



**A crowd of sages equals  
a sage crowd? - On  
wisdom of the crowd in  
psychological research**



**English  
podcast transcript**

# Everything is nothing

## An introductory podcast to Daoism

### English transcript

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*ES: Hello, and welcome to Wisdom Talks. The podcast accompanying the METIS project. The internet portal for intercultural wisdom literature and wisdom practices. To be found on [www.metis.ethz.ch](http://www.metis.ethz.ch). My name is Eliane Schmid, and I will be hosting today's podcast centered on a phenomenon or effect called 'Wisdom of the Crowd'.*

*In case you were wondering what crowd wisdom is or how a crowd can be wise, then this podcast will hopefully shed some light on your questions. Michael Hampe, initiator of METIS and I are happy to welcome Professor Dr. Ralph Hertwig here at the ETH studio today. He is the director of the Center for Adaptive Rationality at the Max-Planck-Institute for Human Development in Berlin. Mr. Hertwig, thank you very much for being here today.*

RH: Thank you very much for having me.

*ES: I'll start right away and ask: 'Wisdom of the Crowd' – this term seems to suggest that wisdom does not only pertain to individuals, but is found in a crowd of people. As discussed in*

*our last podcast with you, concerning your research on the psychological wisdom or wisdom has a lot to do with decision making. Does this hold true for 'wisdom of the crowd' as well?*

RH: You always start with such easy questions. I think, one thing we need to understand first here is that the term 'wisdom of the crowd' is really used as a metaphor.

And what it is meant to describe and characterize is that, sometimes, of course not all the times, the combination of people in teams, in collectives, in institutions can help to arrive at better decisions. But this is not always the case, it is sometimes the case under specific conditions and maybe it's also not even that surprising because if you distribute knowledge, if you distribute processing capacity and so on, then it's not too surprising that sometimes combining more than one opinion, combining more than one judgment or choice can lead to a better outcome.

*ES: I see. So, we talked also before when we were preparing for this podcast how the crowd works collectively – maybe sometimes clear and sometimes mysterious ways. And now I would still like to understand better what is meant with this effect, this 'wisdom of the crowd' effect.*

RH: Yeah. Maybe we should specify that a little bit more. There are many situations in which we try to make predictions for instance, or we try to make inferences in the previous podcast for instance, discussed the situation where different doctors are looking at an image, say a skin lesion, and they need to figure out whether that skin lesion is indicative of cancer or is benign. And the question now is, am I better off as a patient if only one doctor looks at it? Maybe even the most expert doctor in the hospital, or whether more than one doctor looks at it and then I aggregate the different opinions of the doctors, or to use a different example, as you can imagine in many contexts in political decision making, we need to make important predictions about the future. Say, we need to predict what the inflation rate is going to be next year, or we need to predict, for instance, how much gas we need to import in order to free ourselves from importing gas from Russia, or we need to predict what is the course of the war that is unfolding in the Ukraine.

So, as you can see, the political decision makers are forecasters very often. And here comes the question: should we rely on one forecaster or one expert or should we aggregate the forecast of more than one person and thereby hope to make better forecasts? And the finding is that under specific conditions, combining the forecast of more than one person leads to better outcomes. And that's what this term, 'wisdom of the crowd' typically describes.

*ES: Now, I would say we have two experts here, one on decision making and one on wisdom. And if we look at the wisdom traditions that we talked about in previous podcasts, we often have one person that guides his or her disciples and takes them on a certain path, tries to teach them to behave in certain ways. And you've talked about that – maybe it's better to have a group of people, a group of experts to come to better decisions. I would like to bring you in here, Mr. Hampe, to ask how do we bring these two things together? We have on the one hand this tradition of the one sage, and on the other we have this, maybe this is a new phenomenon, but that we would like to bring several experts together.*

*MH: Well, you can deal with this question probably only if you see a relation between experts and wise people or sages. And often those people who were called sages or wise people gave advice in a particular situation for a particular person, so they were able to recognize quite quickly in what situation a person is and what kind of person she or he is and what might be good for this person. So, they had an ability to understand somebody and a situation very quickly. And the question now is can there be an expert for an individual? Can there be an expert for a particular situation? I think, we nowadays consider experts as having a certain knowledge about a general field. Say, about the development of economics, the development of a disease or an illness.*

*And there you might say, four eyes see more than two eyes. And the more experts you have, the more you pool knowledge. Whereas if you look at a specific situation, you might doubt if there can be an expert for a specific situation. If you have three people looking at the situation, if the advice for a particular person would be better, or if the person would become confused by*

*having three or four people consulting him or her, I don't know what you would say to this relation between sages and experts.*

RH: So, the idea of a sage or an expert is not inconsistent with the idea of the 'wisdom of the crowd' because the 'wisdom of the crowd' to begin with, says only one thing that sometimes, using a group, using more than one opinion is a good way of making smart decisions.

