Q&A - JMP intro to Design of Experiments May 5, 2020

Question	Answer
When selecting the range of important factors. to what degree does the response need to be linear in the selected range?	Good question. The definitive screening design will enable you to capture curvilinear behaviour of factors because it is 3-level (low, mid, high) for each factor. So the behaviour does not need to simple linear over the factor range.
Can you switch between displaying coded and natural values	That should be possible. Is there a reason that you would like to do that?
yes, I would like to do my initial analysis in coded units and then switch to natural units when presenting the analysis	Okay. lets get back to you on this.
How about residual analysis	Good question. In the Fit Model report there are lots of views that help with residual analysis.
	Yes, we will send a link to the recording.
I know, but maybe you should emphasis the importance	Great. I will ask Christian if he gets time.
power or type II error. Can you show how to do that	I will ask Christian if he has time.
Can you recommend an analyze method for a custom design with 3 factors?	For a Custom Design the model script should be in your JMP data table. You can run that and then remove inactive/insignificant effects if you wish.
my table of correlation only shows the 8 factors and not also their interactions	Okay. The interactions should be there as alias effects. It might depend on the version of JMP you are using. Which version are you on?
how do you choose your K-fold factor?	Christian is answering this. Let us know if you need to know more and we can answer by email.
will also the journal be available to consult?	Journal is here: https://community.jmp.com/t5/Christian-Ramskov-Larsen/JMP-Hands-on-Workshop-Intro-to-Design-of-Experiment/ba-p/264058
When do we use a classical design vs definitive screening design?	Christian is answering this by showing a case study. This blog also helps, I think: https://community.jmp.com/t5/JMP-Blog/Proper-and-improper-use-of-Definitive-Screening-Designs-DSDs/ba-p/30703
Sorry, but this was a bit too high level. Lots of terminology that was incomprehensible for a new beginner. Is there a glossary of terms within jmp?	Hi Steven, sorry it was a bit too high level for you. We can point you to some introductory materials. I recorded this webinar that I think starts from a very simple point: /www.jmp.com/en_be/events/mastering/topics/essentials-of-designing-experiments.html
Thank you	No problem!
	Please let us know how we can help get you started with DoE.
How do you actually break the correlation between the factors in DSD (even those that you know are correlated)	You don't need to break correlations. Some correlation is okay. As long as the correlation is not perfct (r =1).

Can I use JMP to show me a correlation map when analysing data not generated from a design - historical data from a production for example?	Yes, use Evaluate Design platform, which you can find in the DOE menu.
When I analyse data I am often in doubt which "personality" and "emphasis" to use (fit model). Can you give some rules of thumb or comments on that?	yes, there are a lot of different personalities. Least squares is the standard. Start with that first and then learn the rest.
Why do you use K-fold and not all possible models?	All possible models is also a really good option. It can be not possible though when there are too many effects. There is not one right way.
Is 90 the absolute minimum acceptable power?	No, it depends on the situation. Power analysis relies on quite a lot of prior information that you might not have so you should not always worry about it.
Shouldn't the Pvalue be above 0.05?	That is a "rule of thumb" as we say in English. There is no hard threshold on what the p-value should be to be accepted in the model. Lower p-value does mean more important.
will the recording of this session be available on jmp.com?	Yes, we will send a link to the recording.
my color map of correlations do not show the option of blue and red?	Which version are you using?
JMP pro 15.0.0	OK. Lets take this question off line. We will get back to you by email. Dont worry about it for now.
No color option available in my jmp... am I doing something wrong?	Which version are you using?
How did you find that table?	Sorry, can you let me know which table you are asking about. Thanks.
Blue to red option is not there. Jmp 15.	We can take this off-line
Will we get this sent to us after the presentation?	Hopefully that answers your question.
Why is it important to have simulated responses on?	Simulated Responses is important for this workshop becasue we will use it to generate some simulated response data. It is not essential when you are designing an experiment for a real-world problem.
Okay thanks	No problem. Please feel free to ask any questions here in the Q&A.
The blue/red setting is not possible in my version.	Again, lets take this off-line.
A follow up question based on the question from Peter Skou: Couldn't you also Multivariate Scatter Plot MAtrix?	Yes. The good thing about the Evaluate Design is that it codes the higher order effects in a way that is required to look at their correlations.
What is difference between P-value method, K-fold, BIC, etc.?	Christian will answer this.
Starting over sorted the problem	Great!

What is the function of "set random seed" option	That is a feature mainly for teaching. In some cases there is a "random" aspect to desing creation. If you want students to get the same design you can ensure this by setting the same random seed.
what is the formula for no. of runs in DSD's	Goo question. For continuous factors, n = 2k+1, where n = number for runs and k = number of factors.
	Except when k is odd, then n = 2k + 3
Thank you. For categorical factors?	It depends how many. But approximately, the number of runs, n, for a DSD is of the order 2 * k. This makes them a very efficient choice. In addition you can add extra runs as Christian showed.
	There is a limitation that DSDs can only include 2-level categorical factors. If you have 3-level categoricals a Custom Design would be required.
what are the limitations of DSD's?	https://community.jmp.com/t5/JMP-Blog/Proper-and-improper-use-of-Definitive-Screening-Designs-DSDs/ba-p/30703
	This blog by Brad Jones (DSD inventor) covers the limitations.
How many responds can be added? In the example there is only one.	There is no limit. In most real examples you will have many responses, I expect.
When do you know if interactions should be added? Do you always do it or only for components that you know is interacting?	There is not a simple answer to this. You should use your experience to determine if interactions are likely to be important. DSDs are a good choice in any case because the experiment will find the important effects
	As long as there are not too many active interactions, that is
Can you describe a bit the different and similarities between JMP and Modde?	Best to take this questions off-line
what's the difference between yield & simulated yield in the example?	Simulated Yield is a formula column. It doesnt matter for this workshop but in other cases you might wish to use this formula for simulations.
will we get all the Q&As also?	That is a good question. We will find out if it is possible to ge the Q&A to you as well.