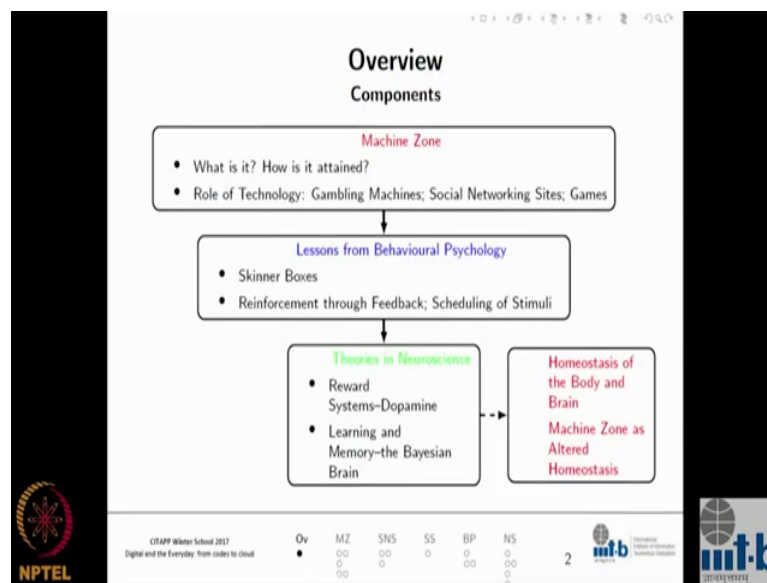


**Digital And The Everyday: From Codes To Cloud**  
**Prof. Sachit Rao**  
**Department of Multidisciplinary**  
**International Institute of Information Technology, Bangalore**

**Lecture – 20**  
**Creating a Machine Zone through Affected Feedback: Leisure and Entertainment**  
**on Social Media: Part 01**

All right so, good morning to all of you. My name is Sachit Rao, I am a member of the faculty here that IIIT, Bangalore. The focus of my talk is in the is using the phenomena which is been identified as the so called machine zone and try to see how technology has actually helped in achieving this zone. So, I will first try to explain what this zone is and using theories and results in the engineering and the biological sciences try to explain why this is potential a problem and also try to provide some solutions on how some of these issues can be can be avoided.

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So, this is a basic overview of the talk I will first introduced the phenomena which called the machine zone this will be in the context of a particular class of technologies, are primarily in gambling machines that you see in casinos in Las Vegas and then other places. And I will try to then extent that into social networking sites or social media, so that is the digital and the everyday.

So, these are the social networking sites that most of us here spend some time on. So, I will try to see by based on this very extensive study that was done on gamblers and technologist in Las Vegas, try to see if there are parallel that can be drawn in the context of social networking sites as well as mobile games and the issues that people face when we when we are basically introduced to these things.

Now, simply presenting the phenomena of the machines zone from for me is not very satisfactory. So, I will go one level deeper and try to explain why is it that technology companies have been so successful in enabling the so called zone. I will be taking legends from behavioural psychology things like skinner boxes and reinforcement schedules and so on and try to explain why this companies have been so successful; I mean what is it that they are able to draw from our from our personal being and the way we react to circumstances and so on in making the such a global phenomena. And I will also like to go one level deeper and try to understand from a neuroscience point of you why is it that the results that were obtained in behavioural psychology, why are they so successful from a neuroscience point of view ok.

This is again one level deeper. I am trying to understand why these things are. So, have become so popular and finally, I will also like to touch upon this concept known as homeostasis. So, we will start with the machine zone.

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The Machine Zone-Gambling Machines

What is it?

- The thing people never understand is that I'm not playing to win...But to stay in that **machine zone** where nothing else matters.
- I couldn't stand to have anybody within my...zone. I wanted to **isolate**, just get lost.
- I resent someone breaking my **trance**...It's me and my machine...
- ...and that was the final barrier: **LEAVE ME ALONE.**

Schull N. D., "Digital Gambling: The Coincidence of Desire and Design", The Annals of the American Academy of Political and Social Science, 597, 2005.

