

# Dr Mark A Runco

## What the latest research is telling us about creativity

### Speakers:

**Nick Skillicorn – Innovation and Creativity Expert and Host of Innovation & Creativity Summit**

Dr Mark A Runco

### Expert Interview transcript:

**Nick Skillicorn:** Hello every and welcome to a very very special interview at the innovation and creativity summit 2017, I am very happy to have Dr. Mark A. Runco the editor of the preeminent journal on creativity, the creativity research journal with us today to talk us today about the science of creativity, Mark it's lovely to have you.

**Dr. Mark Runco:** Thank you, happy to be here.

**Nick Skillicorn:** So what we are hoping to get out of today's session is to give people who might not be that familiar with creativity research and understanding of what's actually happening out there from an academic and scientific perspective. So instead of just people talking about their artistic expression of creativity, there are a lot of people like yourself and the people you work with actually studying creativity. One thing that has come out in the last couple of years is the question of what exactly is creativity when you are studying it and one of the articles you wrote recently answers this

**Dr. Mark Runco:** True, there is a standard definition of creativity that is used by researchers, it is certainly not my own definition the article which you referred to compile the points of views about how to best define creativity, and there is a fair amount of consensus although admittedly the consensus is among scientists and researchers and people who believe that we can study creativity scientifically. When I refer to the sciences it is introduced under field and the definition applies across genetics and organizational studies, psychology, my own background in the cognitive sciences, education, they are very broad definition which enhances on originality and also effectiveness, those two things make up the so called standard definition of creativity. Creativity is all we use all forms of our expressions, there is always originality, novelty or it's unique but that by itself isn't sufficient because things can be wild and crazy and worthless. They have actually done research for psychotics and psychotic individuals can be very original but their thinking is not effective, it doesn't solve a problem, there is no fit. Creative things are both originality and effectiveness and there are some other things that might be brought in. if we talk about cross cultural research for example, there is an anesthetic component that's more important in certain cultures and certain domains and one of the things that I think is very important is authenticity, the fact that creative things are all authentic but the key, The CNT definition is originality and effectiveness.

**Nick Skillicorn:** One thing that I have always asked myself, looking through that article and looking through these definitions is intentionality, the intention of producing something original and effective also part of the definition or is there a reason why it's not in there.

**Dr. Mark Runco:** Well, sometimes it is, I often recognize intentionality, I am not quite sure why it isn't always there but I do know that there are many people with more historical perspective that recognize sometimes creative things appear to be unintentional. There is a whole lot of discussion about luck and site geist which means you are in the right place at the right time, serendipity, finding something when you are looking for something else, so if you look historically, many creative breaks through appear to have resulted when the people are not intentionally trying to solve a particular problem. So that suggests that maybe we recognize intentionality but not required. So I think it's a very good point but maybe interdisciplinary perspective and the value inside insights that historians and case studies biographers provide to us.

**Nick Skillicorn:** What about your own history with the study of creativity, what's your background?

**Dr. Mark Runco:** I am a cognitive psychologist and I was very lucky to be interested in psychology even as a high school student, I majored in psychology as an undergraduate but what has always interested me is creative thinking and so I went to cognitive psychology, that's been a little while now, also cognitive psychology is now subsumed under the more general cognitive sciences and of course I have tried to keep up but that brings in artificial intelligence and computers and of course the neuro sciences and linguistics, its cognitive science rather than cognitive psychology but my own academic work as a student was specifically cognitive psychology and its probably true that most interesting to me is studying creative thinking in particular which of course is what cognitive psychology is all about.

**Nick Skillicorn:** I know this. one of the reasons I am so excited to have you here and what we are going to talk about for the rest of the session along with the fact for those who don't know, the man in front of you literally wrote the book on creativity as we mentioned at the beginning of the session, you are also the editor of the creativity research journal which means you are at the fore front of reviewing basically all of the ground breaking research into the field that is coming out there.

**Dr. Mark Runco:** It feels great watching you to have that perspective for exactly that reason. I see so much that there isn't even publish and it will be in review but because of the period of review process and I do stay well informed about what people are thinking and judgments and evaluations. It's been quite bit of work but definitely an education worthwhile.

