

The relevance of hierarchical learning theory of Gagne in Nepal

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Abstract

After the eldest and the only central Tribhuvan University (TU) in Nepal, there are rest sixteen universities out of which some are regional and some other are related to particular stream of higher study. Reportedly in media and from different sources, TU alone is the faith of around eighty percent student of Nepalese students. Despite having science & technical, humanity & social sciences, management, law, agriculture and so on like opportunities of the studies in the Nepalese universities, now-a-days, a trend is in Nepal in the higher education level that the students prefer to go abroad. This is a big question mark on the learning pattern and the content of teaching for the stake holders and the government of Nepal. This research article tries to discuss on the relevant possible learning theory and some current different perspectives of higher education in Nepal from textbook and media sources giving focus on TU, thus, following the qualitative method. This study will help us an opportunity to discuss different learning theories among academic people in Nepal for qualitative teaching to cater the problems of Nepalese learners.

Keywords: behavioural change, hierarchical, higher education, individual, learning theory, method, psychology,

Introduction

This research article primarily gives stress on the learning theory of the university students in the context of Nepal. As Nepal's education from school to university in the different faculties has varying learning situations, the university students have good opportunity to enjoy the desired study in the certain faculty. Despite having such provision in Nepal, there is a trend in the adolescent students who prefer to go abroad for higher studies. Though there may be many other causes like policy of the government in the education and lack of attractive job opportunity but this academic work believes that, first of all, the teaching institution of Nepal must be faultless so that the government of Nepal will think other issues of the university education for excellence. There is continuous writing over university education in the Nepalese media focusing on Tribhuvan University (TU) so it has drawn the sharp attention of the citizen here. In such light, the author prefers in this article to discuss some existing global learning theories for the students in the current situation of Nepal. To mention the theories, psychologists and professors Lester Donald Crow and his first wife Alice V. Crow's common view of learning in the individual through habitual and behavioral change and also the definition of learning postulated by Henry E. Garrett that states a process of training and experience enables the student to march confidently to the new and

changed response are principally the two basic definitions in the testification of R. M. Gagne's hierarchical learning theory.

To obtain the goal, this article has the general objectives i) to convince the Nepali adolescents through university to complete the desired study in Nepal in the international pattern; ii) to draw the attention of the Nepali government to be more sincere for the youths through ensuring the quality education and opportunity of job, and the specific objective as i) to review the learning pattern in the Nepalese universities especially in TU.

Method and theory of learning in teaching

In the teaching process, more than average tendency talks on teaching pedagogy which is only the half work. To make teaching process complete, one must consider psychologically what is going on in the mind of the students. That is to say, the method of teaching and the learning process are equally important for a teacher in the classroom for effective delivery of knowledge. One can say that learning activity is consistently related to psychological core than the teaching act. According to one definition of "learning" (Sally, 2005, p. 874), it is becoming a knowledgeable or skilled one either by studying, getting experience and so on.

Of course the teaching act affects behavioral changes in the learner and the teaching person too but it is the learning prime activity which directly reflects the behavioral change in the student. In the classroom situation, a teacher has focus on the learner. There are many educationists like R. S. Woodworth, Prof. G. D. Boaz, Guilford, Gates, and so on whose understanding of 'learning' is identical. They all consider that a good learning has reflection in the individual's habit and behaves. Referring to Crow and Crow, Swayam Prakash J. B. R. writes in his *Educational Psychology* that learning is an act of acquiring the habits, knowledge and attitudes (J. B. R., 2014). It is a transformation process in the students so that they can finish the obstacles to fit themselves in the new condition. This process helps the learner to attain the goal. Like Crow and Crow, other scholar Henry E. Garrett, theorizes the learning act as a process in which an individual leads to the new and changed response through training and experience (J. B. R., 2014). Crow & Crow and Garrett's theories of learning both believe in something more activities than just learning in the classroom situation.

This article sharply follows the qualitative method as it consults many books, dictionary, mass media and websites.

