

MEASURING LEARNING ACHIEVEMENT IN SOCIAL NETWORK FORUMS

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ABSTRACT

The advances in Internet technologies that have enabled ease of navigation and access have also created many new opportunities for self-improvement and education. This study investigates the education opportunities that internet social network forums provide. The author argues that the learning process in these forums is the result of the level of user engagement. In the study he describes a number of these groups that he has led and has measured the level of participant contributions. He has identified and analysed three types of Internet behaviour modes and their concomitant contribution levels and concludes that the most significant learning is realized by participants most analytically engaged in internet forum discussions.

This study aims to analyze the extent to which individuals will take advantage of self-education opportunities in an internet environment. The study materials under discussion here are offered strictly for self-improvement or personal satisfaction and earn no certificate or diploma upon completion of the learning materials.

DISCUSSION GROUP I: LEARNING ABOUT INSTALLING DRIVERS

An example of such online learning is a discussion group that provides information about installing different types of drivers to fit old computer interface cards. In these instances, open code drivers are often used, where authors of this information may teach about installing the latest operating systems. In observing discussion forums with similar topics, it is possible to study the knowledge acquisition process.

Some of the most revealing insights into the learning acquisition process may be gained by observing how participants progress in mastering installation

instructions. Some web instructors develop teaching materials with the principle in mind, "but those steps are so simple", but they discourage users. A superficial teaching approach, not adequately planned produces little learning. In having observed the development of a number of learning forums, the author can with confidence say that active participants contribute significantly to the learning process and help to make the information more accessible to the general public.

Another important topic for web-based instruction is mixed method research that combines the teaching of both qualitative and quantitative analysis. This type instruction may be deemed successful if on the average 20% of the participants become actively involved in the learning process. Moreover, if other motivating factors are introduced such as diplomas, certificates or similar awards, the number of active participants can be expected to increase to 35% (Preiss and Robert 2010). These numbers are derived from studies of student participants in correspondence schools and can be expected to apply to self-education in other settings as well.

DESCRIPTION OF THE STUDY

The study explores the theories of balance and attribution developed by the Austrian psychologist Fritz Heider, an associate of the Gestalt school. Heider claims that one of the attributes of group behavior is that its members strive to emulate the group leader in skills and knowledge mastery. Heider's theory describes a "follow the leader" pattern. He argues that once a person is identified as the group leader, either charismatically, through exceptional skills or some other attributes, the other members of the group, i.e. the followers, will strive to imitate and acquire those skills and attributes and by this means seek to acquire equal standing with the leader or a sense of psychological equality and balance. Heider also understands that an authority figure may assume a negative posture in the eyes of a group; in those instances the knowledge disseminated by this negative figure will be ignored.

Therefore, as this theory asserts, for a successful learning process to take place, there must be a psychological sense of attribution and attainment striving of the group

leader's knowledge and skills that must be viewed as worthy of being emulated. A similar psychological theory is applied in successful marketing when products are endorsed by charismatic personalities such as rock stars and football heroes and their fans rush out to acquire them in hopes that will become more like their heroes (Heider and Simmel 1944).

Because currently social networks communications opportunities are so highly developed, it has become possible to use these channels to make detailed observations about the learning process. The study employs different types of communication network to shape its analysis models.

The study employs the following types of web-based communication tools:

Types of models:

- (a) Anonymous online Forums where users may use their real or assumed name;
- (b) Registered online Forums where users may participate only if they are registered.

Blogs web sites:

- (a) No restrictions blogs (or open blogs) where participants may post their comments using either their real or assumed names;
- (b) Registered blogs where comments may only be posted by registered users;
- (c) Wiki-type blogs where content is developed with the guidance of wiki type moderators.

Tools for analyzing weblog usage and measuring citation value in web-based forums:

A review of the entries from blogs indicates that users tend to fall into identifiable user groups. Moreover, the tracks left by users in online settings further allow their behaviors to be classified in more refined sub-group patterns. The research of this study gathered user citations and submitted them to semantic analysis to measure the citations and user texts and applied the following methodology.

For anonymous sites where users are not required to register, whenever possible, log analysis was used to allow researchers to identify the source of the entry. By this method the IP address of the entry can be tracked and users identified. To be sure, this type of analysis presents risks because one IP address may serve a number of users; nevertheless, this method allows for the grouping of users into identifiable group patterns.