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So, this notation, so this phrase was coined by a Professor Natasha Schull. So, this work, this particular paper and the book that she has published is an ethnographic study that basically she has spent a really long time in talking to gamblers, in talking to the people who built these machines where people gamble and various actors. In this whole technology in trying to understand what is the machine zone and hence coined, coined the term.

So, the first few slides that I am going to present or these are the statements that have that were made by people during her interview process. So, these are ordinary people like you and me who go and have spent a lot of time and money and energy on these gambling machines and based on these experiences she was able to come up with this term known as the machine zone.

So, I want you to pay attention to some of the letters that are in a different colour primarily because I want you to that that will be my focus try to explain what is the machine zone and then related to the other topics. So, so according to this one particular player, so she feels that when she plays, when she is in front of our gambling machine with the intention is not to win, but to keep on playing ok. So, that with that was one statement that was made. The second one is that while she is while this person is playing they just want to be isolated they want to get lost ok.

So, there is no other motive for this first particular person. Another one is a respondent someone breaking my trans, so you can see that there kind of closely related they want to be they want to be isolated from the world and so on. So, they want to have been their own create their own microcosm and stay there. And finally, we have this particular this person who made a very strong statement said leave me alone ok.

So, these are some of the phrases and some of the statements that she was able to capture in interviews based on which was able to describe the phenomena which is then termed as the machine zone. So, you can see some similarities and all the keywords that I have made and bold here. So, there are also other features of the machine zone that have been identified which is what I will develop on in the technological aspects of these gambling machines.

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**Other Features of the Zone**  
Speed and Time

- It's not about winning; it's about **continuing** to play.
- As you have less and less money...you get faster and faster. You're trying to **speed** up and get into the zone...
- You can play the machines...because they require **just enough attention** that you can't think about anything else.
- If you put in a twenty dollar bill...It's like a token, it **excludes** money value completely.

Schull N. D., "Addiction by Design: Machine Gambling in Las Vegas", Princeton University Press, 2012.

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So, one of them said it is not about winning, but it is about continuing to play right. So, they do not care whether they made a million dollars or not, but this is want to keep on playing and remain in the zone. The other feature is you have less and less money you get faster and faster your only trying to speed up and get into the zone. So, people want to get into this zone very quickly ok. So, it is not that it should be a long drawn or process several hours or whatever, but very quickly they want to get into the zone feel lost cool themselves with the with mission ah.

Another feature here is the machines have been designed in such a way that that just required just enough attention so that you cannot think about anything else ok. So, and finally, here there is a there is a statement that relates to some of the financial issues that my, that my colleague had mentioned earlier. So, if you put in a 20 dollar bill it is like a token it excludes money value completely.

So, the reason why I have put all these things is because these are now related to the technologies that are actually gone into designing the slot machine as we know it today. I mean did you have a specific question in this.

Student: Yeah, so, (Refer Time: 06:25)

Exactly. So, you, I mean if you saw in the earliest slides the issue was to get into that zone very quickly and continue to stay there. So, they do not want to have, they do not

have any distractions. The machine by itself should not be so challenging that you know you need to use you need to think a lot about how to operate it. So, is like if you are for instance you are playing a very complicated video game you know you may have to things about many things, but here the actions are very simple, your thought processes are very simple and you do not need to spend too much effort in getting into the zone and staying.

To read the papers that I have sited here from instance this text book many people have actually labelled this as electronic cocaine, gambling machines have been labelled as electronic cocaine. So, technology is actually enable people to stay hope and keep coming back for more I mean. So, that is again the motivation on why this topic is perhaps of critical importance these days ah.

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**How to attain the Machine Zone?**  
Requirements

1. **Accelerating play**—eliminate hard cash; allow users to set their pace; Dynamic Play Rate
2. **Extending duration of play**—harmonise machine functions and sensory inputs (light, sound, touch)
3. **Increasing money spent**—reduce time to handle coins; Ticket-In-Ticket-Out  
*Example* (<https://www.youtube.com/watch?v=zayoso311y0>)

Technology is designed to

- enable “continuous gaming productivity”, i.e. allowing continuous play
- enhance consumer experience: Engineering Experiences

NPTEL logo on the left. Footer includes: CTAPP Winter School 2017, Digital and the Everyday: From codes to cloud, navigation icons, a progress bar with 'MZ' highlighted, and logos for mtb and MIT B. The number '5' is also present in the footer.