A short glimpse on some learning theories

In the teaching process, approach, method and techniques are the different three words. Teaching of language only and teaching of other subjects are different works; however, there are some basic things which a teacher needs in any student while teaching. Richards and Rodgers maintain (2002) 'approach' as of philosophical level and write that it is an axiomatic, a set of correlative assumptions which deal with the nature of language teaching and learning. Further these writers define method and technique also on the same page. According to them, 'method' is procedural and a set of all the plans a teacher follows in the

class without contradiction and 'technique' is an implementational trick or strategy in the classroom situation by which the students learn. It is noticeable that in all of these three definitions, "learner's" concerning is directly involved.

To discuss briefly 'approach', Richards and Rodgers identify this term in English language teaching in such specific parts are behaviouristic, nativist, functional, communicative, developmental, and natural (Sharma, 2004). B. F. Skinner and Bloomfield are the initiators of this behaviouristic approach who formulate a set of learning pattern: imitation – reinforcement – repetition – habit – conditioned habit. But at psychological level, this categorization of 'approach' differs.

The learner does not only mean the language student who learns rather all the students in all available technical and non-technical subjects in the university. Their overall concerning is the matter of educational psychology. Broadly, there are three learning theories. J.B.R. mentions them as behaviouristic, cognitive or gestalt theory and constructivist learning theories (2014). While studying comparatively the Richards and Rodgers' specific parts of 'approach' and the psychologists' division of learning theories, 'behaviourist' is a common term which comes across us. In both studies, the psychologists and educationists like Burrhus F. Skinner and Bloomfield are common; however, some more follower educationists are further. So, Skinner and Bloomfield's example mentioned above is readable at both places correctly: imitation – reinforcement – repetition – habit – conditioned habit. Let us see below these three learning theories in a brief before discussing the thought of Gagne.

In behaviourist learning theories, the individuals respond to the multiple stimuli in the conditioned environment and experience something as knowledge. Robert M. Gagne, B. F. Skinner, Bloomfield, Ivan P. Pavlov, E. R. Guthrie, C. H. Hull, John Watson, Tolman, and so on are the main followers of this learning theory.

Like behaviourist learning theory, the cognitive theory is a little bit different. Following the definition of learning as by synthesizing the acquired and the natural behaviours, the cognitive learning theory, which is also called 'gestalt theory', is such learning process in which a student responds on the total rather than in the fractional part, that is, an individual learns by reasoning. Reasoning, that is, using the interpretative mental power to any particular event or chain of formula. The prominent theorists who believe and follow this cognitive learning are like Wolfgang Kohler, Kurt Lewin, Max Wertheimer, Kurt Kofka, Jerome S. Burner, and Jean Piaget.

The constructivist learning theory believes that an individual develop any knowledge from already his/her experience. Now, a part of this constructivist learning theory in a child is the speciality of Jean Piaget which is 'cognitive constructivism'. The other part of this learning theory which believes that cultural practices provide us experience with enhanced meaning is the domain of Lev Vygotsky which is 'social constructivism'. However, there are some other psychologists like Maria Montessori, Immanuel Kant, Jerome S. Burner, John Dewey and so on who have toiled a lot on this constructivist learning theory.

In fact, this article does not say any particular learning theory is the best and the others are less useful rather it tries to relate with the present context of Nepalese university and the society.

R. M. Gagne's hierarchical learning theory

The American educational psychologist, an initiator of 'science of instruction' during the World War II, Robert Mills Gagne (21 August 1916 – 28 April 2002) developed the hierarchical learning theory. He wrote *Military training and principles of learning* in 1962 and *The conditions of learning and the theory of instruction* in 1965. Referring Gagne, J. B. R. (2014) writes that Gagne's long devotion to hierarchy and conditions of learning helps this psychologist to codify as good instruction. His hierarchical learning theory assumes two things: there exist many types of learning, and different instructional conditions bring in our mind and body the different learnings. Gagne's demonstration in his book *Military training and principles of learning* shows many level of learning. The author's differentiation of psychomotor skills, intellectual skills, interpretative skills, verbal information, and attitudes support to Bloom's taxonomy. J. B. R. further mentions that this American educational psychologist, Gagne, analyzes the different learning theories of Pavlov, Thorndike, Skinner and his own also and then he reaches to the conclusion that there are some eight consecutive classes of situation (circumstances) in which an individual learns and these eight situations are the 'steps of learning'. Those eight steps serially are- signal learning; stimulus-response learning; chaining; verbal association; multiple discrimination; concept learning; rule learning, and problem solving.

