**Webisode 10 – Systematic Maps**

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EPPI-Centre Evidence Tools, Products, and Projects – A series of webisodes from the Evidence for Policy and Practice Information and Co-ordinating (EPPI) Centre. Hosted by AIR’s Center on Knowledge Translation for Disability and Rehabilitation Research (KTDRR).

YouTube video: <https://youtu.be/wo6Z5V6yvmg>

JOANN STARKS: Welcome to another session from “EPPI-Centre Evidence Tools, Products, and Projects.” This series of brief webisodes will introduce the audience to several tools, products, and projects of the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre). Based at University College London’s Institute of Education, the EPPI-Centre focuses on the development of systematic reviews and studies the use of research evidence.

I am Joann Starks from the Center on Knowledge Translation for Disability and Rehabilitation Research or KTDRR, at American Institutes for Research. The Center on KTDRR is sponsoring these webisodes with support received from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) in the U.S. Department of Health and Human Services.

This session focuses on systematic maps. Our presenter is David Gough, director of the EPPI-Centre, and is also professor of evidence informed policy in practice. David's interests include the development of systematic review and the study of research use. Welcome, David. I will now hand things over to you.

DAVID GOUGH: Thanks, Joann. In this presentation, I'm going to talk about systematic maps as a form of systematic review, and a stage of systematic review, and a review product in its own right.

So this slide shows some of the common stages in doing a systematic review. You form a review team; review involves quite hard work, it needs more than one person. And hopefully, you involve people who are going to use the review in the review process to make sure it's fit for purpose.

And you'd work on clarifying review question, what we would call unpacking the conceptual framework, and specifying what studies are going to be included, the inclusion criteria. Then search for such studies, screen studies to make sure they really fit your needs, describe the studies, appraise them to make sure that they are the right quality and relevance for your needs. And then use the findings of the studies to create a synthesis of the findings. And then simply tell people about those findings.

So, the first few stages of that review process could be considered a map because the first four stages in this graph, in this diagram aren’t describing studies, is a mapping stage. You're describing what studies you've identified and are including in your review.

Once you've identified those studies, then you synthesize the findings from them. So a review could be seen as having two stages-- a systematic map stage, and then a systematic research synthesis stage.

So if you're doing a systematic review, and you're describing studies in your review in just a very simple way, just the names of the authors, and where the studies were published, that, in a way, is producing a simple map of the studies. But you may not even be aware that you are doing it. It's kind of implicit in the process that you tell people what your studies are.

But my young colleagues over 20 years ago started to be aware that we could use this mapping stage as a useful part of the process. There are other things we could do with it. So Grant Peersman was the first person in 1996, and I and colleagues learned from that and we did a systematic review. I did one in 2001, and here’s one in 2003.

So this process of describing your studies-- go back to the previous slide-- shows that it is this description of the studies that is important. So that you know what the studies are in review.

So why are you describing the studies? Well, one reason is to know what the studies are. You refer to the studies by their author names, et cetera, because you have to manage those studies through the process of doing a review, you need to know what they are. They are the source of your findings that you are going to use in your synthesis.

But there is then the second purpose, which is you may want to know what these studies are for other reasons that we'll come to discuss in a minute.

A third reason you describe the studies, you code information from the studies, is because you need to know about individual included studies in order to quality and relevance appraise them to make sure that they should be included in your synthesis.

And fourthly, of course, you need to pull out, you need to code, you need to identify, you need pull out the findings of each study in order to undertake the synthesis. So there are four reasons why you might code information on every included study in a systematic review.

So if you're doing a systematic review, and you're going through coding, and you can think, well, what type of coding information do I want for each of those purposes?

So what about the codes you might want to have for mapping? Well, mapping is describing the nature of the research field. What do you want to know about the research field? Whatever your review is on, that may be your topic of interest, something you studied, what is it you'd like to know about that research field?

Could be pretty bibliographic information. It could be geography, where the studies have been undertaken. It could be the research method used. It could be the extent they've used theory, or the nature of the theory they've used. It's totally up to yourselves as reviewers as what you want to map.

Some people also includes study findings in a map. But that's a bit unusual because if you're doing the mapping before undertaking any quality relevance appraisal, then you would be a bit careful about the findings, because that may not be ones that you can trust and if you are going to do quality and relevance appraisal, and you're going to do synthesis, then that’s the synthesis stage of a systematic view.

Now when we do maps at the EPPI-Centre, sometimes, there are codes that we just kind of routinely always would like to know about. There might be three or four variables, like the ones listed here. So we call those generic mapping codes, ones we frequently use.

And then there may be other mapping codes that we use if we're doing reviews in particular areas. For example, reviews in education, or reviews in social care, or reviews in public health. There might be particular bits of information we'd like to know about studies in those topic areas. So those would be topic- or discipline-specific mapping codes. And then there may be mapping codes, which are just for that particular map. So they'll be map-specific or map review-specific [codes].

Often, we code studies on about 15 variables for mapping purposes. But sometimes, we've done up to 40 or 50 codes when we were particularly interested in knowing more about the nature of the research field.

So why are we doing this? Well, the first reason is one that I've been referring to already, which is just describing the nature of the research field. What is being studied. By whom. How is it being studied. A part of this is also what is not being studied.