**Nick Skillicorn:** There is a couple of things that I wanted to bounce off you to find out where is the thinking in the field and hopefully people watching and listening can find out a bit about their own creativity based on the research out there and the first one is around the brain and creativity. A lot of people have this idea that there are left brain people and right brain people and some people just naturally have a better brain when it comes to creativity. What are your views on brain structure and how that affects creativity?

**Dr. Mark Runco:** Well this is one of the booming areas and may be the most exciting and fastest growing. In fact in a way you could capitalize ideas. what I mean by that is you really need the right at practice and right (inaudible) things have changed dramatically, I have been doing this work for over thirty years, since I started as an undergraduate, but thirty years ago people think about left

and right chemistry and the right chemistry is the more intuitive one and the left is more logical and linguistic and linear sequential if you will but that left right distinction was gross, that means it was very general and it was influential way back into the Nobel prize winning work Freg Rogers Perry who worked for a very small group of epileptic individuals who needed a coma soratomy because of the epilepsy , the two hemisphere of their brain were split and he realized though the two hemisphere of the brain are a little bit specialized and the people took that an jumped from the logical left hemisphere and intuitive right to creativity but it was a leap and it was not based on good scientific research. Fortunately with a new methodology especially the fmri's in particular some excellent work is being done looking at the whole brain and branian process which of course is vile and as you know not surprising with this being a big shift from questions of brain localization, where in the brain creativity occurs, people don't think that way anymore at least there are neuroscientists. Now we realize that there are networks and systems within the brain, meaning that some of this is done over here and some of this is done over here. So brain localization is no longer that pressing of a question or if it is which part of the brain is involved in the network that is required for creativity, that being said the prefrontal cortex just seem to be involved in some way virtually all creativity. It's fascinating but the prefrontal cortex is responsible for executive function, decision making and judgment, but an interesting thing happened, it's called the hypothalamus. Hypothalamus in the prefrontal cortex, the evaluation, the decisions and the judgment of the pre frontal cortex seem to be not inhibited but diminute, putting the background if you will and certain phases of the creative process, so hypothalamus seems to be involved with much of the originality, free association into the fleets of creativity, although it is a process, at some point the pre frontal cortex and judgment evaluation ticks in, probably to ensure and this is simplifying some but due to ensure the standard definition . You might have a hypothalamus for originality but it's going to be effective too so the prefrontal context reconnects with the network to ensure that there is also effectiveness. So if I were to summarize the neuro scientific work, systems and networks, neuro specific localization and then also the hypofrontal and prefrontal cortex playing a role but not a constant one throughout the process, throughout the creative process.

**Nick Skillicorn:** I love the fact that there is now finally so much research to back up this idea that there is no really such a thing as a left brain person or a right brain person, it's about every one's brain just activating at different times and at different ways. A lot of other people have some other myths around which types of people are creative and which other people aren't and a lot of that unfortunately is people forming distinctions between groups of people, like for example some people think that men are more creative than women or that western cultures are more creative than eastern cultures or even that there is genetic differences between certain people that make some people more creative than others. What has the research told you about those sorts of differences if any?

**Dr. Mark Runco:** The way you described it is pretty accurate. There are certain views of particular groups and domains. In fact one of the most pressing or the most prevalent is the art bias, there are many people who believe that you have to be artistic to be creative and unfortunately it's in our educational system and many teachers even though they have great respect for diversity groups and for diverse expressions and creativity, they still sometimes make the mistake of thinking Oh this child isn't artistic therefore not creative. People tend to correlate art with creativity and there is a good reason for that because creativity is sometimes not constant in a particular domain or it may only