So, how to attain the machine zone? So, what is technology? How is technology basically enabling people into attaining this machine zone? So, these three components here have been identified as being the most crucial in enabling people to be in the zone and continue to stay there for a really long time.

So, the first one is accelerating play. So, you do not want to take a break at any point of time, you just to want to keep on playing. So, there should be no distractions ok. So, in the traditional machine, so I will give you I have a few one slide on the history of the gambling machine that I am going to talk about. So, previously they were all in a

mechanical in nature you have to use actual coins, currency as we know it and then based on your winnings you have to go and exchange them. So, they may not be currency that would be considered legal outside the casino it could be a token that they would give you which would then encash.

Now, if you had to encash them this basically meant that you were distracted ok, you got some money you have to go encash it for whatever you want. Now, technology is basically enable people to avoid all these things ok. So, it made life so simple for them that do not get out of the machine, you know we will do whatever it takes for you to keep on playing. So, we will introduce all technologies, all aspects of issues that that concern money and maybe even food and if you want something to drink at the casino we will provide all these things, but just stay stuck to the machine that was the that was the focus.

And extending duration of play, now this is something that is very crucial. The technologies have to be design in such a way that people feel comfortable in playing in front of it for extend the durations of time. So, that, so the machines were designed in such a way that the humans in sensorium as we know it so called sensorium which basically involves light, sound, touch and other aspect even smell were design very very carefully in such a way that you could really stay comfortable with in that cuckoo. There is an entire chapter in this in the book that is devoted to casino interior design ok.

So, there was there was based on a person who was a spent a long time as a manager in one of these casinos he the there is an entire chapter on how the interiors of the casinos were actually design, the light, the intensity of light that was that were shared on the players, the sounds that were played in the in the ambiance and there were even efforts that were done to simulate the sound of money falling of coins falling ok.

So, I told you that people lot technologies work towards eliminating hard cash either in terms of coins or in terms of notes, but you had to feel that you are actually winning something ok. So, technologies were developed in such a way that you felt as if you know you were winning something. So, all your sensory inputs for human which is our site, our sound and so on word designed in such a way to ensure that you just keep on playing ok. So, this is the, this is issue here.

And the third one is increasing the money spent. Now, you are a casino as a business you want to make sure that you get most money you I mean you want to get as much money from your customers as possible. So, again here, again as a pointed out you reduce time to handle coins you do not want to deal with physical currency and the other the other technology that was developed a something called ticket in, ticket out where these machines were actually designed to be, design so that it can directly connect to say your bank accounts. So, you can withdraw money almost automatically as soon as you felt that the number of credits that you had reduced.

So, there are several anecdotes that have been mentioned in the book where people have you know like always come down to zero balance, the banks also sometimes work in collision with the casinos and then they give you extended credit. So, let say that you have only about 100 rupees left in your in your bank account. So, based on your profile based on how loyal a customer you have been to the casino banks are also willing to give you some money at that point of time ok, that is thing you know I will loan you 10,000 rupees now and I know that you will maybe make it back. So, in order for technologies to actually enable all these issues, so this again kind of tyson very closely with several of the topics that my colleagues have talked about in the previous lectures; questions of privacy, questions of money, data aggregation and digital identities ok.

So, there are lot of these things that are closely tight in how you can how the technologies and the casinos ensure that you really have a nice time when you are playing and the noteworthy thing here is that people do it voluntarily ok, people want to remain in that zone, people want to go and actually play there for extended durations of times. So, all the issues that were raised about you know who is getting my data, who is tracking my profile and so on.

So, here people seem to be giving it voluntarily simply because they know the they do not get some rewards or pleasure by playing with the gambling machines. So, again as I told you earlier it is they to its people are not really concerned about making money. So, it is not that you know they want work at the casino with like a million dollars the day, they just want to play yeah.

So, just give you an example of the sort of technology that this sort of gambling machine that I am talking about. This is again a YouTube video, this is from a company called bally technologies which is been a leader and building these.

