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A REVIEW OF THE SIMPLE LEARNING MOTIVATIONS HIERARCHY MODEL

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Abstract

This report describes Simple Learning Motivation Hierarchy Model that can be used for analyzing, development, and evaluating learning processes. The model is fundamental and can be used in different applications including E-Learning, Smart Education and Artificial Intelligence.

Abstract

Данный доклад описывает простую модель иерархии мотиваций обучения которая может быть использована для анализа, разработки и оценки процессов обучения. Модель является фундаментальной и может быть использована в различных приложениях, включая Электронное Обучение, Умное Обучение и Искуственный Интеллект.

Introduction

This report describes Simple Learning Motivation Hierarchy Model (SLMHM) that was developed as result of fundamental research of problems relating to learning processes. Motivation was selected as the key factor of successful learning. The research and development of SLMHM was inspired by theory of human motivation by A. Maslow [1],[2], levels of existence by C. Graves [3], and map of consciousness by D. Hawkins [4]. Thought experiment was used to build the model. Results of preliminary analyses reflected by this report show unlimited potential of the model. SLMHM is presented as a simple model because it presented as a simple series of levels. The model can be expanded to cases where several options and several objectives are applied simultanieusly or in combination with other models and theories.

The Model

SLMHM consist of sixteen levels of motivation where the lowest level is the desire to become an educated person and the highest one is desire of totality.

No	Motivation	Intention
1	Desire	To become an educated person in some subject or science.
2	Involvement	To get involved in the learning process.
3	Facilities	To get access to facilities, teacher, etc.
4	Acting	To starts learning.
5	Grading	To be graded according to this progress.
6	Alternatives	To have options to make learning flexible.
7	Influence	To influence learning process.
8	Innovation	To improve something and introduce something new.
9	Rewards	To get rewards from introduced new.
10	Extraordinary	To create something extraordinary.
11	Leading	To lead a team or a process.
12	Organization	To organize operation of the team or the process.
13	Informing	To have information flow from/to the team or the process.
14	Streamlining	To streamline the life and discipline it.
15	Expansion	To expand.
16	Totality	To achieve total coverage.

The Model

The key idea of this research is considering motivations as independent conceptions. This means that: (1) motivations may depend on satisfaction of lower needs and process of learning, but it is not obligatory condition; (2) satisfaction of lower down does not guarantee motivation; (3) the higher motivation may exists, but lower ones may not. These conditions allows to avoid some limitations of the model and make it universal.

One example of usage of the model is development and description of learning process in its ideal form, study of existing situation and then determine the steps that should be done to improve the existing situation. For example a person can have the motivation to create something extraordinary without previous motivations. But in real such high motivation cannot be satisfied without satisfaction of previous motivations. Analyzing the problem can produce a roadmap to motivate the person and develop him step by step. Such approach can be extended to teams and learning processes.

Learning Process

Learning process can be divided into sequential steps, that can be match with SLMHM. Progress of the learning can be considered as dependent on satisfaction of needs, that exists at the corresponding steps. It means that success of the learning depends on proper motivation and satisfaction of corresponding needs. And the progress can be assessed and monitored.

Several theories that could be implemented, especially in the education domain are: Intrinsic and Extrinsic Motivation Theory, SDT, the ARCS model, SCT and Expectancy Theory [5]. FEASP can be also considered as a theory that allows eliminating obstacles to motivation [6]. Generally these models do not refer to all stages of learning process and assume the same nature of motivation at all it stages. Unlike to these models, SLMHM allows considering of qualitative changes in the motivations stage by stage. Motivations in SLMHM are cumulative: each stage contains all motivations of lower stages. It also means that progress in learning requires more and more motivations.

G. Norwood proposed that Maslow's hierarchy theory can be used to describe e.g. the kinds of information that individual's seek at different levels. For the student, this could be translated into seeking coping information; helping information; enlightening information; empowering information and lastly edifying information [7]. SLMHM proposed more detailed hierarchy, five levels of that (Facilities, Alternatives, Rewards, Informing, Totality) can match to above mentioned Norwood’s and Maslow's theory (Basic, Safety, Social, Self-esteem, Self-Actualization needs accordingly)[1][2][7].

Information Technologies and Internet Infrastructure allow to realize the highest SLMHM motivation “Totality” for many subjects because internet is global and it is penetreting all spheres of human life. This makes SLMHM useful for E-Learning and Smart Education. Possible smartness levels Adapt, Sense, Infer, Learn, Anticipate, Self-organize of Smart Educational Systems (SES) described in [8] can be match with according SLMHM levels Alternatives, Influence, Extraordinary, Organization, Informing, Streamlining. In this case SLMHM shows ability to develop more detailed levels of SES.

Artificial Intelligence

SLMHM can be applied for analyzing and developing of Artificial Intelligence (AI) and other Intellectual Systems. At the moment AI has no intrinsic motivation, but extrinsic motivation that is effected by human. So, research of motivation for whole AI/human system gives hope for good results as from point of view of AI evolution, as of human development.

Max Tegmark in his open letter, signed by many prominent researchers and developers, shows that a small change in technology is available at the level of the business, which is interested in the speedy implementation of the solution without an in-depth laboratory analysis of the consequences. At the same time, a change in technology can have a tremendous impact

on both human life and the environment [9]. It seems that SLMHM could be used to analyse the situation and elaborate measures against possible threats to humanity and environment.

Artificial Psychology that first proposed by Dan Curtis in 1963 states that AI will approach the complexity level of human intelligence when the artificially intelligent system meets three conditions [10]. Within the project "Shelley" an AI has already been created that is learning how to create literary works in the subject of Halloween [11]. Role of SLMHM in AI problem is seen to answer such questions as "Can AI have motivation?", "How can it arise?", "How can it develop?", "Could it become a threat to humanity?".

Currently the question of the appearance of motivation in AI seems to be more fruitful than the question of the appearance of consciousness in AI. SLMHM can be used by human to analyze AI and control of it through its motivation or amotivation. This approach could mitigate or even eliminate a threat of AI to humanity.

Conclusion

This rewiev shows that SLMHM can be used for analysing, planning, development, and evaluation of learning processes including development of E-Learning and realization of conception of Smart Education. It can also be applied to issues relating to AI and intellectual systems. Experience collected after realization and study of other motivation theories analyzed through prizm of SLMHM can bring invaluable results. SLMHM open doors for future research and development of existing and new theories.

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