And then the second question is assuming that we use a group, a collective to make a decision, we need to figure out how we now harness or enlist the 'wisdom of the crowd'. And that can be done in very different ways. So I can, for instance, use a majority rule. I just go with whatever the majority says, or I can aggregate judgments. I can do that when it's a continuous judgment. So when, for instance, I'm forecasting the inflation rate and I just basically aggregate them statistically, or – and that would also be consistent with 'wisdom of the crowd' – I try to figure out who is the best person in the group.

And that can, of course, from decision to decision can change. And basically, I'm betting then on this one person who is the best predictor. The problem then becomes is how do I predict who is the best predictor, the best forecaster? So I'm moving the problem to a higher level, but in principle, a group could have such a sage, but that sage may be a different sage from situation to situation. And then of course maybe the wisdom lies in finding out who is the sage for what situation. And so in principle, the sage tradition and the 'wisdom of the crowd' tradition need not to be incompatible. They could be brought together depending on what kind of aggregation rule or what kind of rule that you use in order to harness the 'wisdom of the crowd'.

*MH: Two virtues that are often connected with the idea of the sage are impartiality and humbleness. So, for example, the wise judge is supposedly impartial and is not taking sides and hears all sides. And the wise person is hopefully not arrogant about his or her knowledge, but is waiting what other people say in order to find out what his knowledge is really worth of. And perhaps a group is a good context to become impartial and to become humble. Wisdom might be supported by thinking not alone, but thinking in a group.*

RH: That could be. It makes also sense to me, but there's one concern that we should keep in mind. Importantly, there are certain conditions that need to be fulfilled for a group to make better decisions than an individual.

And so, for instance, one of the conditions is diversity of errors. Let me give you a very famous example of the 'wisdom of the crowd'. The way it was actually found out was by Sir Francis Galton, a very famous British scientist, who went to a fair and was basically observing a competition where individual people were estimating the weight of an ox. And many people did that. I think, over 1000 people did that. And then he collected their estimates and his belief was they have all no idea, and if I aggregate them then it turns out that they will be even stupider than the individual person in the group. And it turned out that the median estimate in the group was, I think if I remember correctly, just 1% off the true weight of the ox. But why is that? Well, it only works...so, this aggregation principle that by aggregating all these widely varying estimates and then coming up with a value, an aggregate value that is so close to the true value, that's almost unbelievable, it only works if people make different errors because then they cancel each other out. If everybody would basically have a bias, but the bias is the same, we are all overestimating the ox, then we wouldn't benefit from that aggregation effect. We need people to overestimate, and we need people to underestimate. And that's now the question is impartiality, does that mean that we all make the same mistake? Then that would counteract the dynamics that underlie this kind of 'wisdom of the crowd'. So, not quite sure how to think about that.

*MH: I think we would have to look for example at a jury and the jury decides if somebody is guilty or not. If that has something to do with these margins of errors, if you would say that a jury of 12 people more likely finds out if somebody's guilty or not than just a single judge?*

RH: I totally agree with you. That's an excellent example where it's not clear to me that we can easily say that the errors are canceling each other out. Maybe that's the very point that we want more than one person to make the judgment because they may bring in different

perspectives and may weigh the evidence differently than just one person. And maybe by having a jury then we are less dependent on the one bias that the single judge may have. So, it could be that through these statistical effects of aggregation, we are reaching more fairness and not because the individual person is more fair, but potentially the aggregate outcome, the result is a fairer one. That's one way of thinking about it. Not sure whether everybody would agree with me, but that's possibly one way of thinking about that connection.

*ES: Is there, in that sense, a critical mass for 'crowd wisdom'? How many people do you need to have to have a crowd wisdom? Could we create this 'wisdom of a crowd'?*

RH: Yeah, we are a perfect group. Three people is really already very good because for instance, with three people you could use something like the majority rule because if two of us were of one opinion and one person is of a different opinion, then you already have a majority. If two people, it's much harder. It turns out that, and there are a number of studies on that, that it's not the case that if you have say three or four people and then you increase that to 30, that the effect is 10 times bigger.

