

## PROCEEDINGS ARTICLE

# Universities vs. User-Generated Content: New Form of Confirmation Bias and the Emergence of Invisible Ties

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## ABSTRACT

This article proposes the analysis of education formats in various social spheres, including universities and recently emerged online platforms, through the lenses of graph theory and social network theory. The material highlights the effects of those different education formats on strength of social ties and overall connectivity level of social actors. The article deals with the question of compatibility and competition of education formats at universities and online education through digital media channels based on user-generated content.

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## 1. INTRODUCTION

For quite some time, the world is becoming more and more unlike a global network of big and small actors connected to each other in various fashions, due to the development and propagation of communication technologies. Today, even a not so observing person could notice that the world has become something that in graph theory is called a “Small-world network” [1]. Small world networks are described by graph theory as a type of mathematical graph in which most nodes (which, in our case, represent social actors) are not neighbors (which is to say “friends” or “acquaintances”), but the neighbors of any node are highly likely to be neighbors between each other. Moreover, what also distinguishes small world networks is that a majority of nodes may be reached from a randomly given node in a very small number of steps. So, to recap, small world network may describe

a social system where people who don't know each other directly are still very closely connected by their peers and friends, while also being quite easy to reach from any point in the system. All of this is to say that the world has become a very small place, and some stable social structures are currently being modified.

So many areas of our lives are being affected by this drastic change – economic and financial systems, politics, social systems, even art. And of course, the sphere of education is struggling with this change as well, maybe even more so, being interconnected with many other areas of life (politics, economics, social life etc.). No doubt, education is effectuated within communication process.

Education occurs when there are three major components: the one who educates, the ones who are being educated, and the relations between the two. Those relations are the most important factor,

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distinguishing contemporizing models of education from the traditional ones. The actors that educate and those that are being educated are connected by those relations, which may differ by type of power dynamics that occur between them [2]. Moreover, those different types of power dynamics determine the educational style of students and even what exactly they are learning.

## 2. THREE MAJOR “PLACES” FOR EDUCATION

Firstly, education occurs when there are relations between the student and his or her family. A person and his or her family are connected by something that in social network analysis is called “strong ties”. The theory of ties was mainly developed by such mathematicians and sociologists as A. Rapoport, H. White, and M. Granovetter [3,4,5]. According to M. Granovetter’s theory, the strength of a tie (or a social connection) depends on such factors as: time, emotional intensity, the level of intimacy, services rendered to each other. The longer the people are with each other, the more experience they share, the more they help each other, the stronger their ties get. So, family is a social structure that connects its members by way of strong ties. For a long time, the student is being a submissive actor in this junction. The family transmits its values, worldview and gathered knowledge to its younger members. And for a long time, it is mostly a one-way communication within a rigid hierarchical structure – from parents to small children. Later on in life, however, when children grow, the power balance shifts, the communication between parents and children may become more balanced and have much more feedback, becoming more of a “two-way street” type of communication, thus incorporating some of the traits of communication among peers. Education in a family is a primary source of all basic knowledge and worldview of a child.

Secondly, education may occur when there are relations between the student and an institution. Given a great number of people visiting the grounds of an institution and participating in educational process, the types of ties linking people on those grounds may vary significantly. Some colleagues at the university may have strong ties, because they see each other every day, they communicate, they share emotions, knowledge, experiences and so on. Teachers and students mostly share weak ties, which, according to M. Granovetter, suit best for transmitting new information and innovations on the network. While strong ties suit better to ground people in their values, to be a guide and compass, to bring a sense of

belonging, weak ties suit better for social changes and education. But most people on the university grounds would have so-called “invisible ties”, when people merely know of each other, or might call each other by name, exchange a few words. Those types of connections might not seem to be important, but they in fact are so.

From the stance of social network theory, institution, such as school or university may be considered a hub [6]. It is not only an institution from a structural point of view, but also a location uniting many social units in one place. Using the language of small-world network theory, institutions, such as universities have a higher “clustering coefficient” [7]. It means that in those locations of the graph, where the clustering coefficient is higher, its nodes tend to group together [8]. University is exactly such a place that clusters professors of different types and students of different types together. So, what does uniting many actors with mixture of strong, weak and invisible ties do?