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work in certain parts of the process or phases. Really what I am saying is in the art it's the most obvious, that is creativity is very obvious, it is only ambiguous to be creative. So unfortunately people who have formed these ideas tend to look for creativity primarily in arts and the artists. My own belief is that we are all creative although we have different ratings of potential which is what genetics fits in. we don't inherit a gene for creativity, we don't inherit a fixed amount, we inherit much like our arrays of possibility where we are within that range, It is a matter of our experience, our intentions, our resources and so on. Some people do have just like they do with high probably different potentials but everybody has a range of potentials and it doesn't matter which domain in which individuals working in. in fact much my own recent work looks at creativity in the everyday domain not working in the art or science or language or math or music but creativity in a conversation, in getting dress and coping with hassles and surprises, the spontaneity of a small little micro problems that we encounter in the day to day life , I think that's perhaps one of the most important expressions of creativity dealing with life especially everyday life. So I really although I know it especially on the level of expertise, there are no main differences, and I do think everyone is creative and the creativity really if you look forward is expressed and apparent in everyday life and in everyone's life. I will say one more thing about that because you did mention sex differences and here we have another sort of bias, I don't really know if anybody at this point thinks men or women are more creative or boys and girls . although there was a historical bias if you went back a hundred years ago and opened up an encyclopedia or who is who and looked at famous people including creative people, there will be a bias towards men and this is no longer with us, of course women and girls have certain hurdles and disadvantages but actually men also have some of their own, but these days these people recognize men and women, boys and girls are all creative so the sex difference thing is actually is really just a historical artifact and just as you know women didn't vote, they didn't attain the highest levels of education 100 and 200 years ago. Also same way unfortunately their creativity not supported as well and not recognized from the work community at least to the degree than men.

**Nick Skillicorn:** It sounds like if I am understanding you correctly, the research is saying that in the debate of nurture versus nature, the genes you are born with versus the way you are brought up, the way you are brought up and the way you are nurtured seem to have more of an effect on the creative potential that you end up using.

**Dr. Mark Runco:** I think that is accurate as a kind of tangent , there is genetic work on creativity and there are now a few dozen studies, I have actually work with genetics finding different receptors called drd2 and drd4. dr for the dopamine receptors that have some correlations were certain parts of creativity but that's almost like working at a normal level and jumping to behavior. you can't do that, that's too much of a joke. Similarly you can't go from the chemistry to the genetic though behavior. And especially something with creativity, where its paula genetic, it isn't going to be one gene and as I said the range with high, I don't know where the range of potential is but some of the problems that inherited with range of potential genetically for height of interest, I mean there might be as much as five to six inches from down here to lots of exercise encouragement down here. They might be five to six feet, there's probably inches and I say creativity is also has an enormous range and that's another way of saying exactly what you get. It nurture part of it, that your effort and your resources, and your support, education, your culture these things all leading to and determine the likelihood that you will invest in creativity and then behave in a creative fashion

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**Nick Skillicorn:** I think that I saw the paper that you might be referring to or a similar one on genetics about the link about these specific genes and creative potential and the figure they came out with was around nine to ten percent correlation between those genes.

**Dr. Mark Runco:** That sounds a little misleading, I mean how would you say you know what percentage of your height is and experience you know so that's true you can come up with percentages just like you can come up with correlations or other statistics, you can do that in genetics, its under science and its chemistry. I have actually heard it's slightly higher between nine and maybe twice that but to me you put a number on that is a little misleading. I would use a genetic contribution to creativity but I also wouldn't be surprised if Einstein didn't inherit his range may have been here and higher of course not. He may not have been maximizing his range, he may not have been. I just don't like interpreting the numbers and percentages and correlations and extrapolating from there to performance of behavior. so I added that number is probably pretty dam correct but I am not sure what means is.

**Nick Skillicorn:** This concept of nurture and taking it to the next level then a lot of people are probably watching this and they want to find out what can I do now in my current situation to improve my ability to come up with this creative ideas. What is the research telling us about what helps creativity and what actually hurts creativity.