So, there's a marginal decreasing utility of adding more people to a team. You get a lot of the effect of 'wisdom of the crowd' already with relatively small crowds of people. And there's also the idea, let's say you have a bigger group of people, say 10, there's also the idea that maybe we don't use all the 10, but we use what's called a selected group. And the selected group could be, for instance, the three experts that turned out in the past to be the best forecasters. And so, rather than using all 10, we are basically looking only at this selected group of elite forecasters and they may then produce a 'wisdom of the crowd' that is even bigger than if we had looked at all 10. Though you don't need hundreds of people in order to harness this 'wisdom of the crowd' effect.

*MH: Often wisdom related to our life is also connected with authenticity. Say, that you can only decide what is right for your own life if you stay authentic. Say, if you know what you want and*

*if you are sure that you want to follow this or that goal and this authenticity is sometimes corrupted by other people who want to persuade you into something else.*

*So, one traditional view is that the crowd is dangerous, that other people might be dangerous because you might lose your track, you might forget what you really wanted. And nowadays, if you look in the internet and the job of influences, you might be seduced into a fashion or into a certain lifestyle just because you have seen that this influencer has many followers and you lose your own track or your own gut feelings. Isn't there also a 'danger of the crowd' so to say?*

RH: Absolutely. And I think, I emphasized in the beginning that one needs to look at the condition and there's one important issue that we haven't talked about, but should talk about. Go back to the example that I gave you with estimating the weight of the ox. Now, here we have what's called a statistical group because the people who did the estimates, they didn't talk to each other, right? These were all individual estimates and then Galton came along, picked up the estimates and basically turned them into a group by aggregating the estimates. A lot of the 'wisdom of the crowd' effects are effects in which we only speak of statistical groups. They are not actually interacting with each other. So even for instance, if three doctors look at an X-ray image, they don't need to talk to each other, each one gives an independent...and actually, often you want independence, because only if you have independence, you benefit by the way from diversity of errors. If we talk to each other, our errors may not be independent anymore and then we don't benefit from the diversity of errors. So, very often it's important that we have only statistical groups where the members are independent. Now, Herr Hampe, what you talk about is a very important point, namely very often we are interacting groups, we talk to each other, we interact with each other. And then the question is, what are the kind of effects that emerge from interacting groups? And there of course, and I'm not saying that interacting groups are always worse than statistical groups, again, that's a much more complicated issue, but in interacting groups you can of course have all kinds of dynamics that also lead to an impairment of decision making. There is, for instance, the famous effect of what's called 'groupthink'. And with groupthink what is meant is that there's for instance a person in a group whom everybody considers an expert or the person



who speaks first and he or she expresses a very strong opinion. And then what may follow or what may happen is that everybody conforms to the opinion of the person who first expressed his or her opinion. And basically, you no longer have the benefit of independent opinions, but you have one opinion that anchors all other opinions and suddenly all the positive effects of the 'wisdom of the crowd' doesn't happen anymore.

And these are examples that suggest that we need to make a qualitative difference, and really think about the differences between statistical groups and actually interacting groups and they can lead to very different outcomes and interacting groups trigger a lot of dynamics that you do not have in statistical groups.

*ES: I would like to jump in right here because I know there's also the term or what we would call 'swarm' or 'collective intelligence'. How does this play into what you just said?*

RH: The 'swarm intelligence' is often used by behavioral ecologists and they try to capture with that notion the phenomenon that there's for instance a flock of birds and that you see that these birds as a group, as a collective, they do very complicated things or do something that seems highly coordinated, highly synchronized, highly symmetrical. You find that same phenomenon, for instance, in fishes, also that they do smart things, for instance, in evading predators or they do smart things in terms of coordinating their movements.

And so, the swarm itself seems to have an amazing intelligence. And then the question is how does that emerge? And often the finding is that emerges from very simple rules that the individual uses with regard to the surrounding individuals. And because every individual does that with the next set of circle of surrounding individuals, you have an emerging intelligence that is an emergent phenomenon. It isn't part of the intelligence of the individual, but it's something that emerges from the swarm and that's what is typically meant with the term of 'swarm intelligence'.