H. Mattie, K. Engø-Monsen and R. Ling conducted a study to prove the hypothesis on correlation between the clustering coefficient and the strength of ties [9]. Two major hypotheses were proven, the first one being M. Granovetter's hypothesis, and the second one being E. Bott's hypothesis [5,10]. M. Granovetter argued that there was a direct correlation between the strength of ties and number of overlapping connections between them. To put it simply, the more friends and acquaintances two people share, the stronger is their tie. E. Bott argued that within the framework of a family, specifically in relations between husband and wife the number of non-overlapping friends weakens the tie between husband and wife, and the more overlapping friends they have, the stronger the tie is. It might be explained by the fact that shared friends form a united social circle, thus forming a small substructure of the society with the respective patterns, restrictions, demands etc., but on a smaller scale. If people form such structures around themselves, it strengthens their bonds by adding external restrictive factors into their relations, thus regulating their behavioral patterns and reducing bad behavior. But, as it is always with strong ties, conservative and/or approved behavior reduces the space for novelty, innovation, new ideas and alternate worldviews. This is partly the reason (apart from political, structural, economic reasons) as to why universities represent quite a conservative type of education format. University is a hub in a social system that strengthens ties of the actors within it by overlapping those ties. It’s a place of higher connectivity. Not only is the university a place where actors that represent this institution educate students, but it also transfers values, political ideas and aspirations (whether good or bad is another

question), traditions and *modus operandi* to all the actors that go through this hub.

Thirdly, education occurs when there are relations between peers. Peers are connected more or less equally power-wise (compared to other types of social connections), and their power dynamics is based mostly on personality traits. For instance, according to Big Five theory, disagreeable people that are low in neuroticism are likely to be more dominant among peers, while agreeable people high in neuroticism tend to become more dependent on the perceptions of their peers about themselves [11]. Correspondingly, people that are low in neuroticism and high in conscientiousness, as well as being high in openness and extraversion scales are likely to be influential, thus distinguishing themselves from dominant peers and subdominant peers. They are not as much feared by subdominant peers, as much as respected and listened to. In the opposite spectrum, people that are low in openness and low in extraversion, but high in neuroticism will try to withdraw themselves from any power-based social interactions and competitions, being more fragile than their peers. Thus, in those interactions of peers with the same level of power (structurally speaking of course, meaning that the power comes only from their personal qualities and not yet supported by societal structures), most of social behavioral constructs are formed and learned.

So, the majority of those actors-peers will have weak or invisible ties. The more overlapping ties there are the more tightly connected the circle of peers will be. So the information travels freely, faster and reaches more people through weak and invisible ties, thus making communication among peers the best place for innovation and self-actualization, because of lower number of power-dependent relations. And the institutions, as it's been said up above, play the role of the enforcer of ties, including ties between peers. However, while a few decades ago such hubs of high connectivity that enforces ties of the other actors were a street, a yard, sports-section, in rare cases – a library, and in most cases – educational facilities; today those hubs shifted to online platforms. A street, a yard, a library now do not play such a strong uniting role of strengthening weak and invisible ties as before. Every student has its own circle of online friends and peers. And as E. Bott argued, the less the number of overlapping peers we have, the weaker are our ties. So, educational facilities and workplaces are major offline hubs that are left.

### 3. ONLINE HUBS vs. UNIVERSITIES AS OFFLINE HUBS

Contemporizing world saw the emergence of major online platforms within digital social networks. Such platforms offer quite a large number of various flows of information and their own structural hubs – influencers or bloggers. Within those platforms the process of education has also undergone some changes. Those platforms now also may transfer knowledge, news, the know-how and values. And they do so in quite entertaining manner. The majority of the content is user-generated, and people put quite an effort into it, displaying a goal-oriented behavior of entrepreneurs. Thus, popular influencers that educate their audiences online have the advantage over most universities' professors. But it is not the only advantage influencers offer through online platforms.

The major difference between a university and an online platform in terms of education is as follows: communication through social network hubs online simulates communication among peers, whereas communication at the university is a communication between actors of very different amount of power and place in the social hierarchy. Communication online doesn't appear to be having a power dynamic (even it sure does have one). Funny thing is – what we dislike about communication with the ones that are higher in the social hierarchy is that it is one-sided, no feedback, no arguing. But that is exactly the underlying structure of communication with influencers and bloggers online. The difference is – people don't feel like it's relation of power, they don't feel like they are being told to do or to think something, in a certain way, because there are those relations of trust that emerge among equals [12].