Another identification method is to analyze behaviors by user name. The risks associated with this type of

identification method are that users may randomly change their names. A way to check on this type of behavior is to analyze the IP address together with the name identification method. If the IP logs are not available then the precision of identification measurement is decreased and the researcher must rely on the reliability of name identification method and user honesty.

With forums where users are required to register, the researcher can only analyze user names.

From studying user behaviors by the means of the above methods, it is possible to divide users into three subgroups:

1. Users who cite word for word the text posted at the website, simply repeating phrases from it without adding anything of their own.
2. Users who cite from the text but paraphrasing it and introducing new ideas to the material.
3. Users, who simply ignore the text topic, introduce new, irrelevant text and totally disregard the forum topic.

It is also possible to identify a fourth group of users: those who enter a website look over the discussion topic but do not participate in the discussion. This group was not considered in this study's analytical measurements for the reason that it is not possible to consider the qualitative or even the quantitative participation of these visitors. It is only possible to measure user contributions when the server log can track visitor history by identifying the IP address.

In analyzing user participation in web based communication networks, the study used the Latnet news forum SVEIKS that has successfully been in operation since 1994. At the time of its founding, this forum was totally democratic and accessible to all making the website interesting but chaotic. In the interest of order its operating rules were changed in 1999. The advantage of using SVEIKS is that that participants must register making data gathering and analysis easier and facilitating the construction of participant behavior models.

Because this is a news forum and therefore not limited to a single discussion topic, subgroups emerged around specific discussion topics. To understand user interests and behaviors, the forum designed a database classification system around topics that interested users. This study tapped into the system for designing a data table for feedback about user internet behaviors.

The study made use of the data gathered from this and other publically accessible forums in constructing a classification model of user internet behaviors. The

feedback from this model shows that 90% of visitors to web forums only look over the data but do not enter actively into the discussion nor offer their comments.

The remaining 10% of participants can be classified according to the following scheme:

- From 60% to 70% ignore the topics they find and create their own topics. This is logical behavior when the topic is not defined and discussion rules not set;
- 30% of the users cite from or repeat word for word the discussion text that already exists. They therefore exhibit active interest and contribute to the forum topic, but show no interest in a deeper analysis of the content, because they are only repeating the text;
- From 5% to 10% participants cite from or make reference to the existing text and paraphrase or reformulate it into their own words, therefore, meaningfully contributing to the discussion, creating new concepts and adding to the content. From this behavior it is possible to conclude that this group of users benefits the most from the topic discussion because their own thinking processes become actively engaged.

The above analysis of the web-based discussion forums points to the tendency that is described in a number of psychological studies that about 10% of the population are active in pursuing further learning and show an eagerness to engage in social activities than is true of the general population. This tendency explains why only about 5% to 10% show leadership abilities in their specialized fields. However, from this leadership group only 10% exhibit creative leadership potential. This tendency is confirmed by the findings of this study.

The focus of this study was to investigate how the above findings pertained to the learning process in a web-based setting. For this reason, the research experiments included the setting up of forums that required user registration and observation and that tracked the visits of unregistered users. In these forums a Wiki mechanism was introduced that allowed participants to contribute to topics with their own comments and make corrections on existing text. The moderator, however, had to approve the text additions and corrections who at the same time assumed to role of the mentor.

The forum was created on the server “draugi.lv” (“friends”). The forum is managed by a moderator and participants are not able to change discussion topics. In these more controlled forums it is easier to follow the progress of participants.

The topics of the wiki discussion forums are of two types and include multimedia sub-sections.

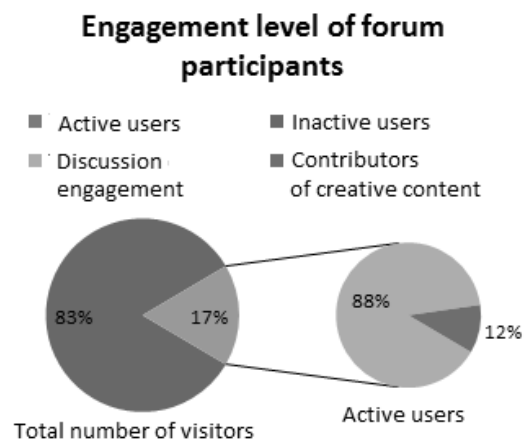


Figure 1. Engagement level in forum DSLR camera optimal usage.

