learning style refers to the ability of learners to observe and process learning material in learning situations. Learning style is the self-esteem responsibility of the individual. Three of the most popular of learning styles are visual, auditory, and kinaesthetic.

Every individual student follows its own unique way to learn and process learning content. They learn their content and different ways such as some students learn by oral representation (verbal), some may learn by seeing (verbally) while others students may learn through practical work (activity).

This article is to enhance the students' learning style, as well as improve the quality of the environments in which students are educated. The responsibility of the successful teachers is to motivate learning but can also identify the learning styles of the students [4]. When students are not performing well, it is important to teach in a different way. It is important to determine how to learn new skills. In traditional teaching methods generally use verbal or logical learning styles, but other styles may be more effective for some learners [2]

Purpose of Learning Style
Many people spot that each person prefers different learning styles and techniques. Everyone has a different learning style which has been mentioned in the following diagram.

Fig. 1: Seven Learning Styles

Spatial: In spatial learning style, students prefer their learning content using pictures, images, diagrams and spatial understanding for better understanding the learning material.

Auditory-musical: In auditory learning style, students prefer their learning style using sound and music. The person who have good sense of pitch and rhythm. They can typically can sing, play a musical instrument and they can able to identify the sounds of different instruments.

Linguistic: Linguistic learning is an intelligence which involves the students can prefer through reading, writing, and speaking.

Kinaesthetic: A kinaesthetic learning style requires that it a combination of visual and auditory study techniques, producing multi-sensory learning using your body, hands and sense of touch.

Mathematical: Mathematical learning style refers to a person's ability to reason, solve problems, and learn using logical techniques.

Interpersonal: Interpersonal learning styles refer to a person's ability to interact with other people and social collaboration. Interpersonal learning styles prefer to learn in groups or with other people.

Intrapersonal: You prefer to work alone and use self-study. Intrapersonal is a think by self and feel.

Learning style model

Learning style model is an assessment for accountability. It is about using assessments to assist rather than only measure student learning style and skill. The learning style model has implications for the content and design of assessments as move through the course [2]. Student engagement is essential to learning and an important component of educational system. Learning style which includes developing or adapting a prompt and student materials [3]. Access learning material is accessible for individuals with disabilities and enhance the usability of learning material for all students. Some students are visual learners, auditory or kinesthetic learners. Visual learners learn through by of charts, graphs, and pictures. Auditory learners learn by lectures and reading. Kinesthetic learners learn by activity. Students can prefer one or more learning styles. Because of different learning styles, it is significant to incorporate Richard Felder learning style questionnaire method among the students, so that to know the learning style of all the students. This questionnaire methods are more significant model [4]. Performance outcomes comes from Richard Felder learning style questionnaire method in NC state university. This questionnaire method is standardized and recommended system. It is more specific and measurable outcome statements. Then these become a performance outcomes of the academic knowledge, behaviors and skills of the students are expected to learn and demonstrate in a performance assessment [10].

Objectives of the Richard Felder learning style

- Teachers have a complete analysis of every student's learning style and can be measured against a consistent scale.
- This questionnaire method will be used to judge a learning style more efficiently.

Creating questionnaire survey method among students can help the teacher to see the task more clearly about the students learning style. A sample of questionnaire survey method is conducted in RKM Model Girls Higher Secondary School. The following text illustrate the index of learning style questionnaire from North Carolina State University.

1. I understand something better after I
   - o try it out.
   - o think it through.
2. I would rather be considered
   - o realistic.
   - o innovative.
3. When I think about what I did yesterday, I am most likely to get
   - o a picture.
   - o words.
4. I tend to
   - o understand details of a subject but may be fuzzy about its overall structure.
   - o understand the overall structure but may be fuzzy about details.
5. When I am learning something new, it helps me to
   - o talk about it.
   - o think about it.
6. If I were a teacher, I would rather teach a course
   - o that deals with facts and real life situations.
   - o that deals with ideas and theories.
7. I prefer to get new information in
   - o pictures, diagrams, graphs, or maps.
   - o written directions or verbal information.
8. Once I understand
   - o all the parts, I understand the whole thing.
   - o the whole thing, I see how the parts fit.
9. In a study group working on difficult material, I am more likely to
   - o jump in and contribute ideas.
   - o sit back and listen.
10. I find it easier
    - o to learn facts.
    - o to learn concepts.
11. In a book with lots of pictures and charts, I am likely to
    - o look over the pictures and charts carefully.
    - o focus on the written text.
12. When I solve math problems
    - o I usually work my way to the solutions one step at a time.
    - o I often just see the solutions but then have to struggle to figure out the steps to get to them.
13. In classes I have taken
    - o I have usually gotten to know many of the students.
    - o I have rarely gotten to know many of the students.
14. In reading nonfiction, I prefer
    - o something that teaches me new facts or tells me how to do something.
    - o something that gives me new ideas to think about.
15. I like teachers
    - o who put a lot of diagrams on the board.
    - o who spend a lot of time explaining.
16. When I'm analyzing a story or a novel
    - o I think of the incidents and try to put them together to figure out the themes.
    - o I just know what the themes are when I finish

Fig. 2: Questionnaire from NCS University

Learning Style and Academic Achievements

Teachers and parents may find out students/children learning style for better learning and also made aware about different kind of approaches help their child learn best [3]. The following table which illustrate that questionnaire survey method is conducted in RKM Model Girls Higher Secondary School of the class VIII, total no of students strength is 57, total no of questions is 44 and also demonstrated the percentage of active, visual, verbal and global learning style etc.