*MH: But couldn't there also be a hysteria of the swarm? We just had crises of a few banks in the US and also here in Switzerland, and sometimes these crises are not necessarily caused by*

*people being well-informed about the situation of the bank, but you hear that your colleague has withdrawn her money from the bank and then you think, well, I might get my money out of the bank as well, and then a rush onto the bank happened, then the bank collapses, although its balances might not be that bad and hysteria might have happened.*

RH: You are absolutely right, and again, only because we make decisions in a group or we make decisions that are informed by others around us doesn't mean that we make good decisions. Again, we need to look at the circumstances and for instance, say under normal business conditions, imitating what other people do, for instance, in the financial market may be a very smart decision because I'm basically benefiting from the distribution of knowledge in a group, but in an emergency situation or in a situation where at least some experts that are considered to be leading experts or even some other people whom I'm observing and typically following in advice, if this person starts doing something and through my behavior I am imitating that person and other people who observe me imitate me, what could happen is that a certain behavior is being amplified, is being escalated. And that, of course, under some circumstances can lead to enormous crisis such as the one that you are describing, which again means that what is often a very reasonable, rational thing to do, namely observing other people's behavior, imitating it, can under some specific circumstances also be totally counterproductive and trigger a kind of behavior that from a collective point of view or an institutional point of view is totally undesirable and even dysfunctional and can lead to catastrophic outcomes, absolutely.

*ES: I'm wondering here, because we also talked before about culture and social norms, when does 'wisdom of the crowd' or 'swarm intelligence' develop into something like a social norm? Or are those two things separate? Could you say that if we collectively now believe in a certain thing, does that eventually become a social norm that we all follow?*

RH: The people who talk about the wisdom of the crowd, typically not talking about norms or the evolution of norms? Actually, I don't really have a good answer to your question. I would have to think about it. Sorry, I have to skip this question.

*MH: In philosophy, norms are sometimes related to habits, that if you do something again and again, if you imitate, say your father having a cigarette after dinner two times or three times, then you develop a habit of having a cigarette after dinner and then because of the habit you have the urge to have a cigarette after dinner. So, it has become a norm.*

*So, by imitating other people, you might fall into a habit and once you've fall into a habit, there is some norm working inside of you. And if group thinking and 'swarm intelligence', has something to do with imitation, it might also have something to do with the emergence of habits. And if habits are the basis of norms, then Eliane might be right, that imitation leads in the long run to norms.*

RH: Okay. Let me give you a different answer. In psychology, there's a very important observation of the power of so-called descriptive norms, and that is typically distinguished from what psychologists call injunctive norms. Injunctive norms are norms that tell you basically what you should be doing in a particular situation. What is the right thing to do?

Descriptive norms in contrast are norms about what the majority of other people do. So in a particular situation, so, if we step outside of this building and see that many people just throw the trash on the ground, then that's a descriptive norm. This is the descriptive behavior of people.

The injunctive norm is very clear, you should use the garbage container and not just throw it on the ground. And it turns out that one observation from psychology is that these descriptive norms, so not the normative principles, what you should be doing, but what other people do and the extent to which you observe them and see that, oh, the majority of people, and they are really good examples of that thing, for instance, about a context in which most people around you are not vaccinated against Corona. Then this is a strong descriptive norm.

And then the authorities can still try to communicate the injunctive norm that we should all be vaccinated and this is the right thing to do and we should protect ourselves and others, but if you in your social circle find out that the majority is not vaccinated, then this descriptive norm may be much more powerful than the injunctive norm. So, in this sense, yes, absolutely there is

a connection and thank you for helping me to figure it out. There is a connection between what other people do, the norms that are evolving and then, of course, these norms can very much guide my behavior.

*ES: So, maybe this was actually a nice example of 'small crowd wisdom' exercise, but I would like to take this in another direction and I would like to see the connection between democratic and undemocratic societies in connection to both 'swarm behavior' and 'crowd wisdom'. So, is research being done, for example, to see how so-called 'swarm behavior' is different under democratic societies? Is there one instance where this is more prevalent than another?*

RH: I'm not totally sure that I understood the question, but I think one way of answering the question touches on an important issue. In typically, the 'wisdom of the crowd' research, we typically have a criterion according to which we can judge whether the judgment is better or not. So, for instance, eventually we know whether the X-ray image signals cancer or doesn't, or think of the example of the ox, we do know what the true weight of the ox was.

Now, in democratic decision-making where we are also relying on collective decisions, where we are aggregating votes, there is, at least in many cases, not necessarily ground truth. And the reason why we are aggregating people is not necessarily because we believe that it leads to a better decision, but we do that out of the sense that everybody should have a say in the decision, that everybody's vote counts as much as everybody else's. That's the core notion of democracy. We are distributing the power across all of us. And that sometimes in a democratic decision-making process may even lead to a decision where experts say, well, this may not have been the best decision to make, but it came about through a democratic decision-making process and we value that fact much higher than the fact that it's necessarily not the best decision to make. So here, we have to make a distinction between the decision quality and the process and giving people a real saying in the process may be more important than reaching the best decision.