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A work a from, a work a function, a work of arts, introducing the alpha two pro series wave. The groundbreaking new game cabinet from bally technologies, it is nothing less than art by your casino (Refer Time: 13:20) function has combined to create a truly unique fordiance concaved HD screen cabinet. The state of the your high definition display (Refer Time: 13:29) a sweet and sophisticated persons on any casino for work, a striking new technology touchable from maximum interactivity and organamically designed for maximum comfort.

The wave to (Refer Time: 13:42) power play different played experience, the displayed placement provide the natural viewing was the chair position makes it easy you were to reach the button (Refer Time: 13:51) The first cabinet designed with female players in mind the button pan off height and (Refer Time: 13:56) provides a play for smaller players where the button panels slim design. (Refer Time: 14:01) male players to (Refer Time: 14:02) comes complete with a 4 component of a world winning cabinet technologies, including custom LCD panelling and backlighting. The trailblazing I deck and an optional 22 inch digital topper plus, the weight support ballys library of (Refer Time: 14:20) designed exclusively by this a world winning new track on, in an inspiring



technologies inspire by the how to play the (Refer Time: 14:33) only for bally technologies, your partner in innovation.

If you are actually able to listen to some of the statements that were made in this in this advertisement you could see that you know they talked about ergonomics which basically increase the comfort level of the players, they spoke about the height of the chairs in such a way that the female players could play, the touch screen which ensure that you know you are really comfortable playing these video games and so on. So, these were the efforts that go on behind the scenes in actually developing these technologies.

There is a lot of technology that goes on lot of effort from various disciplines of engineering and physiology that has gone into the building of these machines, but more than the technology itself it is what is the consequence of having these having these systems which is which is I think worth asking. So, you could see some of the phrases that were that were thrown about in that in the advertisement something about continuous gaming productivity and so on and enhancing the consumer experience ok. So, it has come to this point were technology has become so focused that you want to really pay attention only to some of these key aspects ok.

So, for the casino gaming productivity basically means how much money can I, make ok. So, the idea is for the casino to keep making enough money and the people the gambler. So, player the systems for them their motivation is to stay in that zone. So, you can see that you know there are several aspects to this to this issue and it is not something that I think should be taken lightly.

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**Technological Background**  
Wheels to Microprocessors

**History of the Slot Machine:**

- Placed in corridors of casinos with no seating
- Primarily designed to keep female companions of real gamblers occupied
- By the 90s, they took centre-stage
- Purely mechanical contraptions (pre-60s) evolved to those with digital microprocessors (80s)
- Random Number Generators (Really New God)

By Nazox-photo by Nazox, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=2970848>

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So, just a brief technological history about the gambling machine itself the one that you saw. So, it actually started off with something that look like this. This was built I think in the 1870s or the 1880s, call the liberty bell slot machine. This is a purely mechanical contraption people actually had to pull a lever and you know gamble and then placed that bets. So, the idea with the slot machine, so this particular device is called a slot machine maybe you seen this in earlier seen this before. So, the idea is you see these three things here in the machine. So, these have various symbols that are that are printed on them. And the idea here is that if you get three of the same symbol in a row and you will get some money ok.

So, previously it was a pure mechanical contraption and they were placed in such a way I mean nobody really gave these machines very serious thought, the people who run the casinos they never really gave him too much thought they thought it was like cut trivial piece of equipment and they were primarily design to keep the female companions of the real gamblers occupied. So, you know you seen movies in James Bond right you have all these guys wearing tuxedos, playing card games and rulay and all those analogue games. So, those where your serious gamblers or maybe if you see in the ocean's 11 series of movies, now were people play different types of card games and so on you never really see people playing video games in all these movies, right.

So, this was the motivation for the introduction of such systems in attrition casinos, but by the 90s these machines actually made place for I mean these machines took over all your traditional analog games in casino. Primarily because of the amount of money that they were actually generating for the casino ok. So, the focus of the book that I cited earlier was to see why is it that, what is the role that technology is playing in enabling all these changes. If you had traditional games traditional card games again gambling, but now the replaced by these systems seemingly nokios, but obviously, not the bringing in so much more money than your traditional games.

And how did technology basically change in enabling all these things to happen. So, the first device is were purely mechanical nature you had glares and livers and springs and so on and finally, they moved onto using digital microprocess. So, this is something that all are currently devices are equipped your smart phone for instances very sophisticated from microprocessors to do numerous things. This again have been used in the design and development of such systems. More than the technology itself it is also the role that displayed by mathematics basically probability theory in making these system so popular.

