What will this chapter tell me?

Having successfully slayed audiences at holiday camps around the country, my next step towards global domination was my primary school. I had learnt another Chuck Berry song ('Johnny B. Goode'), but also broadened my repertoire to include songs by other artists (I have a feeling 'Over the edge' by Status Quo was one of them).[1] Needless to say, when the opportunity came to play at a school assembly I jumped at it. The headmaster tried to have me banned,[2] but the show went on. It was a huge success (I want to reiterate my earlier point that 10-year-olds are very easily impressed). My classmates carried me around the playground on their shoulders. I was a hero. Around this time I had a childhood sweetheart called Clair Sparks. Actually, we had been sweethearts since before my newfound rock legend status. I don't think the guitar playing and singing impressed her much, but she rode a motorbike (really, a little child's one) which impressed *me* quite a lot; I was utterly convinced that we would one day get married and live happily ever after. I was utterly convinced, that is, until she ran off with Simon Hudson. Being 10, she probably literally did run off with him – across the playground. I remember telling my parents and them asking me how I felt about it. I told them I was being philosophical about it. I probably didn't know what philosophical meant at the age of 10, but I knew that it was the sort of thing you said if you were pretending not to be bothered about being dumped.

If I hadn't been philosophical, I might have wanted to look at what had lowered Clair's relationship satisfaction. We've seen in previous chapters that we could predict things like relationship satisfaction using regression. Perhaps it's predicted from your partner's love of rock bands like Status Quo (I don't recall Clair liking that sort of thing). However, life is usually more complicated than this; for example, your partner's love of rock music probably depends on your own love of rock music. For example, if you both like rock music then your love of the same music might have an additive effect, giving you huge relationship satisfaction (*moderation*), or perhaps the relationship between your partner's love of rock and your own relationship satisfaction can be explained by your own music tastes (*mediation*). In the previous chapter we also saw that regression could be done with a dichotomous predictor (e.g., rock fan or not) but what if you wanted to categorize musical taste into several categories (rock, hip-hop, R & B etc.)? Surely you can't use multiple categories as a predictor in regression? This chapter extends what we know about regression to these more complicated scenarios. First we look at two common regression-based models – moderation and mediation – before expanding what we already know about categorical predictors.

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[1] This would have been about 1982, so just before they became the most laughably bad band on the planet. Some would argue that they were *always* the most laughably bad band on the planet, but they were the first band that I called my favourite band.

[2] Seriously! Can you imagine a headmaster banning a 10-year-old from assembly? By this time I had an electric guitar and he used to play hymns on an acoustic guitar; I can assume only that he somehow lost all perspective on the situation and decided that a 10-year-old blasting out some Quo in a squeaky little voice was subversive or something.

Installing custom dialog boxes in SPSS

Although you can do both moderation and mediation analysis in SPSS manually, it's a bit of a faff. It will require you to create new variables using the *compute* command, and in the case of mediation analysis it will limit what you can do considerably. By far the best way to tackle moderation and mediation is to use the *PROCESS* command. This is not part of SPSS; it exists only because Andrew Hayes and his colleague Kristopher Preacher have spent an enormous amount of time writing a range of tools for doing moderation and mediation analyses (e.g., Hayes & Matthes, 2009; Preacher & Hayes, 2004, 2008a). These tools were previously available only through syntax, and for inexperienced users were a bit scary and fiddly. Andrew Hayes wrote the *PROCESS* custom dialog box (Hayes, 2012) to wrap the Preacher and Hayes mediation and moderation tools in a convenient menu and dialog box interface. It's pretty much the best thing to happen to moderation and mediation analysis in a long time. While using these tools, I strongly suggest you spare a thought of gratitude that there are people like Hayes and Preacher in the world who invest their spare time doing cool stuff like this that makes it possible for you to analyse your data without having a nervous breakdown. Even if you think you are having a nervous breakdown, trust me it's not as big as the one you'd be having if *PROCESS* didn't exist.

The *PROCESS* tool is what's known as a custom dialog box. SPSS includes the ability to add your own menus and dialog boxes, which means that you can write your own functions using syntax, but then create a custom menu and dialog box for yourself so that you can access the syntax through a nice point and click menu. Of course, most of us will never use this feature, but Andrew Hayes has. Essentially, he provides a file (**process.spd**) that you download, which installs a new menu into the menu. From this menu you access a dialog box that can be used to do moderation and mediation analysis.

You install *PROCESS* in three easy steps, which are illustrated in Figure 10.2 (MacOS users can ignore step 2):

1 *Download the install file*: Download the file **process.spd** from Andrew Hayes' website: http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html. Save this file onto your computer.

2 *Start SPSS as an administrator*: To install the tool in Windows, you need to start IBM SPSS as an administrator. To do this, make sure that SPSS isn't already running, and then click on the start menu (). Select , which will display a list of programs installed on your machine. Within that list, there should be a folder called *IBM SPSS Statistics*. Select that folder to display its contents. You should see this icon within that folder: (don't be worried if the number is different from 20, it just refers to the version of SPSS that you have installed). Click on this icon with the *right mouse button* to activate the menu in Figure 10.2. Within this menu select (you're back to using the left mouse button now) . This action opens SPSS but allows it to make changes to your computer. A dialog box will appear that asks you whether you want to let SPSS make changes to your computer and you should select .

3 Once SPSS has loaded select , which will open a standard dialog box for opening files (Figure 10.2). Locate the file **process.spd**, select it, and click on . This will install the *PROCESS* menu and dialog boxes into SPSS. If you get an error message, the most likely explanation is that you haven't opened SPSS as an administrator (see step 2). Once the installation is complete you'll find that the *PROCESS* menu has been added to the existing menu (Figure 10.3).