*MH: But isn't the ability of a crowd to come to a good decision depending on the mood or the emotions that are most prominent in this crowd? And often we describe democratic situations, or democratic groups as groups, where you do not have to fear to utter a deviant opinion? Where you do not have to be brave in order to speak out? And we describe despotic situations as situations where you have to be very brave in order to utter a deviant opinion, where it might be dangerous not to go with either what the despot says or what the mainstream says so that you only get a multiplicity of opinions, or point of views if you are not scared to speak up.*

RH: I totally agree with you that the freedom of expression and the fact that in a democratic society that we are not afraid to also utter contrarian opinions is very important. And going back to the wisdom of the crowd, that may be a condition for diversity of perspectives and diversity of errors. So absolutely, I agree with that.

At the same time, also when we think, and are aware of opinions that are now being uttered in the digital world. And as you may know, there's for instance the term of an 'infodemic', that in the context of the Corona pandemic, there's a tsunami of information and often also false information where people take the right to express all kinds of opinions, including opinions that have potentially harmful consequences for others.

And that of course, poses a new problem, namely to what extent we want to, in the digital world, moderate the content that we are encountering and experiencing and that we are also permitting. And for instance, coming from the German context, there are also norms including legal norms where the society and the policymakers say that this is an opinion that we do not allow to be publicly expressed, such as, for instance, holocaust denial.

So, as much as I agree with what you said, I fully, fully endorse that, there is also an ongoing difficult discussion as how do we deal with opinions that are bordering or representing conspiracy theories, false information, fake news, et cetera, et cetera. So, it's an interesting and very relevant politically very interesting debate to have.

*ES: Now, we've been on a very large scale talking about democratic countries, in a sense, and politics and these big questions...time is running out again, and now, I would like to break this*

*down, come back to the individual and ask both of you, how would an individual best – and I know I asked a similar question before, but I want to go into this again – how would an individual best inform themselves via, for example, ‘wisdom of the crowd’? How can a person find help in this big concept?*

RH: I mean, I can give you an example. ‘Wisdom of the crowd’ is not just one thing. We talked about that before that, for instance, there is a distinction between statistical groups and interacting groups. And if you have statistical groups, you could use majority rule or you could use the select crowd rule.

I mean, so there are different aggregation rules. So it's not one thing. And so, I cannot give you a simple answer, but I can give you an example, what I'm doing in my own group – and I'm really being educated by my own group here as well – is that if we discuss a certain topic and we try to do something that in the good old days has been called brainstorming. And brainstorming, and that's a good example, Herr Hampe, how it's often being implemented is that one person starts with an idea and expresses that idea and then other people chip in. Now, what we know from research, that's really a bad idea because whatever your opinion was on the topic will affect everybody else. It's already setting an anchor and influencing myself so you don't get my independent opinion on the topic.

So, what I've learned is that if I want to really collect ideas on, or opinions on a particular topic, everybody thinks about it for some time, writes it down, and only once it's written down and we have preserved the independence of the opinion, only then people start interacting and discussing, because then I have both, I have the emerging consensus in a group or opinion in a group, but I also have the individual opinions. So, that would be a much better way of implementing brainstorming than we typically do it by influencing each other the moment the first person speaks up and everybody else hears it.

*MH: One classical source for ‘wisdom of the crowd’ is perhaps Aristotle's politics because he thought that a human being cannot find his or her way being alone, but you need a city state. And what happens in the city state is that you argue about what is good and what is just, and*

*only if a group of people argues about what is good and just, you will find a happy life, but you have to be a god, according to Aristotle, to lead a happy life on your own outside the city state. But that's certainly not as differentiated a view than the psychologists have today.*

*ES: So, in the end, it is again our job, I guess, as individuals to stay curious, to look around, to listen, to inform oneself, to listen to Wisdom Talks, for example, also to come to decisions, to try to find good ways of decision making. And on this note, I would very much like to thank Ralph Hertwig and Michael Hampe, for being here with me today and to think about all these complex questions. Thank you very much.*

RH: Thank you.

MH: Thank you.

*ES: At this point, I would like to also invite our listeners to follow further Wisdom Talks as well as to curiously plunge into the multitude of texts and further podcasts that can be found on our website: [www.metis.ethz.ch](http://www.metis.ethz.ch), the internet portal for intercultural wisdom literature and wisdom practices. You can also find more information in the show notes. Thank you very much for listening and goodbye.*

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