To decode these terms briefly with example one-by-one is like follow. The 'signal learning' is just to respond to any signal like mouth feeling with saliva when a person sees delicious sweet or pickle or cooked meat, which is the characteristic of the classical theory of Pavlov. The 'stimulus-response' step is of the pattern of the theory of Thorndike and Skinner in which an individual purposefully conditioned on a particular stimulus to respond. To meet an example will be of a learner always doing homework to get the chocolate from the parents. The third step, 'chaining' of Thorndike's pattern of theory believes in a chain of multiple stimuli and their proper responses. For example, how to cook *paneer* vegetable or *rasvaree* like sweet one after another many steps which all must be properly synthesized to have better cooked. Next step is 'verbal association' based on the theory of Thorndike and Skinner in which a learner tries her/his best to explain of the chain activities just discussed above. In the fifth step of 'multiple discrimination' postulated by Skinner and Thorndike, an individual ascertains the many responses on multiple stimuli to identify exactly just like a horse identifies its master among many persons. In another step, 'concept learning' is gaining the knowledge of synthesizing similar responses to a series of identical stimuli. For example, categorizing kitchen wares at one place from the agricultural tools. It is like making a class of similar things under a head. Next step, 'rule learning' is simply a combination of two or more than two concepts which compose the cause-and-effect. To fix an example here is a condition in the sentence like "Had she been born in Nepal, she would have learned the meaning of marriage at age twenty-five". Here, "had born" is a condition

(cause) and "would have learned meaning of marriage at twenty-five" is its effect. In the eighth step of learning is 'problem solving' is the final achievement in the learner's life in the condition of which he/she solves a problem by exploring rule so it goes to be a 'method' or an art of correlating the concepts to give the formation of a new rule.

This much discussion on Gagnes' theory of hierarchical learning is clear to speak that for a perfect and permanent learning, a student needs much exercise of brain in the purposefully prescribed conditions to solve the problems skillfully so that their cognitive power is going to be very high. This learning theory opposes the situation of the learner and the teacher just to remain within classroom and just relying on the lecture method of teaching.

Now, let us see in the upcoming part of this article how the student is taught in in the classroom situation in the context of Nepalese universities so that the relevance and necessity of Gagne's theory will appear as the most important here.

What the stakeholders say?

In TU, the constituent and its affiliated campus and colleges follow the semester system at masters' level since 2017/018 (2074 B. S.) which advocates sharply the replacement of lecture method of teaching with the problem-solving one like R. M. Gagne's hierarchical and rigorous method of teaching so that the students are capable enough to identify practically the situation (problem), to find its solution with formulation by the synthesized concepts. But it is open truth still in such campus and colleges of TU and other universities in Nepal where the financial investment of the institution goes primarily by focusing only the science and technical students giving less priority to the humanities, management, education and law faculties. It is one of reasons why a lecturer of TU, Bhim Regmi raises a question on teaching methodology very posthumously on 12 December 2023, "Now, the education should not be of a banking model to deposit, forward a cheque and just to withdraw money rather transforming type in which a student does discussion, identifying the problem and its solution" (Regmi, 2023).

Likewise Regmi, Karna feels some reasonable causes in TU which he and other concerning parties' stakeholders see in the classroom. Karna thinks that not only the proper problem-solving method is unavailable methodology is cause of dissatisfaction in actuality in the Nepalese students but also there are a series of conditions which do not allow the competent and skilled teacher fully utilize his/her delivery of content in the teaching room. He assembles those circumstances that no opportunities of much exposure for field visits and attractive job except the internship for technical students and even such internship like other any opportunity is properly set by the government as well as by universities including TU for non-technical students in; no regular monitoring is for methodology followed by teacher and other academic performances in the class; internal evaluation and the final semester examination are not fair; no use and also no maximum use of the latest educational technology in the class except technical subjects' classes; no salable human resources becoming the product in the lack of confidence in them in the case that they have low exposure with global competition; some competitive teachers even not getting chance to

utilize full of their potentiality in the technically-unfriendly classrooms in TU, and the incomplete physical infrastructure of the campus and colleges are becoming some reasons why even the science students firstly prefer the foreign university in Nepal then what to talk about humanities and social sciences, management, law, education streams' students (Karna 2023).