So, random number generator, if some of you have a background in mathematics taken courses in probability theory you know how these random numbers are generated, there are several distributions from which you can pick out these numbers. So, the nickname that is given to the letters r and g by the people who actually play these the gambler themselves called a really new god because it is these systems that actually decide how much you are going to win, whether you going to stay in that zone, so on ok.

So, this is fairly collusion referred you have technology, you have mathematicians all these people who are working together to develop these systems.

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**Technological Tricks**  
Borrowings from Psychology

**Virtual Reel Mapping:**

- 22 stops possible: 11 blanks and 11 symbols;  
For a jackpot, 1 in over 10,000 chances
- Increase stops virtually and map them to blanks; now, 1 in over than 2,60,000

**Clustering:**

- Place virtual stops close to symbols
- Leads to near-miss effects, thus increasing play time

**Payout Scheduling (Video Poker):**

- Increase reward frequency
- Give minor, but frequent rewards
- **Math is what will make them stay.**

Marco Vercil (Slot Machine Las Vegas)

Harrigan, K. A. et al, 2010.

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Technological tricks that have been used in making these machines, in improving these machines, and ensuring that people continue to remain in the zone, there is a system known as virtual real mapping. What happens here is that the each of these real. So, this is basically a cylinder, which basically a wheel on which you know you have these symbols that are pasted, but there are a lot of blanks in between them as well.

So, there may be a this traditional one side 11 symbols and then they had 11 blanks, but with the introduction of microprocessors and other such advanced technologies. What could happen is that you could actually virtually create more blanks in such a way that they how that the casino ensure that it always made more money. So, in the traditional system if you wanted to win a jackpot you had 1 in 10,000 chances, so if person actually start at a system and play 10,000 times then you know the he or she will actually get the jackpot.

But with the introduction of this virtual stocks which were enabled again by microprocessor based technology the suddenly the odds of winning the jackpot increase like 25 times ok. So, this was some of the tricks that were enabled in order to make sure that in the development of these systems. Again you please keep in mind the statements that were made in the interviews of the gamblers that they really do not care about winning they only want to play ok. So, if the odds of actually winning something or so

high then you then they the odds the chances are very high that you will keep on playing until such time that you feel that look I am going to get the jackpot ok.

And another one another take that was used this so called clustering. So, where is virtual stocks. So, remember with these virtual stocks actually do not exist on the physical real themselves. So, there actually mapped onto something that is sitting in the computer. But you place these virtual stops in such a way in very close to the real money winning symbols ok, you have all the symbols you have to come three in a line and then you get some money right.

But the virtual stocks if you if you play some very close to an actual symbol that are actually bring you money, but because you have more of these virtual stocks then you have the money winning symbols the words are high that you would get more of these stops right I mean that was the whole point, but if you place them close enough to the actual symbols a phenomena known as a near miss effect is introduced ok.

So, this makes people feel that they have nearly missed winning something, they are actually not won something, but they feel that they have missed something. Now, we will see that this phenomena of near miss effects has very serious has been studied extensively both in psychology and neuroscience and it is basically these results which enable the if you can call development of such systems ok. So, there is deep rooted science in why people are actually using some of these tricks technological tricks primarily borrowed from psychology the way are human brain was worried and so on ok.

Now, this is another game slightly different from the slot machines this is video poker. So, in video poker the idea here is to keep on increasing the frequency of getting these rewards, which could be like very very small amounts of money. So, you give minor, but you give frequent reward. So, again as I said you do not people do not want to win a jackpot of a million dollars the moments they start playing, but you keep giving them very very in very frequently you give them small amounts of money such that they feel that they actually won something while they are playing game. How is all these enable? This cannot be you cannot do all these things you know from (Refer Time: 23:11) this has actually been enabled by pure math.

So, this is actually a statement that was made by I think technologist or a mathematician who works one of these casino, not a casino who works for the company that builds these

systems. So, he says that math is what will make them stay. So, mathematics has also the usage of very basic results and mathematics has also enable the construction of some stops such machines which enable people to get into that zone very quickly and stay there for a very long time, ok.