At the beginning of the internet era, the clustering coefficient of actors was quite low. There were many platforms, much more search engines, a variety of forums etc. In recent 10 and even 5 years, the clustering coefficient grew exponentially – the same few platforms gather a large number of people. And now, those platforms became systems with their own rules and algorithms, and their own hubs (influencers) inside those platforms. What did that change? - the number and strength of ties. Invisible ties grew, latent ties grew even more, but the weak ties are becoming even weaker, as well as strong ties are becoming weaker still. The more ties a person have, the strength of those ties distributes over the number of ties. The majority of online ties are weak at best, which offers, however, a great deal of novelty and innovation. But a great number of ties being latent or invisible, the education process might be not as efficient as one would hope.

#### 4. LIMITS TO M. GRANOVETTER'S AND E. BOTT'S THEORIES WITHIN DIGITAL SOCIAL NETWORKS

Given the nature of online communication, most ties between people online can be characterized as weak, invisible or latent. According to A. Rapoport, H. White, and M. Granovetter, weak ties and invisible ties are better suited for education in that it allows better flow of new ideas, information, and innovation. In general, it is good for education, learning diverse things and different points of view. However, in online communication it's not that simple.

Online hubs have similar structure to institutions. In both cases there is a platform, which gathers people that have something to say and people that are willing to listen. But they are regulated differently. A university is regulated by its hierarchical structure, political and economic policies. An online hub is regulated by machine algorithms basing their decision on previous performance of a user, thus proposing the type of information to a user that he/she might like and agree with. Thus, it simulates in itself a strong tie, especially its major limitation – conservatism. It enforces the so-called “confirmation bias”. It proposes the content that is similar to the audience's liking. The paradox that these relations between users and the bloggers/influencers cannot be characterized as strong ties, nor even weak ties at times, for that matter. And overlapping connections, in this case, do not really lead to straightening connections between the users. One could argue that online social networks do not entirely follow the principles of M. Granovetter and E. Bott, and are possibly in need of further study.

The problem with this is that while there are invisible or weak ties in the system, the information given through modern algorithms could only confirm the views and values of the audience and is even less likely to change them, than before. While it's still new information, it has been already preselected to be liked by the viewer. However, one could argue that the information is also preselected at the universities no matter the reason – political, economic, personal values of professors etc. The nature of selection is different – while at the universities the subject matter is pre-selected by specialized social institutions, the information online is pre-selected by behavior and preferences of the user, so the whole education process may become one-sided – “we learn what we like”. It is an issue if for no other reason than the alleged overall increased number of people with so-called dopamine dependence, thus reported lower attention span of students and higher demand for creative and fun-like educational style.

#### 5. CONCLUSION

Universities as we know them today will definitely lose competition by content. The content generated by users for users will be more popular. The content offered by modern online algorithms will always receive more positive feedback from users, because it was offered to them based on their preferences.

When the university goes online, it doesn't have the advantages of its structural power there, and it almost completely loses its ability to strengthen weak ties into strong ties, and invisible ties into weak ties. Now it is competing against more agile structures, such as platforms for bloggers and influencers. Each structure has its obvious strengths and weaknesses. One could argue that the influencer and blogger may not be as educated as one would hope for providing the best and objective information to its audience. But, one could also be reminded of the same issues that exist within the universities.

The advantage of universities is the diplomas they issue at the end, which have a substantial meaning in the overall social structure of society. Another advantage is that a university is a significant social structure, which increases strength of ties of actors.

Today universities face a dilemma: they need to keep those privileged positions of being a structural hub, but doing so online, and with the same level of efficiency, which in today's world is highly unlikely. It is unlikely precisely because of the very nature of universities – increasing strengths of ties means also decreasing the speed of innovations and new ideas and aspirations. Universities can't be locomotive for innovations while being the stronghold for traditions and stable values. Thus, there might be two ways of development of said situation. First one – the very structure of universities changes in the future, for instance, a large online platform is created for gathering all universities in one large hub. And the content from many universities would compete for students' attention. It would be some kind of web of universities and free-market type of content exchange. But this way of development is quite drastic, needs a lot of effort and time, not to mention it would meet a lot of counter-pressure from everybody who is interested in keeping traditional structure of education at universities. The second way of development of universities is much less futuristic and much more realistic – while other social structures stand and keep functioning, the universities would keep functioning as they were, while falling behind new ways of communication and education, and failing to compete in efficiency and level of entertainment of user-generated content.



## AUTHOR'S CONTRIBUTION

This article was independently completed by Ramil Karimov.

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