**Dr. Mark Runco:** Well, it's optimistic, that is the effort to support creativity, make a difference. I would say and I do get that question pretty regularly often from people who are interested in their own you know the fulfillments of their own potentials but educators, organizational managers and supervisors and I think the answer is a pretty damn optimistic one, there are some very specific things, an enormous product that is making the right decision, deciding to, you can take a lifespan perspective here because even things like college major or when you go to school, either decisions often individual or family, they can pick it up, there are different schools which have more resources and more proofs and creativity of decisions are also about where to invest your time. You might say I want to take the extreme, you might practice a creative expression in your arts or coding data or I think doing research can be very communicative finding and solving problems and so you can make decisions to allocate your time in ways that actually give in practice and thinking creatively and you can make decisions which put you in an environment where creativity is appreciated. If someone is interested in fulfilling your creativity potential, if someone works for a boss or a company that doesn't think creativity is very useful. You want to work in a place where there is appreciation for it, at that end, if you do that, I have said that here before, there's going to be resources and there are going to be creative people, there is going to be appreciation for it, there's going to be tolerance because creativity means that you might be trying new things and there used to be risk tolerance in the setting and again much of this is making the right decision and put yourself in the right place. Also decisions about how you behave, how you think. It's pretty easy to go through life and you encounter a problem, you might do the same thing to all we have always done. You follow a habit or routine, you might follow a prediction or you can make the decision to driving that train expressing originality and to incubate your time and to intervene and consider other alternatives so that the distinction between sticking with assumption routine happier tradition or going with something new and experimenting, taking a risk and postponing until you consider alternatives. Those are decisions, I am not going to make a decision now, I am going to wait, consider other things, I am going to talk to people, I am going to do my homework. Here's the obvious thing but I did that in the past, I am

going to try something new. So decision making is an enormous part of being creative and exercising your creativity. Attitude of course overlaps with decision making, attitude is enormous and this is especially for managers and teachers, they can model like display a creative attitude and their employees and their students and their charges will realize that's a good attitude is valuable in the setting and they will imitate, to use the psychology term, they will try the same attitude as well. Attitude, decision making, they are all those particular tactic and strategies that are good for problem solving. Everything from questioning your assumptions and shift perspectives and the dozens of these first I call them tactics because sometimes I identify a problem, I think well you know I could be in the state where I want to try something original and why not try working backwards. Maybe I will shift my perspective and try this on its head or seeking someone else. You can try problem solving techniques I suppose is the other way of describing it, I like the word tactic. Decision making, attitude, tactics and problem solving techniques roll in going to contributing enormously to creativity behavior.

**Nick Skillicorn:** What about one in which I talk with my clients is getting variety of experiences

**Dr. Mark Runco:** That's very very beginning, I will put that in kind of decision making and after you provide the right experience, diverse experience and new experiences are all very good. There is a very big research on that to be diversity of experience everything from case studies of individuals who have travelled or moved frequently or relocated to even on the next smaller level perhaps which might consider late pay to write for particular experiences in solving a problem or diversifying the experience and then try problem solving. Diverse new experiences these are very good, that's the decision people should make, trying new things, being around new people and other new experiences on the creation which you meant by that, I think you are a 100 percent right .

**Nick Skillicorn:** What are the things on the other end of the spectrum about things that hurt creativity, perhaps things like I know there is a bit of debate in the community now around caffeine levels, things like sleep levels where people in start ups are working a hundred and twenty hours a week to be as innovative as possible, then the ultimate question around alcohol and drugs and all of those, what are your views on that?

**Dr. Mark Runco:** Well, those are actually kind of difficult questions, I think is probably just alcohol and drugs, it is likely that people frequently perceive the benefit but it's not there isn't an authentic benefit, it's a little bit like research where people research, have a little few drinks and think they have a great idea and you know they are making notes about a novel when they show it up and it's all junk, it's not very good at all or maybe the alcohol or there are certain drugs and you hear that judgment and so we are really not evacuating things in realistic fashion. There are, you almost can't look at the drug and alcohol question without bringing domain in the equation because here are certain domains like music which if you look historically, music and musicians, famous musicians have had so much difficulty with drugs and alcohol. so many people might say what the correlation there is, it is correlation which means it may not be causality, it could be that there is creativity down here that leads to musical ability but also leads to a kind of open mindedness that takes you experimenting with drugs. It's a hidden third variable and if might appear to have a correlation between musical ability and drugs but in fact they are not constantly related, they are both dependent upon something else. And there are all kinds of possibilities for that, the mood disorders come into play there, some people say that depression well that can help with creativity and it might