Table 1: Percentage of Active, sensing, visual, verbal, reflective, intuitive, global and sequential

Learning model	Total no. of students	No. of. Learners	percentage
Active	57	37	65 %
reflective		20	35 %
sensing		45	79 %
intuitive	57	12	21 %
Visual		42	74 %
Verbal	57	15	26 %
Global		39	68 %
sequential	57	18	32 %

According to the model, there are four dimensions of learning style, here each dimension having two divergent categories (such as active and reflective). The stated score for a dimension indicates the student preference for one category or the other. If students score for a dimension is 1 or 3, they are equally well balanced on the two categories of that dimension [4]. If they score for a dimension is 5 or 7, they have a moderate preference for one category of that dimension and would be more balanced environment. If they score for a dimension is 9 or 11 and have a strong fondness for one category of that dimension

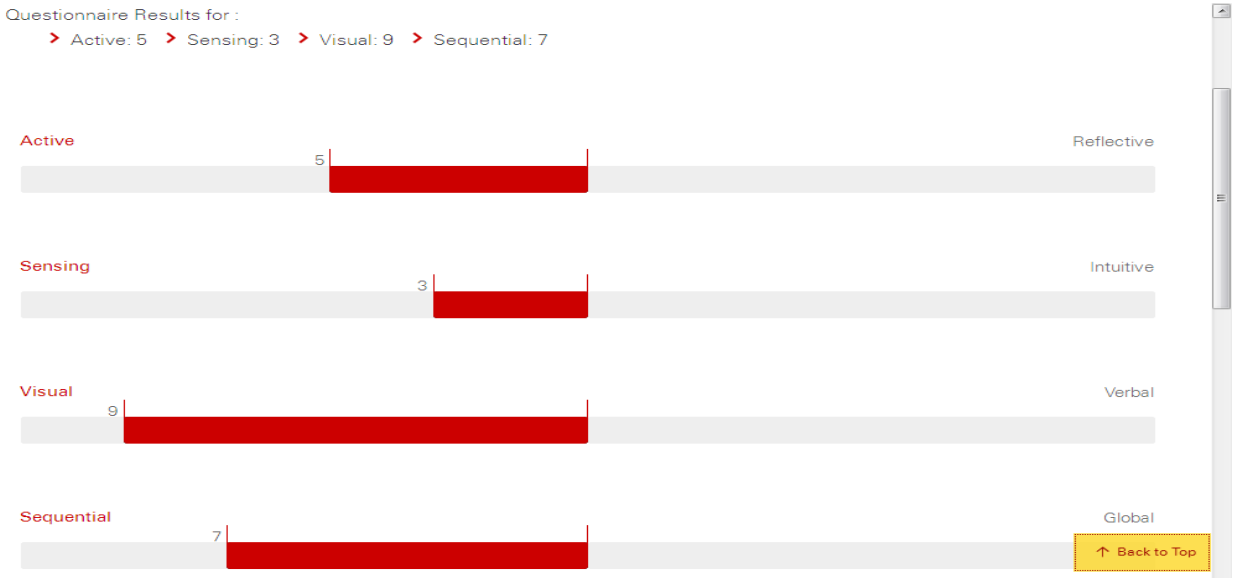

Fig. 3: Questionnaire results of the student

Results and Findings

Active learners tend to retain the information and understand by teaching activity based learning [4]. While Reflective learners prefer to think about it quietly first and prefer working alone without collaborating with others. Sensing learners tend to gather facts to learn about things, intuitive learners often prefer discovering possibilities and relationships. Visual learners who prefers best what they have seen like pictures, diagrams, flow charts, time lines etc. Verbal learners get learn more out of words, written and spoken explanation. Sequential learners prefer to gain the knowledge and understand by following the steps in a logical way from the previous experience. Global learners tend to learn by absorbing material almost randomly without seeing connections. The following graph illustrate the 4 dimension learning style [4] which was obtained from the questionnaire survey method.

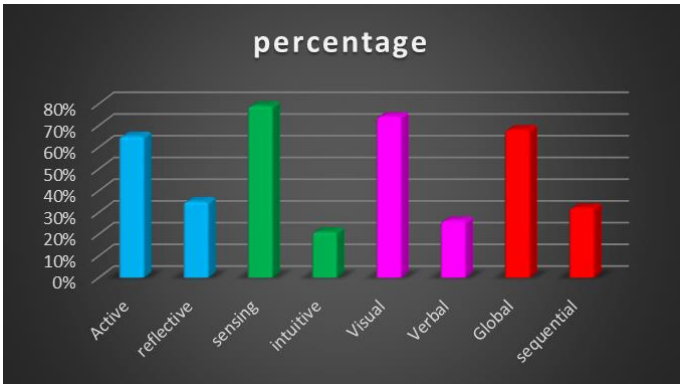

Fig. 4: Percentage of plot of learning style

Conclusion

Learning Style is found to be more prevalent to academic achievements there exists positive high correlation between active and reflective Learning Style, visual and verbal learning style, sensitive and intuitive learning style and

sequential and global learning style. Very positive correlation was found between Visual Learning Style, active learning style, sensing learning style and global learning style for academic achievement of students. There exists significant effect of different Learning Styles and academic achievement of students. In this work, validating the index of Learning Styles and gathered profile data of the students. Finding of students learning style for better learning and also made aware about different kind of approaches help the students to learn best.

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