Now, keeping this is a background understanding the phenomena of the machines zone has enable by technology I actually now want to move to its use in social networking sites ok, which is why digital and the everyday.

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The slide is titled "The Machine Zone in Social Networking Sites" and is labeled "Quotes-1". It contains two quotes:

- In casinos: Focus on "repeat players" (tourists are "transient players"); found in neighbourhood casinos that offer easy parking, child care facilities, and other amenities.
- ... that Facebook is about bringing people closer together and enabling meaningful social interactions...interacting with friends and family on social media tends to be more meaningful and can be good for our wellbeing, and that's **time well spent**...  
Mark Zuckerberg, CEO, Facebook
- The thought process was all about: How do we consume **as much of** your time and conscious attention as possible?  
Sean Parker, First Investor and First President, Facebook

At the bottom of the slide, there are two URLs:

- [http://www.slate.com/articles/technology/technology/2017/11/could\\_emphasizing\\_time\\_well\\_spent\\_fix\\_facebook\\_as\\_russia\\_problem.html](http://www.slate.com/articles/technology/technology/2017/11/could_emphasizing_time_well_spent_fix_facebook_as_russia_problem.html)
- [http://www.slate.com/articles/technology/technology/2017/11/facebook\\_was\\_designed\\_to\\_be\\_addictive\\_does\\_that\\_make\\_it\\_evil.html](http://www.slate.com/articles/technology/technology/2017/11/facebook_was_designed_to_be_addictive_does_that_make_it_evil.html)

The slide also features logos for NPTEL, CITAPP Winter School 2017, and MIT-B.

It is not that you and I go to casinos everyday right or it suppose there are very few casinos in India to begin with unless you are in go out or something. But what the people who run the casinos have figured out is that it is not actually the tourist who got a Las Vegas or any of these places that there bother about. They do not care about the tourist will come there and maybe loose like a 1000 dollars in a night or whatever it is, they are more bothered only about the repeat players.

So, they are bothered about people who live in the neighbourhood of these casinos you can come very regularly and gamble that and the even go to the extent of providing parking child care facilities and all those amenities, just so that people have the luxury and the comfort to make sure that they can spend a long time on this on these devices.

Now, why is this crucial in our in the context of social networking sites? Each of us now has access to the social networking site on are very smart phone, it is not that we have to go to some far of place maybe like 20 years ago you have to go to a an internet kiosk if you wanted to check your Orkut page or your Facebook page or whatever now you do not have to do that now all of us have become repeat players in the context of social networking sites. Casinos who are physical structures, but now you have these you have these ideas that are also being incorporated as apps in your smart phone.

I am sure you can play the same slot machine as a simple video as a mobile phone app. Social networking sites are accessible at the touch of a button it is not even that you have to give to click a physical button to get there or if you do stop on a on a screen, on a glass screen for you to get into these social networking sites.

Now, what I am go, with the keeping the gambling machines as a background now I will move on to social networking sites and maybe give some examples about mobile games as well. But prior to that I have some quotes from people in the tech industry and I want you to guess who could potentially have made these statements. So, this is a fairly long one Facebook is about bringing people closer together and enabling meaningful social interactions that that can be good for your well being and that is time well spent. Any ideas on who would have made this statement?

Student: (Refer Time: 26:11).

This is Mark Zuckerberg, ok. This is CEO of Facebook. Now, there is a reason why I have put this symbol the phrase time well spent. So, keep that in mind while we while we move ahead and there is another code. So, the thought process was all about how do we consume as much of your time and your conscious attention as possible. Any ideas on who did this? Who said this?

Student: (Refer Time: 26:35).

Ha.

Student: (Refer Time: 26:36).

Well, actually it is the first investor and the first president of Facebook, Sean Parker ok. So, now, you can see the, you can see the relation between the people who are actually

responsible for building the social networking sites and gambling machines, right. Look at the common phrases that you find there they want to talk about attention, they want to talk about how much time you are going to spend and more importantly they it is coated, it is sugar coated in all these phrases time well spent meaningful interactions with family and so on. I mean I agree that there is there is that are immense advantages with social networking sites, but there is also another side to using these, using these systems and how easily accessible it is to them.