take you there to a substance abuse. We don't really have very clear questions about, I don't think any of those, I know the caffeine, sleep, taking walks is not a big thing which I love, I take a walk every day, I do agree with (inaudible) it's kind of tying away creativity theory with say something like walk and sometimes sleep and sometimes the other things that you mentioned can change your perspective. So It's almost like you are put in a situation where you are going to do and take advantage of one of the tactics I mentioned earlier. You take a walk, it's time away from the problem, your mind relaxes it goes in diverse directions instead of following the same old pathways, the same old routines. Sleep can do the same thing, So these things can very well be beneficial, I don't think we have good explanations for why and I also pretty not sure it depends a little bit and maybe quite a bit on a person, there are people, individual differences and what we see as support and an opportunity, one example that comes to mind is competition. There are some people who because whether a competitive situation, they think well I have to go this direction, there's a set goal, I am going to be judged, they are not creative at all. Competition inhibits creativity for some people and the extreme, there are people who are only creative when there is competition like oh men the competition is here and I am going to try all kinds of new things and I call them individual differences and this things apply pretty broadly. That is there are individual differences, and most things of course caffeine and sleep you are talking about are physiology. so I think there may be somewhat fewer individual differences but I am very hesitant to offer any generalization without recognizing any individual differences.

**Nick Skillicorn:** Taking that into another level, you were editing the creativity research journal, you said earlier that you get to see some of the best research out there for the last couple of decades, what sort of the a couple of the research pieces and data sent in interesting insights on creativity that has come out in the last couple of years that really picked your interest and got you excited

**Dr. Mark Runco:** Well, a few things come to mind. The first one or two actually will show my interest, my un bias in creative thinking and cognition, I am normally interested in the neuro sciences, I am as active as I can be in that field, I go to conferences, I present papers usually I dangle here are the creativity theories and the cognitive models and the neuroscientist and I dialogue and try to bring neuroscience together with the creativity theory but there is some wonderful test of creativity theory, the theory divergent thinking for example, theory of verbal associates where we are finding ways to test these with neuro scientific apparatus and technologies. I am very interested in some work that a student of mine who graduated a few years ago got, sort like a idea on a cognitive hyperspace and for years people have been using the metaphor of divergent thinking and test of divergent thinking to get a creative potential. These are really a test of creativity, they don't guarantee creativity but they are pretty indicative of the potential for creativity. Divergent thinkers but centric realized that most people talking about divergent thinking or testing it really weren't really getting divergent thinking ironically enough. Divergent means to go in new directions, people can succeed on divergent thinking test which is really just a very open ended test to which an individual can produce all kinds of ideas some of which might be original, kind of find out that you can be original on an open ended divergent thinking tasks even if you follow one chain of thought. There is almost no divergent, you are moving in your further and further down an associate pathway, you might become more remote about these so called more remote associates but you are not really changing directions which are implied by divergence. Celtric did his dissertation and we will be doing some work to see that, I think that we have some good tentative evidence to creative

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people do in fact their thinking does in fact change. You might think about one thing down one cognitive pathway. Well the way to solve this problem is with money, a lot of money, bring in more money, get donations, creative people you know they will take the tangent and they will say well it will be also good also to change the problem and let us take another chance we call hyperspace because of course you can go where you are changing directions is going into a new dimensioning. In thinking you can go with the end dimension, you can go in the hyperspace and I think that might be a good model of creative thinking to be able to make all these terms and keep changing that seem to be very conducive and be helpful for originality. One part of the standard definition so I really am fascinated by this work, cognitive hyperspace, that way the work I mentioned earlier about hypofrontal which is proposed as theory but now we are seeing with thanks to the new apparatus support for that, in terms of brain activity it does diminution in the prefrontal cortex, some work on cultures, very interesting work on the benefits of multiple languages and bilingualism. For years that has been thought to be beneficial if an individual learns more than one language, the idea was that your brain and certain of your cognitive system is very flexible and through that, if that flexibility pays off and it's expressed as creativity and their definitely something to that, actually I have worked with a group and we have done some statistical controls taking flexibility away from through correlations, the level of bilingualism and the level of creativity and the correlation between those two diminishes implying that they do work together, bilingualism and creative thinking in large part because of cognitive flexibility which of course you can turn around and say okay flexibility, having flexible thoughts, being able to make changes and to trying new things. Flexibility apparently is a very good thing for creativity. I guess those are the three things that come to mind, hypo frontal, flexible thought, bilingualism and the cognitive hyperspace with more thought. You know every issue with the journal and say you are right here