Mapping the research field identifies things that maybe we should have studied, but nobody has done so as yet. Or they haven't studied it well enough to be included in a systematic review. So identifying such gaps we call map gaps--Gap maps.

So, I'll give you an example about why you might want to be describing the research field. So many years ago, a UK government ministry approached us and asked us to undertake a systematic review, a synthesis review. And it was on a topic we didn't know much about. And we asked the ministry whether they knew much about this area and whether they knew about what research was being undertaken, et cetera.

And the ministry didn't know. So we said, well, maybe it's a bit premature to do a synthesis. Maybe we should just describe the research for you. So, to do a systematic map and just stop at that point, and not do a synthesis.

And because it was a complicated issue and question, we did some primary research. We did some interviews, and we did some focus groups to try and understand about the nature of this research question. And to form the variables that we decided to code in the studies. it also defined the breadth of the question and the inclusion criteria. So, it was a biggish project, and it was only a systematic map. We didn't continue through to doing a synthesis stage.

Another kind of general example is that when funders decide to give grants to people to do primary research studies, it might be that they get to fund a study that's already been undertaken. Or the study they're funding may not be terribly useful, considering what's already been studied. So more and more people are saying before funding any new research, it's a good idea to map what is currently being studied. It could be also to synthesize the findings of those studies, so we know what we know from what is being studied.

If you fund research without knowing what's already been studied, I say it's like going shopping without first looking to see what you've already got in the cupboard. It's not a sensible, strategic use of your resources to do that.

So, describing the research field, what is being studied, and how it's being studied, is one purpose of mapping. A second purpose of mapping is that if you are going to carry on to do the synthesis, the map may inform how you do that synthesis.

It may be that when you describe the included studies, you find that they are very numerous, they're too numerous to easily synthesize. Or they're too heterogeneous to easily synthesize. You may decide that it'd be more sensible to synthesize just a subset of the map. In practice, that means that you're narrowing your review question. You're narrowing your inclusion criteria and therefore, you're only synthesizing a portion of the originally included mapped studies.

That can be very useful, particularly when you're not sure at the beginning, what studies are out there. But knowing that you have this option to narrow your review question at the mapping stage means that you could also be a little bit broader in your initial review question. People are often very narrow in their review questions because they want to ensure that they're able to achieve the review. But if you know that you can make an adjustment in the mapping stage, then you can be a little bit more confident about having a broader question at the beginning.

Alternatively, you could have an overt strategy that you're going to have a broad map, and then have a narrower synthesis or maybe even a series of narrower syntheses.

So one review group that we supported many years ago, they did a broad map, and then undertook five separate syntheses of five separate subsets of the map. So they had a broad question, and they then narrowed that question into five subquestions.

Another reason for undertaking a map is that if you do proceed to the synthesis, and you have the synthesis findings, then a description of the research field, the description of what is being studied, provides you with a context for understanding those findings.

It may be that the findings aren't very full, very sufficient for answering your review question. And if you look back at the map, that might be able to give you some understanding about what is being studied and what is not. A synthesis, the findings of a synthesis, are so dependent on the included studies, so they're very dependent on what has happened to have been studied, and how it has been studied. Maybe if the primary research literature had been different in its focus, in its richness, in its breadth, then the findings in your synthesis would be different. So the findings of a synthesis are not just about the nature of the world. They're dependent on the nature of the studies of that world.

So I hope this brief presentation has given you some idea about how important and how useful systematic reviews can be.

I wanted to finish just by referring to some terminological confusion. There is this term in the literature called scoping. And some people just use the word instead of mapping. And the first thing to say is that we hope that when people are doing maps or maps that they describe as scoping, that they're being systematic. You wouldn't want to have a non-systematic map. You wouldn't want to have a non-systematic scoping map.

But the word scoping is also used with a different meaning. It's also used to refer to a quick view of the literature. So it's a non-systematic quick surge, quick overview of what is being studied. So you can see that a systematic map and a systematic scoping map is a very different thing to a quick scoping look at the literature, including the findings.

This isn't a question of right or wrong. This is a question of just confusion in the terminology. We do not have agreed words for these things.

There can also be some confusion about people thinking that systematic maps are restricted to particular types of codings, variables. But I hope I've explained clearly that there is no limitation of what you can code in a map. It's totally up to what you, as a reviewer, are wanting to code.

And a third terminological confusion is the term mega map. Some people use the term to a very broad mapping question, with very broad inclusion criteria, so a very broad map. And some people use the term mega map to mean a map with lots of coded variables. I referred before to some maps we've done with 50 variables coded. So those are very detailed maps.

So again, it's not right or wrong. They're just different things. You can have broad maps and you can have very detailed maps. And you can also have maps of maps. So organization called 3ie has recently undertaken a map of all the different maps they've been able to identify in international development, and that can lead to thinking about areas of studying international development that may also need maps to describe the research fields within those areas.

So if you'd like to know a little bit more about this way of thinking, about some reviews and maps, we write about these issues in our textbook on systematic reviews, An Introduction to Systematic Reviews, Second Edition, 2017--particularly in Chapter 3. Thank you for your attention.

JOANN STARKS: Thank you very much, David, for sharing the EPPI-Centre perspective on systematic maps. We also want to thank our funding agency, NIDILRR, for supporting this and other webcast activities. Please look for the other sessions in this series on the EPPI-Centre Evidence Tools, Products, and Projects.