While Regmi and Karna make irrelevant teaching method like lecture method still in practice responsible for ineffective teaching causing distraction of Nepalese students in Nepali universities for continuing higher studies; the educationist Vidyanath Koirala assures that the newly opened universities' beyond prescribed teaching content is responsible for brain-drain from Nepal. He gives example of Rajarshi Janak university of Nepal and claims that its origin is on the bases of to promote culture of the Madhesh. Referring Koirala, Rubi Rauniyar mentions, "The main objective of Rajarshi Janak university was to promote the Madhesh culture by bringing in light the matter of Ram-Sita, Janak, Gargi, and so on but it is doing something more than the objective" (Rauniyar, 2023). Of course, when the university changes its subject or the programme, its entire methodology of teaching will be different and the institution will be unable to cope with the new challenging environment.

What we deduct from these theories?

From above discussions, it is clear that Nepal's educational institutions for higher studies especially the universities including TU have still such teaching habit in most of the teachers who prefer maximum the lecture delivering method in the semester like classes. The Nepali students do not get opportunities of learning through scientific method of teaching which this article elaborates in the theories section above. An observer has no chance to see either Pavlov, Thorndike and Skinner's classical conditioning learning processes or their synthesized hierarchical theory of Gagne which are the eight steps in the learning- signal learning; stimulus-response learning; chaining; verbal association; multiple discrimination; concept learning, rule learning, and problem solving. In fact, Gagne's these steps of learning advocate the problem-solving method of teaching by which a student can recognize the problem, will use the brain to formulate the solution by patterning the responses/concepts, and will be an enhanced confident bonafied product. Now as the environment in the class for the learner is not mostly as per Gagne's steps of learning, automatically the theories of Crow & Crow and Henry E. Garrett, respectively, that a student becomes a solid and skillful to shoot out the problems to adapt in the new situation through transformation as well as learning is such an act of life in which a student leads to the new environment through rigorous training and experience will not work for Nepali students.

In fact, Nepali youths need such teaching methodology which adheres to the ground reality of the teaching content. They are fed-up with lethargic lecture method of teaching in all classes of each paper. It is noticeable that while some stakeholders raise the question on the course of study which prescribes teaching methodology suitably to the particular subject in a special course; there some authors and academicians also raise the voice of the poor infrastructure, irregular monitoring mechanism, technically unfriendly the classroom situation, unfair internal and final examination processes in the crowded environment and

loosely conducted, sometimes the institution for one purpose opened providing the teaching of other programmes, and so on.

Suggestions required

Therefore, the writer prefers to suggest the teaching resources in the universities, the universities' curriculum development centres and the administrations to ensure the following environment not only for the student leaders who get the accidental bonus chance to visit foreign university in the student exchange programme but to all the learners there:

- i) to ensure the replacement of continuous delivering lecture in the classroom with the other activities like practical, field visit, doing work by learning, class presentation, and so on;
- ii) the higher education institutions like campus and colleges should ensure technically well-facilitated and cozy classes;
- iii) the teaching human resources must get chance of frequent attending of training, seminar and group work, workshops on the course material to refresh and exchange the experience of teaching to each other;
- iv) the monitoring body in the university should also focus on the methodology the teacher follows in the classroom and such curricular activities;
- v) there should be an evaluation process from the students about teachers' performances on such a blind question paper which has some inquiries about teachers' classroom activities in tick-mark form but without name mentioning of the students;
- vi) the educational entity must conduct the prescribed programme or run the teaching of subjects as per its mentioned objectives;
- vii) the student exchange programme from one university to another builds confidence in the student's mind. If it possible, a university or the federal government of Nepal can provide this chance to the Nepali students by increasing the financial support to the Nepali universities. However, the universities of Nepal can also conduct the student exchange programme within Nepal. For it, an active university higher authority is a must who has the desire to do something best in her/his tenure;
- viii) it is highly advisable to provide the facility of guest lecture from business tycoon, successful minister, bureaucrat, industrialist, scientist, foreign professor, and so on, and
- ix) to stop the brain-drain from Nepal, the government of Nepal must provide the opportunity of income during research, internship and also must create the attractive job opportunities within country.

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