The first topic is about effective imaging with a DSLR (digital single-lens reflex) camera, and covers such sub-topics as optimal sensitivity settings, shutter speed, and diaphragm adjustment criteria. The moderator’s role is to identify the camera’s intrinsic parameters and scale factors to achieve optimal connection to the equipments’ component parts.

The forum was started on 18 December 2010 and currently hosts fifty-eight active participants and three-hundred and eighteen visitors. Of this number seven have added real creative content to the forum’s topic. It is a monitored site so comments are closed and visitors need to address the discussion topic barring them from introducing new or irrelevant information.

The level of intense visitor participation reflects the qualitative / quantitative propensity that only 10% of users offer meaningful contributions. The seven engaged participants in the forum’s topic who contribute to and acquire new knowledge tend to display the self-education achievement ratio of autodidacts in general as compared to the rest of the population, as discussed above.

Most participants are actively engaged in active participation for about twenty days, after which interest in the discussion topic tends to drop. It fits with estimated 20 days of average length of encouraging discussion observed in (Maltz 1975).

Engagement level of forum Audio ergonomics

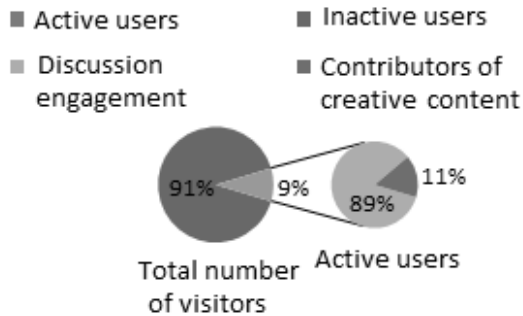


Figure 2. Engagement level in forum Audio ergonomics.

The second forum *Audio ergonomics* was started on February 1, 2010. Its topic is how to produce a resonant metallic sound most effectively with an audio compressor. Currently, one-hundred and eighty-six persons have visited the site. Of this number sixteen have simply repeated the discussion text; whereas three have delved into the problem in more detail. Therefore, in this forum as well, the 10% active learning engagement ratio is apparent as well.

The statistically tendency for the technology forum blogs show that active engagement and creative contribution levels reach 5% to 10% indicating that number as the optimal in self-education, voluntary web-based group environments. It is important to point out, that the purpose of these online voluntary groups is not to achieve a 100% success rate, but to engage the interested participants. These studies point to the ratios online instructors may expect to achieve and view it as a success.

CONCLUSIONS

- In analyzing the data from this study, it is possible to conclude that that in a voluntary system of education, such as the web-based learning discussed in this article that does not include the additional incentives of certificates and diplomas, a realistic number of active learners can be said to be about 10% is of the group;
- Another conclusion it is possible to draw is that voluntary web-based learning systems produce results in a relatively short period of time. Most participants are actively engaged for about twenty days, after which interest in the discussion topic tends to drop. An exception to this trend is when intense discussions develop between the bloggers,

but those generally are not about educational topics but rather more personal in nature;

- The most optimal web-based learning takes places when clear and easily understood instructions are given in the topic discussion texts. This fact is attested by the success of Driver and Open Source—explain what they are- and their clear instructions and accessible course materials.

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BIOGRAPHY

Rudolfs Gulbis has a MS in physics. For many years he served on the administrative staff of EuroFaculty as an expert on network and distance learning project development and design. He was a specialist in Internet services applications at Latvia Mobile Telephone, designing user activities models. Currently, he is a PhD candidate at Riga Technical University. He has managed several EU 5/6th Framework projects. Most recently, he is part of the management staff of the EU project MyElvin, specializing in the design of language tools to update Latvian language compatibility to ICT technology and advising on terminology development. He has designed and edited many distance learning courses, notably http://www.riga.lv/LV/Channels/About_Riga/Kaleidoscope/talmaciba.htm, a public access learning portal to which he continues to contribute.