**Nick Skillicorn:** This has been extremely and interesting. I have got all of the journal articles that I still need to read through. We are coming up to the end of this session but one last thing I wanted to ask you about is the summit about creativity and innovation, so from your experience and your research, what sort of things can companies do to support creativity and idea generation and innovation.

**Dr. Mark Runco:** Well I believe that innovation does depend on creativity and I am certainly not along with that business schools and businesses. I agree that creativity is necessary though not sufficient for innovation. Innovation you are very practical and there must be some implementation, and so there is a difference. I am comfortable with most people I don't want to include it in business, I would agree that creativity is a prerequisite for innovation and actually that's helpful right there because it means that what we know about supporting creativity can be brought into and mapped onto business. I have actually written a few things about and talked a few times in businesses about learning from education. The thing is that a teacher can support a student's creativity, modeling creativity, appreciating it, providing time for it, practicing tactics and ensuring that there is a setting which signal supports for creativity. There are analogies in the business environment that people work very well. It will be very good for example if there is a culture of creativity that is where it's very clear that creativity is a great thing even things like idea boxes are good things because if a company wants ideas from employees, there is an implicit message there that we value creative ideas, new ideas and employee input. It is helpful if the hierarchy is creative, it would be virtually impossible to say well you know here's at this level we need you to be creative but no one else in the

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hierarchy is creative and appreciates creativity, you are going to have some problems. Evaluations and judgment are going to very frequently hinder creativity, at least certain parts of the process probably most part of the process. But if employees don't think they can take risks, if they think they can be over looked for bonuses and raises or be redirected by the boss, they are less likely to think divergently and to invest their time into original problem solving. Risk tolerance is very big in business in fact it's almost three things together, the recognition that it's okay to take risk but also tolerance, tolerance is even more broadly it's very important, tolerance for different perspective, tolerance for different work styles, tolerance for we talked about reaching diverse experience, it could be that the creative individual really needs to take walks and take your time, study a new field and talk to people elsewhere in another culture or another business, that maybe what it takes, you need a box . a manger who understands that okay there are a lot of individual differences, I don't know where that's headed but I know that creativity often requires that kind of experimentation and diverse approach and something I talk about is tolerance. Tolerance is enormously important, it's one of the things I always talk about with the managers and educators and even more broadly, I think culturally is about the best thing we have, tolerance of diversity.

**Nick Skillicorn:** Mark I am sure we could keep speaking about this for hours and hours on and that's coming to the end of our session now, if anyone really wants to really recommend you, get the book creativity by Dr. Mark A. Runco, we are also going to get a link up on screen and the description where people can find out more about your work and the insights that you have, why don't you quickly tell us where's that going to take them.

**Dr. Mark Runco:** Well, the textbook, it is a textbook, it is written for as broad as student audiences that can, it does use research although it is often in translating the meaning of the research, frankly the feedback I get and the fun I had writing it is the textbook has a chapter on education, on the brain, on organizations, on social perspective, historical perspective that the second edition I added a political and a philosophical chapters. So there are about thirteen chapters and everyone has a different perspective on creativity and I know for feedback really seem to like that, they always do a great deal of fun to do that, the website has lakes of talks like this that I have given all of my papers and books, a blog, there is a blog on it, so you have to try, it's a new thing for you you have to try new experience.

**Nick Skillicorn:** That's markrunco.com isn't it?

**Dr. Mark Runco:** Markrunco.com

**Nick Skillicorn:** Perfect. Dr Runco, it's been an absolute pleasure having you here; I look forward to speaking again wit you soon.

**Dr. Mark Runco:** Good. I enjoyed that, Thank you for your time.